

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**

**ORDER APPROVING A TEMPORARY URGENCY CHANGE
IN LICENSE AND PERMIT TERMS AND CONDITIONS
REQUIRING COMPLIANCE WITH DELTA WATER QUALITY OBJECTIVES
IN RESPONSE TO DROUGHT CONDITIONS
(WITH MODIFICATIONS DATED FEBRUARY 7, 2014
AND FEBRUARY 28, 2014)**

BY THE EXECUTIVE DIRECTOR

1.0 INTRODUCTION

On January 29, 2014, the Department of Water Resources (DWR) and the United States Bureau of Reclamation (Reclamation) (hereinafter Petitioners) jointly filed a Temporary Urgency Change Petition (TUCP) pursuant to Water Code section 1435 et seq., to temporarily modify requirements in their water right permits and license for the State Water Project (SWP) and Central Valley Project (CVP) (hereinafter Projects) for the next 180 days, with specific requests for February 2014. The TUCP requests temporary modification of requirements included in State Water Resources Control Board (State Water Board) Revised Decision 1641 (D-1641) to meet water quality objectives in the Water Quality Control Plan (Plan) for the San Francisco Bay/Sacramento-San Joaquin Delta Estuary (Bay-Delta). Specifically, the TUCP requests modifications to the Delta Outflow and Delta Cross Channel (DCC) Gate closure objectives. The TUCP also proposes 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 are requesting 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.

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.

The proposed changes are requested to conserve storage in upstream reservoirs for use later in the year if the drought continues, and to assure that salinity levels in the Delta are maintained at levels that protect public health and safety. Conserved storage will be available for minimum instream flows, temperature control, and to continue to repel salinity in the Delta. Without this change, stored water would likely be depleted by late spring or early summer. Also without this change, salinity levels in the Delta could rise to levels that would require much more water to be released from storage later in the year to restore water quality to levels that protect public health and safety.

The petition and supporting information are available via the State Water Board's website at http://www.waterboards.ca.gov/waterrights/water_issues/programs/drought/index.shtml.

2.0 BACKGROUND

The Bay-Delta Plan specifies water quality objectives for the protection of beneficial uses of water in the Bay-Delta, including fish and wildlife, agricultural, and municipal and industrial uses. In part, D-1641 assigns responsibility for meeting the water quality objectives included in the Bay-Delta Plan.² D-1641 places responsibility on DWR and Reclamation for measures to ensure that specified water quality objectives included in Tables 1, 2, and 3 of D-1641 (attached) are met, in addition to other requirements. The flow objectives are intended to assist with fish migration, and also to keep the Delta and water exported from the Delta from getting too salty for municipal and agricultural uses. Flow and salinity objectives in the Bay-Delta Plan and D-1641 were developed based on historic hydrologic conditions. Provisions for the extreme dry conditions currently being experienced were therefore not considered in either the Bay-Delta Plan or D-1641.

The Delta Outflow objective is intended to protect estuarine habitat for anadromous fish and other estuarine dependent species. Delta outflows affect migration patterns of both estuarine and anadromous species and the availability of habitat. Freshwater flow is an important cue for upstream migration of adult salmon and is a factor in the survival of smolts moving downstream through the Delta. The populations of several estuarine-dependent species of fish and shrimp vary positively with flow as do other measures of the health of the estuarine ecosystem. Freshwater inflow also has chemical and biological consequences through its effects on loading of nutrients and organic matter, pollutant concentrations, and residence time.

The Delta Outflow objective includes requirements for calculated minimum net flows from the Delta to Suisun and San Francisco Bays (the Net Delta Outflow Index or NDOI) and maximum salinity requirements (measured as electrical conductivity or EC). Since salinity in the Bay-Delta system is closely related to freshwater outflow, both types of objectives are indicators of the extent and location of low salinity estuarine habitat. Listed in Table 3 of the Bay-Delta Plan, the Delta outflow objectives vary by month and water year type. With some flexibility provided through a limited set of compliance alternatives, the basic outflow objective sets minimum outflow requirements that apply year round. The Delta Outflow objectives included in the Bay-Delta Plan and D-1641 for the February through June time frame are identified in Footnote 10 of Table 3 and Table 4 of Footnote 10. For this year, the requirements of Table 4 will likely not apply. In the event they do, this Order will be revisited. From February through June, Footnote 10 requires minimum daily net Delta outflows of 7,100 cubic-feet per second (cfs), calculated as a 3-day running average. The footnote specifies that the requirement may also be met if either the daily average or 14-day running average electrical conductivity of 2.64 mmhos/cm is met at the confluence of the Sacramento and the San Joaquin

² D-1641 originally implemented the 1995 Bay-Delta Plan. Later, minor modifications were made to the Bay-Delta Plan in the 2006 Bay-Delta Plan.

rivers near Collinsville (Station C2). Footnote 10 specifies that the Executive Director may relax the standard in March under specified low flow conditions. The footnote also specifies that the 7,100 cfs standard does not apply in May and June under specified low flow conditions and is replaced by a minimum 14-day running average flow of 4,000 cfs.

The DCC gates are located near Walnut Grove and at times allows for the transport of up to 3,500 cfs of water from the Sacramento River to Snodgrass Slough and the North Fork Mokelumne River to the interior Delta. The DCC was constructed in the early 1950s to convey Sacramento River water to the interior and southern Delta to improve water quality at the SWP and CVP export facilities. The DCC also benefits recreational uses by providing boat passage. The DCC gate objective was designed to protect fish and wildlife beneficial uses (specifically Chinook salmon) while simultaneously recognizing the need for fresh water to be moved through the interior Delta to the southern Delta for SWP and CVP uses. The current objective states that the DCC gates shall be closed for a total of up to 45 days for the November through January period, stay closed from February through May 20, and be closed for a total of 14 days for the May 21 through June 15 period. Closure of the DCC gates is important for the protection of salmon survival. Opening the DCC gates during winter and spring months can negatively affect juvenile Chinook salmon survival by causing straying into the interior and then southern Delta where survival is much lower than for fish that stay in the mainstem of the Sacramento River. Opening the DCC gates significantly improves water quality (e.g. lowers salinity) in the interior and southern Delta including at the SWP and CVP export facilities and Contra Costa Water District's diversions, particularly when Delta outflow is low.

2.1 Drought Conditions

In May 2013, due to near record-low precipitation, 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 by expediting the review and processing of voluntary transfers of water. In December 2013, the Governor formed a Drought Task Force to review expected water allocations and the state's preparedness for a drought.

Calendar year 2013 was the driest year in recorded history for many parts of California, and water year 2014 is the driest to date. So far this water year, the Northern Sierra 8-station precipitation accumulation is 4.5 inches; this is 9 percent of the annual average and 17 percent of the average to date. Statewide snow water content was at 9 percent of the April 1 average and 15 percent of the average to date, when measured by DWR snow survey on January 30, 2014. California generally receives half of its annual precipitation by mid- to late January. The three-month outlook weather forecast from the National Oceanic and Atmospheric Administration predicts below normal precipitation for California from now through the forecast horizon. Preceding dry years also add to the strain currently experienced on California's water resources. Water year 2012 was categorized as below normal.

On January 17, 2014, Governor Brown issued a Drought Emergency Proclamation. The Proclamation recited that California is experiencing record dry conditions, with calendar year 2014 projected to become the driest year on record. The Proclamation also recited that water supplies have dipped to alarming levels, as indicated by the fact that the snowpack is approximately 20 percent of the normal average for January³, the SWP and CVP reservoirs have very low water levels for January, California's major river systems, including the Sacramento and San Joaquin rivers, have significantly reduced surface water flows, and groundwater levels throughout the State have dropped significantly.

³ As of January 30, 2014, the current snow pack is estimated at 12 percent of normal for this time of year and 7 percent of the average April 1 measurement when snowpack is normally at its peak.

The Governor directed the State Water Board, among other things, to expedite processing of water transfers as called for in Executive Order B-21-13; to consider immediately petitions requesting consolidation of the places of use of the SWP and CVP; to accelerate funding for water supply enhancement projects; to put water right holders throughout the state on notice that they may be directed to reduce water diversions; and to consider petitions, such as this 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 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. Following persistent dry hydrologic conditions, the Board plans to issue Water Diversion Curtailment Notices to water right holders in water short areas in the near future.

On January 31, 2014, DWR also announced that except for a small amount of carryover water from 2013, customers of the SWP will get no deliveries in 2014 if current dry conditions persist and deliveries to agricultural districts with long-standing water right claims in the Sacramento Valley may be cut 50 percent – the maximum permitted by contract – depending upon future snow survey results. The first official 2014 CVP water allocation announcement is planned for late-February as required by contract terms. Water supply updates will then be made monthly or more often as appropriate and will be posted on Reclamation's website at: <http://www.usbr.gov/mp/pa/water>.

2.2 Effects of the Drought on Hydrologic Conditions

The permit terms and conditions contained in D-1641 were derived from the flow and water quality objectives contained in the Bay-Delta Plan. In adopting those objectives, the State Water Board considered the beneficial uses of water (municipal and industrial, agricultural, and fish and wildlife) based on a set of assumptions about the State's water supply, including the expected variability of this water supply. The magnitude of the current drought was not considered in the establishment of the Bay-Delta objectives or in the terms and conditions contained in D-1641. Water year 2013 was the driest year on record and 2014 is projected to be as dry or drier. Storage in major reservoirs is low, with Shasta, Oroville, Trinity, Folsom, San Luis, Exchequer, and Millerton Reservoirs all trending at or below the storage levels observed during the 1976 – 1977 drought, previously the most severe drought on record. Current projections indicate that without the requested change, there exists a substantial risk that by late spring 2014 and into 2015 the Petitioners' major reservoirs will be drafted to dead pool or near dead pool levels at which point reservoir release capacities will be substantially diminished.

3.0 SUBSTANCE OF TEMPORARY URGENCY CHANGE PETITION

The flow and water quality requirements established by the State Water Board in D-1641 are summarized in the tables and figures contained in Attachment 1 to this Order: Table 1 (Municipal and Industrial Beneficial Uses), Table 2 (Agricultural Beneficial Uses), and Table 3 (Fish and Wildlife Beneficial Uses). Included in Attachment 1 are the footnotes to Table 3 that refer to definitions and other requirements contained in Figure 1 (Sacramento Valley Water Year Hydrologic Classification),

Figure 2 (San Joaquin Valley Water Year Hydrologic Classification), Figure 3 (Formulas for Net Delta Outflow Index and Percent Inflow Diverted), and Table 4 (Chippis Island and Port Chicago Maximum Daily Average Electrical Conductivity).

The Petitioners have requested the following temporary modifications to D-1641 requirements:

1. Temporary Modification of Delta Outflow and Export Requirements

The Petitioners request a combined modification of D-1641 requirements to help preserve water in storage to protect future cold water pool needs for listed species, future water supply, and maintain in-Delta water quality.

The TUCP requests modification of Delta Outflow requirements described in D-1641, Table 3, Footnote 10, by modifying the Delta Outflow to the outflow that is expected to occur while maintaining SWP and CVP exports at health and safety levels of 1,500 cfs. Reclamation and DWR estimate that Delta outflow will range between 3,000 and 4,500 cfs. The petition states that this modification would provide some protection of Delta salinity levels and some protection of cold water pool for listed species later in the year. The 4,500 cfs Delta outflow level is the Petitioners' estimate of the flows that are needed to maintain salinity levels below 250 mg/l chloride at all export locations specified under Table 1 of D-1641. The Petitioners state that there are significant depletions of surface water flow that affect the certainty of the 4,500 cfs Delta Outflow estimate.

The proposed Delta Outflow modification is based on an assumption that 1,500 cfs of combined SWP/CVP exports would be maintained to provide minimum health and safety flows to municipal and industrial diverters who rely solely on supplies from the Delta or the canal between the export pumps and San Luis Reservoir. The Petitioners requested that this modification to the maximum Export Limits, contained in D-1641 Table 3, be combined with the modification to Delta Outflow. The minimum health and safety flow level has been acknowledged by the 2009 National Marine Fisheries Service (NMFS) Biological Opinion and the 2008 U.S. Fish and Wildlife Service (USFWS) Biological Opinion. Through the Reporting and Management Plan described below, the Petitioners intend to review current conditions and health and safety needs, which might support periods of lower export levels that would be protective of health and safety.

2. Temporary Modification of Delta Cross Channel (DCC) Gate Operation Requirements

D-1641 requires the closure of the DCC gates from February 1 through May 20. The Petitioners request permission to open the DCC gates for human health and safety purposes, based on consultation with the Department of Fish and Wildlife (DFW), USFWS, and NOAA Fisheries (fishery agencies). The Petitioners state that they are currently discussing alternative operational strategies with the fishery agencies, and will continue to evaluate and discuss these strategies in consultation with the fishery agencies. As discussed above, opening of the DCC gate can help improve in-Delta salinity conditions. Normally, runoff and the Delta inflow/outflow needed to meet the Delta Outflow requirement would assist in meeting salinity requirements in the Delta with the DCC gates closed. Due to the critically dry hydrologic conditions, the TUCP states that there is a need to open the DCC gates to help achieve the salinity conditions in the interior and southern Delta needed for protection of municipal and industrial beneficial uses without expending large quantities of water needed for later use.

3. Reporting and Management Plan

In recognition of ordering paragraphs 8, 14, and 16 of the Governor's Proclamation, the Petitioners propose that this Order include regular monitoring, to ensure that this Order's terms and conditions and the requirements of Water Code Section 1435 are met.

The Petitioners also propose convening a team of managers, who would meet weekly during the period this Order is in effect, to review monitoring and operations data. These managers would be authorized to act to coordinate management of water supplies and protection of natural resources. The team of managers would consist of representatives from the Petitioners, the State Water Board, DFW, NMFS and USFWS.

4. Future Requests for Temporary Modifications

As a result of the reporting and management plan described above, the Petitioners state that they may submit to the State Water Board additional information regarding any further adjustments needed to regulatory requirements in order to balance the protection of beneficial uses, while protecting environmental resources and meeting health and safety needs. The TUCP states that future requests for temporary changes could include requests for possible modifications of other water quality objectives found in D-1641 Table 1 "Municipal and Industrial Beneficial Uses," Table 2 "Agricultural Beneficial Uses," and Table 3 "Fish and Wildlife Beneficial Uses."

5. Extension of Temporary Modification of Delta Outflow Requirements

On February 27, 2014, the Petitioners requested modification of Delta Outflow requirements for March, to continue to conserve stored water that will be needed to protect fishery resources, maintain water supplies, and improve water quality later in the year. This Order continues for the month of March the modified Delta Outflow levels of 3,000 cfs originally approved on January 31, 2014.

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

Ordinarily, the State Water Board must comply with any applicable requirements of the California Environmental Quality Act (CEQA) prior to issuance of a temporary urgency change order pursuant to Water Code section 1435. (See Cal. Code Regs., tit. 23, § 805.) The Governor's Proclamation concludes, however, that strict compliance with CEQA would "prevent, hinder, or delay the mitigation of the effects of the emergency." Accordingly, as authorized by Government Code section 8571, ordering paragraph 9 of the Governor's Proclamation suspends CEQA, and the regulations adopted pursuant to it, to the extent that CEQA would otherwise apply to specified actions necessary to mitigate the effects of the drought, including the State Water Board's action on the TUCP.

The Governor's Proclamation also suspends Water Code section 13247 to the extent that it would otherwise apply to specified activities, including action on the TUCP. Section 13247 requires state agencies, including the State Water Board, to comply with water quality control plans unless otherwise directed or authorized by statute. Absent suspension of section 13247, the State Water Board could not approve a change petition that modifies permits and licenses in a way that does not provide for full attainment of the water quality objectives in the Bay-Delta Plan, even during a drought emergency.

5.0 PROCEDURAL REQUIREMENTS CONCERNING THE TEMPORARY URGENCY CHANGE PETITION

The State Water Board may issue a temporary urgency change order in advance of public notice. (Wat. Code, § 1438, subd. (a).) Public notice must be provided as soon as practicable, unless the change will be in effect less than 10 days. (*Id.*, § 1438, subds. (a), (b) & (c).) Any interested person may file an objection to a temporary urgency change. (*Id.*, subd. (d).) The Board must promptly consider and may hold a hearing on any objection. (*Id.*, subd. (e).) State Water Board Resolution 2012-0029 delegates to the Board Members individually and to the Executive Director the authority to hold a hearing, if necessary, and act on a temporary urgency change petition. (Resolution 2012-0029, ¶¶ 2.2, 4.4.1.)⁴

The State Water Board will issue and deliver to Petitioners as soon as practicable, a notice of the temporary urgency change petition pursuant to Water Code section 1438, subdivision (a). Petitioners will be required to publish the notice in newspapers in accordance with Water Code section 1438, subdivision (b)(1).

As soon as practicable, the State Water Board will provide formal notice of a public workshop to receive comments regarding drought-related activities, including the Petitioners' TUCP and this Order. The public workshop will not be an evidentiary hearing, and any comments on the TUCP will not be treated as testimony. If necessary, the State Water Board will hold an evidentiary hearing on any objections at a later date. The State Water Board will post on its website: (1) the notice of the TUCP, (2) the notice of the public workshop, (3) a copy of the TUCP and accompanying materials, and (4) this Order. The State Water Board also will distribute the notices through an electronic notification system.

6.0 REQUIRED FINDINGS OF FACT

Water Code section 1435 provides that a permittee or licensee who has an urgent need to change the point of diversion, place of use, or purpose of use from that specified in the permit or license may petition for a conditional temporary change order. The State Water Board's regulations set forth the filing and other procedural requirements applicable to TUCPs. (Cal. Code Regs., tit. 23, §§ 805, 806.) The State Water Board's regulations also clarify that requests for changes to permits or licenses other than changes in point of diversion, place of use, or purpose of use may be filed, subject to the same filing and procedural requirements that apply to changes in point of diversion, place of use, or purpose of use. (*Id.*, § 791, subd. (e).)

Before approving a temporary urgency change, the State Water Board must make the following findings:

1. the permittee or licensee has an urgent need to make the proposed change;
2. the proposed change may be made without injury to any other lawful user of water;
3. the proposed change may be made without unreasonable effect upon fish, wildlife, or other instream beneficial uses; and
4. the proposed change is in the public interest.

(Wat. Code, § 1435, subd. (b)(1-4).)

⁴ The Deputy Director for Water Rights may act on a temporary urgency change petition if there are no objections to the petition. (Resolution 2012-0029, ¶ 4.4.1.)

The State Water Board exercises continuing supervision over temporary urgency change orders and may modify or revoke temporary urgency change orders at any time. (Wat. Code, §§ 1439, 1440.) Temporary urgency change orders expire automatically 180 days after issuance, unless they are revoked or an earlier expiration date is specified. (*Id.*, § 1440.) The State Water Board may renew temporary urgency change orders for a period not to exceed 180 days. (*Id.*, § 1441.)

6.1 Urgency of the Proposed Change

Under Water Code section 1435, subdivision (c), an “urgent need” means “the existence of circumstances from which the board may in its judgment conclude that the proposed temporary change is necessary to further the constitutional policy that the water resources of the state be put to beneficial use to the fullest extent of which they are capable and that waste of water be prevented . . .”

An urgent need exists for changes in the Petitioners’ requirement to meet specified Delta Outflows, Export Limits and Delta Cross Channel Gate Closure objectives included in D-1641. As described in the Governor’s drought proclamation and the petition, California is experiencing unprecedented dry conditions that were not foreseen or accounted for in the development of these requirements. Operations to meet the objectives, starting in February, would have a significant impact on stored water and the ability to meet minimum flows for the remainder of the season. Failure to act quickly to reduce releases from storage will further deplete already low storage levels in the reservoirs available for use throughout the year.

As stated in the petition, California is entering the third straight year of below average rainfall and very low snowmelt runoff. As a result of the dry hydrology, reservoir levels throughout the state were already significantly below average in October at the beginning of the 2013/2014 water year. The low initial storage and historically dry conditions experienced in the last 12 months, since January 2013, have resulted in significant reductions in water supplies and will likely lead to critical water shortages in 2014.

According to the petition, in order to meet the requirements of D-1641, the SWP and CVP have released water from storage to meet in-basin demands since April 2014. These demands upon the stored water of the SWP and CVP have been exacerbated by the unprecedently high use of river water on the Sacramento River and Feather River systems, referred to as depletions. DWR and Reclamation believe these depletions to be much greater than typically assumed which is resulting in further reductions in storage to meet Bay-Delta Plan water quality objectives.

According to the petition, at this time, total storage at the SWP’s Lake Oroville is roughly 1.2 million acre-feet (MAF), and the total combined storage at the CVP’s Shasta and Folsom reservoirs is also very low at about 1.8 MAF. Storage in all three reservoirs is below what they were at this time of year in 1977 when the state was in a severe drought. Of even more concern is the lack of snowpack in the watersheds feeding into the Projects’ major Sacramento Valley reservoirs. The current water year’s lack of precipitation has resulted in a northern California snowpack which is a mere 4 percent of the typical seasonal peak.

The continuation of extremely dry conditions in the Bay-Delta watershed poses great challenges to the effective management of water resources, and the Petitioners do not believe that there is an adequate water supply to meet all obligations under D-1641. As discussed above, current projections indicate that without the requested change to the Petitioners’ water right permits and license conditions, a substantial risk exists that by late spring 2014 and into 2015 the Petitioners’ major reservoirs will be drafted to dead pool or near dead pool levels, at which point reservoir release

capacities will be substantially diminished. As a result, there will be significant risks to temperature control, minimum instream flow requirements, and an inability to repel salinity in the Sacramento-San Joaquin Delta later this season. Under the current circumstances, the most prudent course of action is to conserve storage in upstream reservoirs until significant improvement of that storage is realized. Conservation of stored water supplies requires temporary modification of some terms and conditions contained in D-1641.

6.2 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.)

Since March 2013, the Projects have been augmenting natural flows in the Delta with water released from storage in Project reservoirs in order to meet water quality objectives. If the proposed change to the requirement to meet the Delta Outflow objective is implemented, the Projects will reduce releases from storage, but the Projects will continue to augment natural flows with releases from storage. Accordingly, implementation of the proposed change will not reduce the natural or abandoned flows to which downstream riparian and appropriative water right holders may be entitled, and no water right holders will be injured by the proposed change.

At the present time, DWR and Reclamation have proposed changes to requirements to meet certain water quality objectives established to protect fish and wildlife beneficial uses. DWR and Reclamation have not yet requested any changes to requirements to meet water quality objectives established to protect municipal, industrial, or agricultural beneficial uses. For this reason, the proposed changes will not injure other water users due to a change in water quality. (See *State Water Resources Control Bd. Cases, supra* at pp. 744-45.) Moreover, it is questionable whether any other users could support a valid claim of injury due to a change in water quality under circumstances where the Projects are augmenting natural flows with stored water. Finally, it is worth pointing out that any impairment to water quality in the near term is likely to be outweighed by the significant impact to water quality that would occur if the proposed changes are not granted. Absent the proposed change, Project storage would be depleted, and DWR and Reclamation would no longer be able to control salinity encroachment in the Delta.

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

As conditioned by this Order, the proposed changes to Delta Outflows, Export Limits and DCC Gate Closure requirements will not unreasonably impact fish, wildlife, or other instream beneficial uses of water. 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.

According to the petition, the estimated impact to reservoir storage of not making the changes to the requirement to meet the Delta Outflow objective during February could be approximately 144 thousand acre-feet.⁵ As discussed above, if the Delta Outflow requirements remain in effect through June, it could result in a “loss of control” over salinity levels in the Delta by late spring 2014 and into 2015 in a worst case scenario. If such a condition occurs, much of the Delta would be too salty to support health and safety and agricultural uses of water. It would also likely require more water than is currently available in storage to push salt back out of the Delta. This salty Delta condition would persist until Northern California receives a rainy season with sufficient runoff to flush the Delta of ocean water to once again allow for these in-Delta beneficial uses.

The DCC gates, when opened, allow high quality Sacramento River water to flow through the Central Delta, thus “freshening” the Delta. This flow path keeps water in the central Delta less saline than when the DCC gates are closed. The DCC gates are generally kept closed in the spring, however, to keep outmigrating salmon from straying into the central Delta where their survival is reduced.

A reduction in Delta outflow within the proposed range of 3,000 to 4,500 cfs may result in rapidly increasing salinity in the interior Delta if the gates are not opened at the same time this occurs which may pose a risk to minimum exports for public health and safety. Restoring Delta salinity to a range that would support public health and safety would take a much larger quantity of water than is required to maintain salinity at these levels. This would necessitate release of stored water to maintain public health and safety, and therefore jeopardize storage of water to maintain temperature control and for other environmental purposes later in the year.

The Petitioners propose to open the gates as soon as possible to reduce salinity in the central Delta. The principal benefit of opening the DCC gates in February is to move more fresh water to the interior Delta, using less storage releases than would be needed to achieve the same salinity with the gates closed. This freshening of the Delta will maintain water quality at the CVP and SWP export pumps and the intakes of Contra Costa Water District (CCWD) that are needed for the protection of public health and safety.

With the DCC gates open, there is potential for decreased survival of Sacramento River-origin species as they move through the central Delta. Potential hazards include increased entrainment, predation, and salvage. The Petitioners provided a detailed analysis of how these issues will not result in decreased survival, and state that they will continue to consult with the fishery agencies on these issues. The State Water Board concludes that the potential for impairment to instream beneficial uses from this temporary modification is not unreasonable considering the potential impacts to agricultural and municipal water supply that could occur if the temporary change is not approved. This Order includes a requirement for the Petitioners to continue consulting with the fish agencies on these issues.

In addition to protecting water supplies needed for consumptive uses, the proposed changes will serve to protect fish and wildlife and other instream beneficial uses of water by conserving water for use throughout the season to maintain minimal stream flows and Delta Outflows and to prevent excessive salinity intrusion into the Delta. As discussed above, without the changes, the Projects’ limited water supplies would be released for short term benefits to fish and wildlife at the expense of storage and flows later in the season, which would likely have severe effects on fish and wildlife and other instream beneficial uses of water.

⁵ According to the petition, this is the difference between the currently projected minimum outflow of 4,500 cfs and 7,100 cfs over the 28-day period.

Providing year round Delta inflows and outflows is critically important to the survival of numerous fish and wildlife species in the Delta and upstream areas. Tributary flows, including adequate cold water resources, are needed throughout the season to provide appropriate habitat and passage conditions for anadromous species, including Endangered Species Act (ESA) listed Winter-Run and Spring-run Chinook Salmon, steelhead, and green sturgeon. Delta outflows and inflows are also needed throughout the year for the anadromous species listed above as well as various ESA listed pelagic species including long-fin smelt and Delta smelt. As discussed above, if the required Delta outflow objectives are met and the DCC gates are kept closed, the reservoirs will likely reach dead pool storage by spring, leaving little or no water in storage for later in the season for instream flows and Delta outflows needed for fish and wildlife and other instream uses. This would have serious detrimental impacts to fish and wildlife and other beneficial uses of water.

The proposed changes as conditioned by this Order balance the short-term and long-term habitat needs of fish and wildlife and other instream uses of water during the entirety of water year 2014. This Order requires the development of a Real-Time Drought Operations Management Team with designated representatives from DWR, Reclamation, the State Water Board, DFW, USFWS, and NMFS to coordinate operations consistent with this Order, and to protect fish and wildlife, other beneficial uses of water and public health and safety. The Real-Time Drought Operations Management Team will coordinate real time operations based on current conditions and fisheries information to ensure that the proposed changes pursuant to this Order do not unreasonable affect fish and wildlife and other instream uses of water. The State Water Board has ultimate authority regarding any changes.

While the TUCP does not request a specific Delta outflow level due to the uncertainty of channel depletions, to ensure that some minimal level of Delta outflow is provided to protect fish and wildlife and other instream uses of water without draining reservoir storage dramatically, the Order requires a minimum Delta outflow level of 3,000 cfs during February and also provides for a higher pulse flow to be scheduled to benefit fish species. The magnitude, timing, and duration of this pulse flow will be determined by the Real-Time Drought Operations Management Team. Further changes to Delta Outflows for the remainder of the season may be requested. At that time, State Water Board staff will evaluate current circumstances and information and determine what if any changes should be made to Delta Outflow requirements for the remainder of the year to reasonably protect fish and wildlife and other instream uses and meet the other requirements of the Water Code.

The Order limits SWP and CVP exports to SWP and CVP contractors to minimum health and safety levels to further conserve water in storage for future use to protect fish and wildlife and other purposes. This export limitation is not intended to apply to transfers under non-Project water rights or between Project contractors. The Order requires DWR and Reclamation to refine their estimates of export needs for health and safety and provide such information to the State Water Board to inform decisions regarding changes to the allowable export limits.

This Order allows the DCC gates to be opened from February through May to reduce the need for upstream releases to maintain salinity conditions in the interior Delta. To ensure that gate opening avoids impacts to fish, decisions regarding operations of the gates are required to be made in consultation with the Real-Time Drought Operations Management Team based on real-time fisheries and hydrologic information.

To ensure that water conserved by the proposed change is available to use later in the season to reasonably protect fish and wildlife and other beneficial uses, the Order requires that DWR and Reclamation calculate and maintain a record of the amount of water conserved through the changes authorized by this Order. The 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 Real-Time Drought Operations Management Team. To inform future decisions of the Real-Time Drought Operations Management Team and the State Water Board, the Order also requires DWR and Reclamation to develop monthly water balance estimates indicating actual and proposed operations through the end of the water year. In addition, the Order requires DWR and Reclamation to conduct necessary modeling and monitoring to inform real time operational decisions. The 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 including the State Water Board workshop on February 18 and 19, 2014, concerning this Order and other drought issues.

Based on the above, the State Water Board concludes that the potential for impairment to instream beneficial uses from this temporary modification is not unreasonable considering the potential negative impacts to fish, wildlife and instream uses later in the year and the potential impacts to municipal and industrial water supply, instream beneficial uses, and recreation that could occur if the temporary change is not approved.

6.4 The Proposed Change is in the Public Interest

The proposed temporary change will help conserve stored water so that it can be released throughout 2014 to maintain instream flows for the benefit and protection of North of Delta, in-Delta, and South-of-Delta uses, including public trust uses. It is in the public interest to preserve these water supplies for these beneficial uses when hydrologic circumstances cause severe reductions to water supplies.

The changes, or temporary modifications, authorized in this Order will make the best use of a limited water supply in the near term. The temporary modifications contained in this Order are in the public interest because the changes will preserve water supplies to meet health and safety needs, and will increase the duration and likelihood of maintaining salinity control in the Delta later in year. As described in this Order, the retained water supply will be available later in the year for export flows adequate for maintaining health and safety and North-of-Delta and in-Delta environmental protection.

7.0 CONCLUSIONS

The State Water Board has adequate information in its files to make the evaluation required by Water Code section 1435.

I conclude that, based on the available evidence:

1. The permittee 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

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

1. Except as otherwise provided in condition 2, below, for a period not to exceed 180 days or until such time as this Order is amended or rescinded based on changed circumstances, the requirements of D-1641 for DWR and Reclamation to meet specified water quality objectives are amended as follows:
 - a. The minimum Delta Outflow levels specified in Table 3 are modified as follows: the minimum Net Delta Outflow Index (NDOI) described in Figure 3 of D-1641 during the months of February and March shall be no less than 3,000 cubic-feet per second (cfs). In addition to base Delta Outflows, pursuant to this Order, a higher pulse flow may also be required through the Real-Time Drought Operations Management Process described below.
 - b. The maximum Export Limits included in Table 3 are modified as follows: the combined maximum SWP and CVP export rate for SWP and CVP contractors at the Harvey O. Banks and C.W. "Bill" Jones pumping plants shall be no greater than the minimum pumping levels required for health and safety purposes and shall be no greater than 1,500 cfs on a 3-day running average. Deliveries to SWP and CVP export contractors from the SWP and CVP shall also be limited to health and safety needs. These limitations do not apply to water transfers under non-SWP or CVP water rights or between SWP and CVP contractors. DWR and Reclamation shall refine what export amounts and deliveries are required to maintain health and safety and shall provide documentation to the State Water Board to support that determination by February 14. Based on additional information or changed circumstances, the export limits imposed pursuant to this Order may be modified through the Real-Time Drought Operations Management Process described below.
 - c. The Delta Cross Channel (DCC) Gate Closure requirements included in Table 3 are modified as follows: the DCC gates may be opened from February 1 through May 20 as necessary to preserve limited storage in upstream reservoirs and reduce infiltration of high salinity water into the Delta while reducing impacts on migrating Chinook salmon. Requirements for closure of the DCC gates during March through May 20 shall be determined through the Real-Time Drought Operations Management Process described below.
2. During the effective period of this Order, if precipitation events occur that enable DWR and Reclamation to comply with the Delta Outflow and DCC Gate Closure requirements contained in Table 3 of D-1641, then D-1641 requirements shall be operative, except that any SWP and CVP exports greater than 1500 cfs shall be limited to natural or abandoned flow, or transfers as specified in condition 1b.

3. DWR and Reclamation shall convene a Real-Time Drought Operations Management Team with designated representatives from DWR, Reclamation, the State Water Board, Department of Fish and Wildlife, National Marine Fisheries Service and U.S. Fish and Wildlife Service (fisheries agencies). The Real-Time Drought Operations Management Team shall be convened to discuss potential changes to SWP and CVP operations to meet health and safety requirements and to reasonably protect all beneficial uses of water. The team shall meet on a regular basis, and no less than weekly, to discuss current conditions and may be combined with the existing Water Operations Management Team as appropriate. The State Water Board representative shall be designated by the Executive Director of the State Water Board and shall be authorized to make real-time operational decisions to modify requirements to meet pulse flows associated with the modification to the Delta Outflow objective described above, Export Limits, DCC gate closures, and the associated requirements of this Order. If the State Water Board approves any additional temporary urgency changes pursuant to the temporary urgency change petition that is the subject of this Order, or otherwise modifies this Order, the State Water Board will provide notice and an opportunity for interested persons to comment or object. Based on public comments or objections, further changes may be made to this Order. Information concerning changes to this Order will be posted on the State Water Board's website within 24 hours.
4. DWR and Reclamation shall calculate and maintain a record of the amount of water conserved through the changes authorized by this Order. The water conserved shall be maintained in storage to protect flows for fisheries, used to maintain water supplies, or used to improve water quality. The use of such water shall be determined through the Real-Time Drought Operations Management Team Process described above.
5. DWR and Reclamation shall develop monthly water balance estimates indicating actual and proposed operations through the end of the water year. Specifically, actual and projected inflows, north of Delta contract deliveries, other channel depletions, exports, and Delta outflows shall be identified. The water balance shall be posted on DWR's website and updated as necessary based on changed conditions.
6. DWR and Reclamation shall conduct necessary modeling and monitoring to inform real time operational decisions. Required modeling and monitoring shall be determined through the Real-Time Drought Operations Management Team Process or as may be required pursuant to any modification to this Order.
7. This Order may be further modified by the Executive Director based on additional public input or changed circumstances. Specifically, the State Water Board will hold a workshop on February 18 and 19, 2014, to receive public comment on what if any modifications should be made to this Order to ensure that the changes approved by this Order will not injure any lawful user of water, will not unreasonably affect fish and wildlife, and will be in the public interest.
8. 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.

9. 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: February 28, 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 -or- San Joaquin River at Antioch Water Works Intake	C-5 (CHCCC06) D-12 (near) (RSAN007)	Chloride (Cl ⁻)	Maximum mean daily 150 mg/l Cl ⁻ for at least the number of days shown during the Calendar Year. Must be provided in intervals of not less than two weeks duration. (Percentage of Calendar Year shown in parenthesis)	W AN BN D C	No. of days each Calendar Year £ 150 mg/l Cl ⁻ 240 (66%) 190 (52%) 175 (48%) 165 (45%) 155 (42%)	
Contra Costa Canal at Pumping Plant #1 -and- West Canal at mouth of Clifton Court Forebay	C-5 (CHCCC06) C-9 (CHWST0)	Chloride (Cl ⁻)	Maximum mean daily (mg/l)	All	Oct-Sep	250
Delta-Mendota Canal at Tracy Pumping Plant -and- Barker Slough at North Bay Aqueduct Intake	DMC-1 (CHDMC004) ---- (SLSAR3)					
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 April 1 to date shown	EC from date shown to Aug 15 [4]
				W	Aug 15	---
				AN	Jul 1	0.63
				BN	Jun 20	1.14
				D	Jun 15	1.67
				C	---	2.78
San Joaquin River at Jersey Point	D-151 (RSAN018)	Electrical Conductivity (EC)	Maximum 14-day running average of mean daily EC (mmhos/cm)		0.45 EC April 1 to date shown	EC from date shown to Aug 15 [4]
				W	Aug 15	---
				AN	Aug 15	---
				BN	Jun 20	0.74
				D	Jun 15	1.35
				C	---	2.20
INTERIOR DELTA						
South Fork Mokelumne River at Terminus	C-13 (RSMKL08)	Electrical Conductivity (EC)	Maximum 14-day running average of mean daily EC (mmhos/cm)		0.45 EC April 1 to date shown	EC from date shown to Aug 15 [4]
				W	Aug 15	---
				AN	Aug 15	---
				BN	Aug 15	---
				D	Aug 15	---
				C	---	0.54
San Joaquin River at San Andreas Landing	C-4 (RSAN032)	Electrical Conductivity (EC)	Maximum 14-day running average of mean daily EC (mmhos/cm)		0.45 EC April 1 to date shown	EC from date shown to Aug 15 [4]
				W	Aug 15	---
				AN	Aug 15	---
				BN	Aug 15	---
				D	Jun 25	0.58
				C	---	0.87
SOUTHERN DELTA						
San Joaquin River at Airport Way Bridge, Vernalis -and- San Joaquin River at Brandt Bridge site[5] -and- Old River near Middle River [5] -and- Old River at Tracy Road Bridge [5]	C-10 (RSAN112) C-6 (RSAN073) C-8 (ROLD69) P-12 (ROLD59)	Electrical Conductivity (EC)	Maximum 30-day running average of mean daily EC (mmhos/cm)	All	Apr-Aug Sep-Mar	0.7 1.0
EXPORT AREA						
West Canal at mouth of Clifton Court Forebay -and- Delta-Mendota Canal at Tracy Pumping Plant	C-9 (CHWST0) DMC-1 (CHDMC004)	Electrical Conductivity (EC)	Maximum monthly average of mean daily EC (mmhos/cm)	All	Oct-Sep	1.0

[1] River Kilometer Index station number.

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

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

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

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

TABLE 3
WATER QUALITY OBJECTIVES FOR FISH AND WILDLIFE BENEFICIAL USES

COMPLIANCE LOCATION	INTERAGENCY STATION NUMBER (RKI [1])	PARAMETER	DESCRIPTION (UNIT) [2]	WATER YEAR TYPE [3]	TIME PERIOD	VALUE
SAN JOAQUIN RIVER SALINITY						
San Joaquin River at and between Jersey Point and Prisoners Point [4]	D-15 (RSAN018) -and- D-29 (RSAN038)	Electrical Conductivity (EC)	Maximum 14-day running average of mean daily EC(mmhos/cm)	W,AN,BN,D	Apr-May	0.44 [5]
EASTERN SUISUN MARSH SALINITY						
Sacramento River at Collinsville -and- Montezuma Slough at National Steel -and- Montezuma Slough near Beldon Landing	C-2 (RSAC081) -and- S-64 (SLMZU25) -and- S-49 (SLMZU11)	Electrical Conductivity (EC)	Maximum monthly average of both daily high tide EC values (mmhos/cm), or demonstrate that equivalent or better protection will be provided at the location	All	Oct Nov-Dec Jan Feb-Mar Apr-May	19.0 15.5 12.5 8.0 11.0
WESTERN SUISUN MARSH SALINITY						
Chadbourne Slough at Sunrise Duck Club -and- Suisun Slough, 300 feet south of Volanti Slough	S-21 (SLCBN1) -and- 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]	Oct Nov Dec Jan Feb-Mar Apr-May	19.0 16.5 15.5 12.5 8.0 11.0
				Deficiency Period [6]	Oct Nov Dec-Mar Apr May	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(RKI1[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	2,130 or 3,420
				BN,D	and May 16-Jun	1,420 or 2,280
				C		710 or 1,140
				W	Apr 15-	7,330 or 8,620
				AN	May 15 [14]	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 Chippis 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/atraction 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:

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

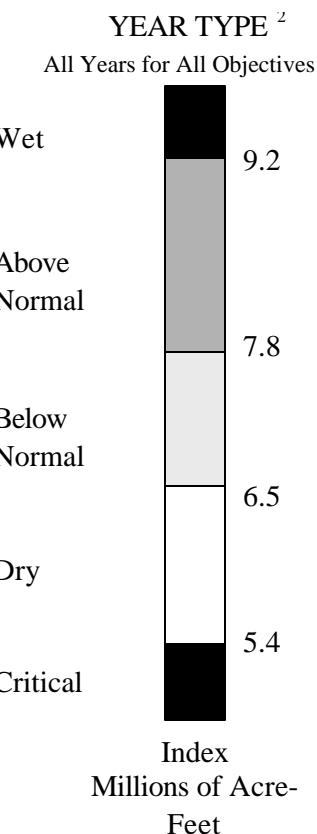
Where: X = Current year's April – July
Sacramento Valley unimpaired runoff

**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

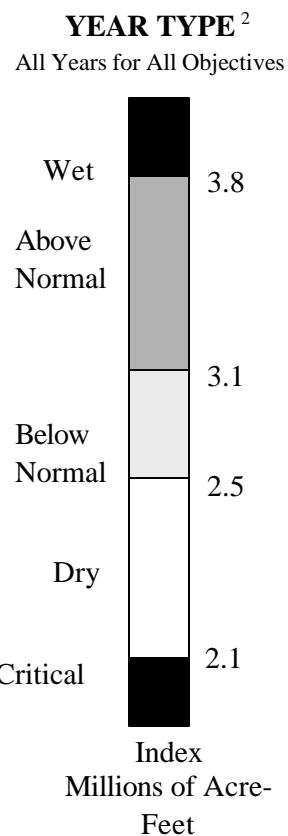
Year classification shall be determined by computation of the following equation:

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

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):

$$NDOI = \text{DELTA INFLOW} - \text{NET DELTA CONSUMPTIVE USE} - \text{DELTA EXPORTS}$$

$$\text{PERCENT INFLOW DIVERTED} = (\text{CCF} + \text{TPP}) / \text{DELTA INFLOW}$$

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

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 $\text{NET DELTA CONSUMPTIVE USE} = \text{GDEPL} - \text{PREC}$

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 $\text{DELTA EXPORTS}^3 = \text{CCF} + \text{TPP} + \text{CCC} + \text{NBA}$

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)	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 Chipps 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 Chipps 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.