

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**

**MAY 2, 2014 ORDER MODIFYING AND RENEWING 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) (collectively 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, February 28, 2014, March 18, 2014, April 9, 2014, April 11, 2014, and April 18, 2014. A request to further modify and renew the TUCP Order for another 180 days was submitted on April 29, 2014. This Order acts upon that request and parts of another request dated April 9, 2014, that were not previously approved or amended by the April 29 request.

**2.0 BACKGROUND ON THE TUCP AND TUCP ORDER, INCLUDING ASSOCIATED
MODIFICATIONS**

In the January 29, 2014 TUCP the Petitioners requested temporary modification of certain 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

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.

(Plan) for the San Francisco Bay/Sacramento-San Joaquin Delta Estuary (Bay-Delta) (attached). Specifically, 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 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 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 the Petitioners 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 the Petitioners 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 Order further required the Petitioners 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 the Petitioners 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 Modified Order adjusted the temporary export limitations when precipitation events occur that enable the Petitioners 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 the Petitioners 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 the modified Delta Outflow levels of 3,000 cfs originally approved on January 31, 2014, through the month of March. It

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 DCC Gate be closed from February through May 20 of each year.

continued to allow the Petitioners 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 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 D-1641, but the additional Delta Outflow requirements contained in Table 4 of D-1641 were not being met, the Order permitted exports of natural and abandoned flows up to the Export Limits contained in Table 3 of D-1641. The March 18, 2014 Modified TUCP Order also clarified the use of exported water when D-1641 Delta Outflow or DCC Gate requirements are not being met. All other provisions of the TUCP Order continued to be in effect.

2.5 Drought Operations Plan

On April 8, 2014, the Petitioners released a Drought Operations Plan (DOP). The DOP was developed in coordination with the RTDOMT and lays out DWR's and Reclamation's proposed range of coordinated operations from April through mid-November. The DOP also identified proposed changes to the TUCP Order and various Endangered Species Act (ESA) requirements. The DOP includes information about past and proposed future operations as well as information regarding the effects of the operations on biological resources. Specifically, the DOP includes proposed operations assuming an average and a very dry hydrology.³ Under the drier hydrology, the DOP lays out proposed operations with and without temporary rock barriers in the Delta to reduce the need for upstream releases to repel salinity. Following release of the DOP, NMFS and DFW confirmed that the DOP conforms with ESA requirements. USFWS also confirmed that the proposed actions in April and May conform with ESA requirements, but due to concerns about the barriers stated that it could not make this finding for the proposed actions in June through mid-November at that time and requested additional information.

2.6 April 9 Modification

The April 9, 2014 modification of the TUCP Order extended the Delta Outflow modifications of the March 18 Order into April. All other provisions of the TUCP Order continued to be in effect. This modification acted upon one aspect of DWR's and Reclamation's April 9, 2014 request, which was described in their April 8, 2014 DOP. The April 9 Modified TUCP Order stated that a comprehensive update to the TUCP Order would be issued in the near future to address other parts of the DOP and DWR and Reclamation's April 9 request that were not acted on. This Order addresses most of those additional changes.

³ The forecasts in the DOP are based on the March 1, 2014 90 percent and 50 percent exceedance runoff forecasts. The 90 percent exceedance hydrology assumes inflows from rainfall and snowmelt at levels that are likely to be exceeded with a 90 percent probability, or in other words, there is a ten percent or less chance of actual conditions turning out to be this dry or drier. The 50 percent probability is the 50/50 assumption - it is just as likely to be drier or wetter. Forecasts are updated monthly and account for recent storm events. These updates are generally provided by the 3rd week of the month.

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 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 requires 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 a pulse or pulses with an equivalent flow volume that is approved by the fisheries agencies. From the end of the pulse flow period through May, flows are required to be no less than 500 cfs. For June, Reclamation is required to operate to achieve the applicable NMFS Biological Opinion flows, dissolved oxygen requirements on the Stanislaus River at Ripon and D-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 allows DWR and Reclamation to export additional supplies while inflows are increased during the April and May San Joaquin River pulse flow period. Specifically, the modifications to the TUCP Order allows 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 are not constrained by meeting D-1641 Delta Outflow conditions, including Footnote 10 of Table 3 in D-1641.

3.0 UPDATED BACKGROUND ON THE CALIFORNIA DROUGHT

California is currently in the third year of a drought. Water year 2012 was categorized as below normal, calendar year 2013 was the driest year in recorded history for many parts of California, and water year 2014 began on a similar dry trend. Based on these dry conditions, in May 2013, Governor Edmund G. Brown, Jr. issued Executive Order B-21-13, which directed the State Water Board and DWR, among other things, to take immediate action to address dry conditions and water delivery limitations. In December 2013, the Governor also formed a Drought Task Force to review expected water allocations and the state's preparedness for a drought. Subsequently on January 17, 2014, Governor Brown issued a Drought Emergency Proclamation. The Proclamation 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.

On January 17, 2014, the State Water Board also issued a Notice of Surface Water Shortage and Potential for Curtailment of Water Right Diversions. The notice advised that if dry weather conditions persist, the State Water Board will notify water right holders in critically dry watersheds of the requirement to limit or stop diversions of water under their water right, based on their priority. The notice suggested that water right holders look into the use of alternative water supplies, such as groundwater wells, purchased water supplies under contractual arrangements, and recycled wastewater. In April the State Water Board posted information on projected water supply, demand and availability for the Stanislaus, Tuolumne, Upper San

Joaquin, Merced, Yuba, Kern, Kings, Kaweah and Tule rivers and the Bay-Delta indicating that curtailments are expected in these watersheds in the near future. For the Bay-Delta, the projection is that curtailments could go into effect as early as May 15 for all post-1914 water right holders, as soon as June 1 for all junior pre-1914 water right holders, and after June 16 for additional pre-1914 water rights with any remaining supply to be shared on a correlative basis among riparian users.

On January 31, 2014, DWR announced that except for a small amount of carryover water from 2013, customers of the SWP would get no deliveries in 2014 if current dry conditions persisted and deliveries to agricultural districts with long-standing water right claims in the Sacramento Valley may be cut 50 percent – the maximum cut permitted by contract – depending upon future snow survey results. On February 21, 2014, Reclamation announced that CVP agricultural contractors may get no deliveries in 2014, that municipal and industrial contractors may only get 50 percent of their historic use and that agricultural settlement contractors may be cut to 40 percent of their contract supply.

From February through April a series of precipitation events occurred that improved the dry hydrology and water supply conditions. However, conditions remain dry. Based on the April 1 forecast, the Sacramento and San Joaquin Valley Water Year Types are still classified as critical. Preliminary estimates of the May 1st snowpack also remain low at 11 percent of the April 1st average for the entire state. Rainfall and snow water content for the Northern Sierra is 60 percent of average to date for the water year. At the same time, storage conditions in key reservoirs also remain below average. Lake Oroville, the SWP's principal reservoir, is at 53 percent of its 3.5 million acre-foot capacity (65 percent of its historical average for the date). Shasta Lake, California's and the CVP's largest reservoir, also is at 53 percent of its 4.5 million acre-foot capacity (61 percent of its historical average). San Luis Reservoir, a critical south-of-Delta reservoir for both the SWP and CVP, is at 47 percent of its 2 million acre-foot capacity (53 percent of average for this time of year). Folsom lake, another CVP reservoir is at 56 percent of its 1 million acre-feet capacity (75 percent of average for this time of year), and New Melones Reservoir is at 38 percent of its 2.4 million acre-feet capacity (63 percent of average for this time of year).

Water allocations for the SWP and CVP also remain at very low levels. As a result of improved water supply conditions resulting from the storms in February and March, on April 18, 2014 DWR announced that it would not need to install rock barriers immediately, but would instead monitor conditions to determine if barriers are needed later this fall or winter. At the same time DWR announced that contractor allocations were increased to 5 percent. DWR's allocation to Feather River contractors with senior water rights (settlement contractors) were also increased to 100 percent. Reclamation has not changed its contract allocation to date.

On April 25, 2014, Governor Brown issued a Proclamation of a Continued State of Emergency related to the drought. The Proclamation finds that California's water supplies continue to be severely depleted despite a limited amount of rain and snowfall since January, with very limited snowpack in the Sierra Nevada mountains, decreased water levels in California's reservoirs, and reduced flows in the state's rivers. The Proclamation orders that the provisions of the January 17, 2014 Proclamation remain in full force and also adds several new provisions. The Proclamation directs: the State Water Board and DWR to expedite requests to move water to areas of need (including water transfers); calls on Californians to refrain from wasting water; directs various state agencies with funding authority to take actions to respond to the drought; requires DFW to conduct monitoring and work with agencies and landowners to implement

actions to minimize impacts to ESA listed fish; requires DWR and DFW to implement habitat restoration projects; requires the State Water Board to take actions to facilitate the use of treated wastewater to reduce demands on potable water supplies; directs DWR to take actions to address groundwater overdraft issues; directs various state agencies to take actions to address water supply and drinking water shortages; directs actions to address increased risk from fires; modifies certain noticing and public bidding requirements to expedite responses to the drought; directs the State Water board to adopt and implement emergency regulations as appropriate to promote water recycling and curtail diversions when water is not available; suspends California Environmental Quality Act requirements for certain activities; and suspends certain Water Code requirements.

4.0 ADDITIONAL ISSUES FROM APRIL 9, 2014 REQUEST AND APRIL 29, 2014 REQUEST

As discussed above, the State Water Board did not act upon all of the changes proposed in the April 9 request from DWR and Reclamation that were not immediately needed at the time the request was submitted. Specifically, for May, the State Water Board did not act upon the request to extend the modification of the Delta Outflow requirement to 3,000 cfs, the extension of the export constraint condition, or the request to modify the Western Delta electrical conductivity (EC) (a measure of salinity) requirement for the protection of agriculture by moving the required compliance point from Emmaton on the Sacramento River to Threemile Slough. This Order will address those additional changes. The April 9 request also included proposed changes with and without rock barriers for June through November 15. The April 29, 2014 request replaces the April 9 requests for modifications for the June through November 15 period. The April 29 request proposes to both modify and renew the TUCP Order pursuant to Water Code section 1441, which allows for temporary change orders to be renewed for up to 180 additional days. The April 29 request addresses most of the remaining issues from the DOP that have not yet been acted on. The April 29 request states that the proposed changes are intended to continue to conserve as much water as possible in upstream reservoirs in order to protect aquatic species, water quality and water supplies. The changes are expected to conserve storage to help meet fall Sacramento River temperature requirements and minimize potential impacts from a continuation of the drought into 2015. Combined, the remaining requests from the April 9 letter and the requested changes from the April 29 letter that have not been acted on⁴ propose to:

- Extend the modification of the Delta Outflow requirements to 3,000 cfs during May and July;
- Modify the Western Delta electrical conductivity requirement for the protection of agriculture by moving the required compliance point from Emmaton on the Sacramento River to Threemile Slough on the Sacramento River from May through August 15; and
- Modify the Sacramento River at Rio Vista flow requirement from September through November 15 for the protection of fish and wildlife to 2,000 cfs.

⁴ The April 29, 2014 request also included a request to modify San Joaquin River flow requirements. The Executive Director already acted on that request on April 11, 2014 (see: http://www.waterboards.ca.gov/waterrights/water_issues/programs/drought/docs/20140411_revised_tucp_order.pdf.)

In addition to the April 29 request, DWR and Reclamation submitted analyses to support the finding that the changes to the Western Delta salinity requirement will not have impacts to other legal users of water. DWR and Reclamation also submitted a biological analysis of the effects of the changes on Delta smelt and longfin smelt as well as a concurrence letter from USFWS dated May 1, 2014, and a concurrence letter from DFW dated May 2, 2014, that the changes are consistent with ESA requirements. NMFS's April 8, 2014 concurrence with the DOP covers all of the above changes.

5.0 MODIFIED TUCP ORDER

This Order modifies and renews the TUCP Order based on the April 9 and April 29 requests from DWR and Reclamation. The Order does not provide written responses to objections and comments as was previously anticipated due to limited time and the large number of objections and comments received. Instead, this Order acts on most of the remaining changes from the DOP such that parties can comment on a fairly complete Order acting on the DOP at the State Water Board's workshop on May 6 on this matter. Written responses to objections will be provided after the workshop on May 6. Although written responses are not being provided at this time, the objections and comments received to date have been reviewed and considered, and modifications to the Order have been made where appropriate. Those modifications include: modifications to the export constraints on February 7, March 18 and April 18 to allow for additional diversions to improve water supply conditions for refuges and water users south of the Delta; addition of conditions on March 18 and in this Order that require the Projects to bypass inflows to satisfy prior water rights and reduce the effects of the changes on water quality and fish and wildlife; addition of a commitment in the April 9 modification to monitor storage levels to ensure that water is being maintained in storage to meet critical water needs into the future; and addition in this Order of reporting requirements to ensure that information is timely received to inform real time decisions.

This Order approves the requested changes to Delta Outflows during May and July. In the absence of the changes, the Delta Outflow requirement imposed on the Projects during May of this year would be 4,000 cfs pursuant to Footnote 10 of Table 3 of D-1641. Footnote 10 provides that if the best available May estimate of the Sacramento River Index for the water year is less than 8.1 million acre-feet (MAF) at the 90 percent exceedence level, the required Delta Outflow is 4,000 cfs on a 14-day running average. The current Sacramento River Index is 4.1 MAF. Accordingly, this condition applies. Pursuant to D-1641, the Delta outflow requirement for July during critical water years is 4,000 cfs on a monthly average. Footnote 8 to Table 3 also specifies that for the May through January period for flow requirements less than 5,000 cfs, the 7-day running average shall not be less than 1,000 cfs below the requirement. Additional Delta Outflow requirements are also contained in Table 4. Under the current hydrology, DWR and Reclamation also are required during May to meet 1 day of compliance with the Chipps Island requirements contained in Table 4. There are no additional requirements for July included in Table 4. This Order modifies the 4,000 cfs Delta Outflow requirement for both May and July to 3,000 cfs on a 30-day average and eliminates the additional Table 4 requirement for May. Footnote 8 remains in effect.

In addition, this Order approves the requested changes to the Western Delta EC requirement. Pursuant to Table 2 of D-1641, during critical water years from April 1 through August 15 the Petitioners are required to meet an EC of 2.78 mmhos/cm on a 14-day running average at Emmaton on the Sacramento River for the protection of Western Delta Agriculture. This order

changes the required compliance point from Emmaton on the Sacramento River to Threemile Slough on the Sacramento River⁵ from May through August 15.

This Order also approves the requested change to Sacramento River flow requirements. Pursuant to Table 3 of D-1641, the Sacramento River at Rio Vista monthly flow requirement in critical water years is 3,000 cfs during September and October and 3,500 cfs in November and December. In addition, pursuant to footnote 11, the 7-day average is required to be no less than 1,000 cfs below the monthly objectives. This Order modifies the Sacramento River at Rio Vista flow requirement during September through November 15 to 2,000 cfs on a monthly average and modifies the footnote 11 requirements to require that the 7-day running average flow be no less than 1,500 cfs.

In order to ensure the protection of prior water rights and reduce the impact of the changes on fish and wildlife and water quality, this Order also requires the bypass of inflows to Project reservoirs when the Petitioners are operating under the changes in this Order. In addition, this Order adds deadlines for reporting on conserved water pursuant to the Order and submittal of updated water balance information in order to ensure that information is timely received to inform real-time decisions. Lastly, the Order updates the export limitations.

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 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 of the January 31 TUCP Order.

8.0 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.

8.1 Urgency of the Proposed Change

The urgency of the changes included in this modified TUCP Order is consistent with the previous versions of the TUCP Order. As discussed above in section 3.0, while the hydrology in the Bay-Delta watershed has improved to some extent since the original approval of the TUCP in January, both the Sacramento and San Joaquin River watersheds are still experiencing critically dry conditions. In addition, reservoirs are still at below average storage levels resulting in continued impacts to cold water for fish and water supplies for other purposes. The changes approved in this Order are urgently needed to reduce impacts to cold water supplies for fish this

⁵ Threemile Slough is approximately three miles upstream of Emmaton.

year and in the future; and to make minimal improvements to water supply conditions this year; and to ensure that adequate supplies are available in the future to meet health and safety needs, repel sea water, and meet other minimal water supply needs.

8.2 No Injury to Any Other Lawful User of Water

The proposed changes will not injure any other lawful user of water because the changes will not result in a decrease in natural flows. 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.)

This Order requires DWR and Reclamation to bypass inflows at their SWP and CVP reservoirs while they are 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.

Modeling submitted by DWR and Reclamation in support of the change to the Western Delta EC requirement indicates that the change in the salinity compliance location from Emmaton to Threemile Slough may result in increases in salinity in various locations in the Delta. However, records of historic salinity measurements indicate that these increases would be less than what would occur without the Projects because the Projects ensure that salinity does not intrude upstream into the Delta by supplementing natural inflow with storage releases in very dry conditions like this year when salinity would have otherwise intruded far upstream into the Delta.

Further, the modeling supplied by DWR and Reclamation indicating an increase in salinity levels reflects the worst case circumstances assuming a very dry hydrology and that the salinity requirements would be met at Threemile Slough rather than Emmaton. DWR and Reclamation state that actual operations would attempt to achieve compliance at Emmaton. The Petitioners state that the reason for the requested change is to eliminate the need to operate with a buffer to ensure compliance at Emmaton as is typically the case. DWR and Reclamation state that while the modeling assumes compliance with the EC objectives only at Threemile Slough, actual operations would be expected to be between the two scenarios and more closely aligned with those forecasted under the compliance at Emmaton scenario. The Petitioners further provided information to indicate that water quality is expected to be adequate to meet both drinking water and agricultural requirements assuming compliance with the salinity requirements at Threemile Slough.⁶

⁶ North Delta Water Agency, a contractor with DWR submitted an objection to any future changes to the extent that the changes would violate their contract with DWR. Nothing in this Order relieves DWR of any additional obligations that DWR may have to North Delta Water Agency under its contract.

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

This TUCP Order provides a reasonable balance between protection of fish, wildlife and other instream beneficial uses of water and other needed uses for water from the Delta and does not result in unreasonable effects on those beneficial uses. Although fish and wildlife may be affected by the changes in this Order, the primary effects on fish and wildlife are due to the drought itself. Further, these 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. Despite several precipitation events since January, hydrologic conditions in both the Sacramento and San Joaquin River watersheds remain critically dry. At the same time, storage levels in all of the Project reservoirs remain below average, and water supply allocations remain very low as well. Without the proposed changes, storage levels would be further reduced and water supplies 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 and limited water supply needs also remains critical for this year and next. This Order allows for reservoir storage levels to be preserved while still providing minimal protection for fish and wildlife by meeting ESA requirements as determined by the fisheries agencies.

This Order is conditioned to require that operations be coordinated with the RTDOMT to ensure that actual operations do not have unreasonable impacts on fish, wildlife or other instream beneficial uses of water. The RTDOMT will coordinate real time operations based on current conditions and fisheries information to ensure that the proposed changes pursuant to this Order do not unreasonably affect fish and wildlife and other instream uses of water. The State Water Board has ultimate authority regarding any changes. This Order limits SWP and CVP exports to SWP and CVP contractors to minimum levels to further conserve water in storage for future use to protect fish and wildlife and to avoid impacts from diversions during low flow conditions. To ensure that water conserved by the proposed changes is available to use later in the season to reasonably protect fish and wildlife and other beneficial uses, this Order requires that DWR and Reclamation calculate and submit monthly records of the amount of water conserved through the changes authorized by this Order. This Order requires that water conserved be maintained in storage to protect water needed for salmon and steelhead and other fish species, used to maintain water supplies, or used to improve water quality. The Order requires the use of the water to be coordinated through the RTDOMT. To inform future decisions of the RTDOMT and the State Water Board, this Order also requires DWR and Reclamation to develop and submit monthly water balance estimates indicating actual and proposed operations through the end of the water year. In addition, this Order requires DWR and Reclamation to conduct necessary modeling and monitoring to inform real time operational decisions. This Order reserves the Executive Director's authority to require modifications to the Order to protect fish and wildlife or other uses of water based on additional information or changed circumstances. In addition, this Order specifically provides that ESA requirements must be met and that all inflows to project reservoirs must be bypassed when operating under the changes approved in this Order. As stated in the April 9, 2014 version of the Order, the State Water Board will also continue to monitor storage levels to determine if minimum required end of year carryover storage levels should be required to ensure that the Order does not have unreasonable impacts on fish,

wildlife and other instream beneficial uses of water. Based on the above, as conditioned, the Order will not unreasonably impact fish, wildlife or other instream beneficial uses of water.

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. As discussed above, hydrologic and water supply conditions in the Bay-Delta continue to be highly impacted by the drought and are inadequate to meet all of the demands for water from the Bay-Delta 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 make sure that storage conditions in the future are adequate to do so as well. 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 provides 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 evaluation required by Water Code section 1435 concerning the modification and renewal of the TUCP Order discussed above. Changes to the TUCP Order from the April 18, 2014 version are provided in **bold underline** and ~~**bold strikethrough**~~ 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~~ **January 27, 2015**.

1. Except as otherwise provided in condition 2, below, for a period not to exceed ~~180~~**360** 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 (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 D-1641 during the months of February, March, ~~and 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 D-1641 Delta Outflow requirements, DCC Gate closure requirements, Sacramento River flow and electric conductivity (EC) requirements** ~~March and April when footnote 10 of D-1641 is~~ **are** 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 1,500 cfs on a 3-day running average. ~~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.~~ During the ~~April through~~ May San Joaquin River pulse flow period, ~~when Delta Outflow requirement in footnote 10 of Table 3 in D-1641 is not being met as described above~~, 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 D-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. ~~DWR and Reclamation shall refine estimates of export amounts and deliveries required to maintain health and safety and shall provide these estimates to the State Water Board by 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.
 - d. Table 3 San Joaquin River flow requirements at Airport Way Bridge, Vernalis, from the date of this order through June are modified as follows:
 - o From 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.
 - o The 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).
 - o From the end of the pulse flow period through May 31, an average flow of 500 cfs shall be maintained.
 - o 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.**
2. During the effective period of this Order, if precipitation events occur that enable DWR and Reclamation to fully comply with the Delta Outflow, ~~and DCC Gate Closure,~~ **Rio Vista flow and Sacramento River at Emmaton EC** requirements contained in 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, 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 by the end 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 by the end of the following month.**
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. **While** DWR and Reclamation **are operating under the changes approved by this order, they** shall bypass natural and abandoned flows **in order to the extent necessary** to prevent injury to **senior water right holders other lawful users of water.**
8. This Order may be further modified by the Executive Director based on additional public input or changed circumstances. **Specifically, the State Water Board held 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.**
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.

STATE WATER RESOURCES CONTROL BOARD

ORIGINAL SIGNED BY:

Thomas Howard
Executive Director
Dated: May 2, 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 ≤ 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	----					
				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	----					
				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	----					
				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	----					
				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	0.7					
					Sep-Mar	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	C-2 (RSAC081)	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	19.0
-and- Montezuma Slough at National Steel	S-64 (SLMZU25)				Nov-Dec	15.5
-and- Montezuma Slough near Beldon Landing	S-49 (SLMZU11)				Jan	12.5
					Feb-Mar	8.0
					Apr-May	11.0
WESTERN SUISUN MARSH SALINITY						
Chadbourne Slough at Sunrise Duck Club	S-21 (SLCBN1)	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]	Oct	19.0
-and- Suisun Slough, 300 feet south of Volanti Slough	S-42 (SLSUS12)				Nov	16.5
					Dec	15.5
					Jan	12.5
					Feb-Mar	8.0
					Apr-May	11.0
				Deficiency Period [6]	Oct	19.0
					Nov	16.5
					Dec-Mar	15.6
					Apr	14.0
					May	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:

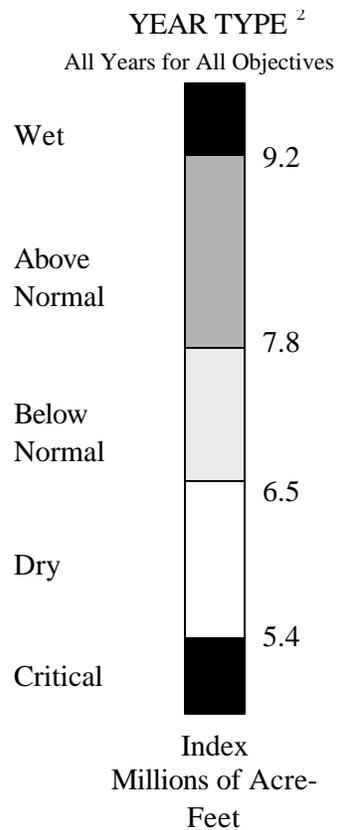
$$\text{INDEX} = 0.4 * X + 0.3 * Y + 0.3 * Z$$

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 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:

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

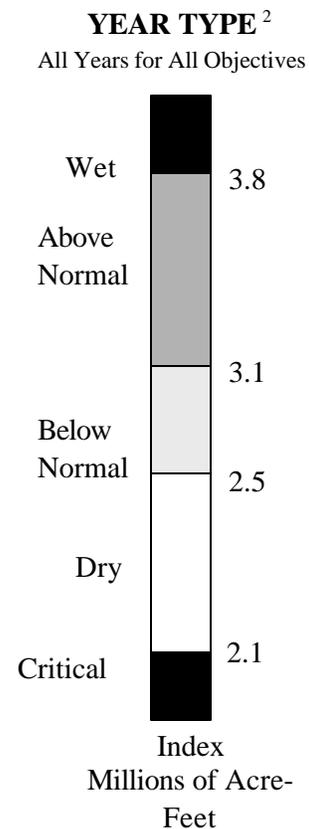
Where: X = Current year's April – July
 San Joaquin Valley unimpaired runoff

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.