

**DEPARTMENT OF WATER RESOURCES****CALIFORNIA WATER COMMISSION**

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SACRAMENTO, CA 94236-0001

(916) 653-5791

April 9, 2014

Mr. Thomas Howard, Executive Director  
State Water Resources Control Board  
1001 I Street  
Sacramento, CA 95814

Dear Mr. Howard:

The U.S. Bureau of Reclamation (Reclamation) and the Department of Water Resources (DWR) request a modification to the 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 March 18, 2014) (Order). The CVP and SWP Drought Operations Plan and Operational Forecast (attached) provides a complete description of the current and projected hydrologic conditions and actions proposed to balance multiple needs in a third dry year.

The Order currently allows Reclamation and DWR to conserve additional water in the State Water Project/Central Valley Project (SWP/CVP) reservoirs for protection of aquatic species, water quality, and water deliveries by modifying Table 3 of D-1641 such that Delta Outflow may be no less than 3,000 cubic feet per second. The Order provides additional flexibility to export water while Delta inflows remain elevated following precipitation events by adding an alternate set of compliance requirements for the remainder of March that would be in effect while higher Delta inflows persist. Specifically, when precipitation and runoff events occur that allow the DCC Gates to be closed and compliance with the flow or salinity requirements included in footnote 10 of D-1641, but the additional Delta Outflow requirements contained in Table 4 of D-1641 are not being met, the Order permits exports of natural and abandoned flows up to the Export Limits contained in Table 3 of D-1641. The Order also clarifies the use of exported water when D-1641 Delta Outflow or DCC Gate requirements are not being met.

The intent of the proposed modifications to operating criteria in April and May is to take advantage of natural or abandoned flows during wet periods to increase storage in San Luis Reservoir to provide for multiple beneficial uses including high quality water to reduce potential disinfection byproduct threats to public drinking water supplies, wildlife refuges, water for irrigation, and other critical needs. Even with the current and predicted precipitation, drought conditions in the southern Sierra and San Joaquin Valley are expected to be more extreme than in the northern part of the state. The proposed operating criteria are also designed to reduce adverse effects on endangered

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species and other fish and wildlife commensurate with the unavoidable negative effects of a drought of this magnitude. Where possible, the agencies have attempted to offset further adverse effects on the species originating from these planned operations by shifting higher exports to Jones Pumping Plant and providing for an additional pulse in a future year (see Section VIII of the Drought Operations Plan). This is especially critical for juvenile San Joaquin steelhead that are the target species for NMFS RPA Action IV.2.1.

The proposed suite of April/May modifications includes continuation of a number of provisions in the current TUC Order and existing flexibility allowed under D-1641, including compliance specifications for outflow requirements and averaging periods for export/inflow (E/I) ratio requirements, respectively. Export limitations during the San Joaquin River pulse flow period would also comport with D-1641 requirements. The Vernalis flow-to-combined export (I:E) ratio of 1:1 associated with San Joaquin River flows for a critically-dry San Joaquin Valley classification (NMFS RPA Action IV.2.1) will be implemented during most of the April 1 through May 31 period, with the modification noted below under BiOps (1). The D-1641 San Joaquin River flow objectives would also be modified in April through June. In addition, some actions will be implemented to offset adverse effects to out-migrating San Joaquin River steelhead and salmon, as described in the Drought Operations Plan. Specific elements of the proposal for April and May relative to D-1641 provisions are defined below.

During the June through mid-November period, operations would be focused on conserving as much water as possible in upstream reservoirs while meeting in-basin needs. The conservation of storage will help meet fall Sacramento River temperature requirements and minimize potential impacts from a continuation of drought into 2015, including for the benefit of Chinook salmon. A salient component of operations during this period includes the construction and operation of emergency drought barriers in three locations in the Delta, which would reduce the need for reservoir releases to meet salinity objectives. See the Drought Operations Plan for 90 percent forecasts with and without the proposed barriers. These two forecasts show a gain of 149,000 AF in cumulative end of September carryover storage between all reservoirs as a result of implementing the emergency drought barriers. However, as described below, this savings in storage would only be achieved if the D-1641 Agricultural Western Delta Salinity Standard at Emmaton is set aside while the emergency drought barriers are in place. If hydrologic conditions warrant that sufficient water is available in upstream reservoirs to maintain this Emmaton standard, or a modification of the standard that would move the compliance point to Three Mile Slough on the Sacramento River, emergency drought barriers would not provide any savings in Delta outflow needs or end of September carryover storage in upstream reservoirs. For this reason, the 50 percent forecast does not include proposed barriers.

In addition, the proposed suite of operational modifications in June through November 15 includes continuation of some provisions in the current TUC Order regarding compliance specifications for outflow requirements and averaging periods for

export/inflow (E/I) ratio requirements. Specific elements of the proposal for June through November 15 relative to D-1641 provisions are defined below.

If hydrologic conditions continue to be forecasted at a level of dryness similar to what is expressed in the March 90% forecast, emergency drought barriers could be constructed on West False River, Steamboat Slough, and Sutter Slough during May. The West False River barrier would be constructed first, with construction beginning approximately May 7. The Sutter and Steamboat slough barriers would be constructed second, with in-water construction starting no earlier than May 22. The barriers would be constructed primarily with rock fill. Four 48-inch culverts will be operable at Sutter and Steamboat sloughs to allow fish passage and downstream flow when needed to improve water quality and stage. A boat portage facility will be operated at the Steamboat Slough barrier to allow boats less than 22 feet long to cross the barrier. Water quality and stage will be continuously monitored upstream and downstream of the barriers. The barriers will also be monitored for their effects on migrating adult and juvenile salmon and sturgeon and their designated critical habitats, as well as effects on delta smelt distribution and habitat and longfin smelt habitat. Initiation of barrier removal will begin no later than October 15, 2014, with the complete removal of the Sutter and Steamboat slough barriers by November 1, and complete removal of the West False River barrier by November 15.

The state and federal agencies will employ a contingency plan approach to salinity barrier construction, which would allow a decision to be made as late as the end of April concerning the construction of the barriers. Should runoff projections and water quality conditions warrant, installation of the salinity barriers could be delayed or halted. Site-specific ESA compliance on construction and operation of the salinity barriers will be achieved through DWR's application for a 404 Corps permit, and accompanying ESA Section 7 consultation between NMFS and USFWS and the Corps, and applicable permits from CDFW. A petition for construction and operation of the emergency drought barriers has been advanced to the State Water Board.

The proposed modifications to CVP and SWP with the salinity barriers in place related to Delta outflow and water quality are addressed as part of this Plan. With the salinity barriers in place, it is estimated that a minimum monthly Delta outflow of 2,000 cfs would be sufficient to maintain water quality for in-Delta uses and Project diversions thereby conserving upstream storage that would have been necessary under a higher outflow requirement. However, this range of projected Delta outflow associated with barrier operation is estimated to be insufficient to meet the D-1641 Agricultural Western Delta Salinity Standard at Emmaton for critical year types (14-day running average of 2.78 millimhos per centimeter through August 15). Additional upstream resources would need to be expended in order to meet the Emmaton standard. In fact, due to the hydrodynamic changes associated with the operation of the proposed salinity barriers, slightly more upstream resource would need to be expended to meet the Emmaton standard than if the barriers were not installed at all. Therefore, one of the primary objectives of barrier operation (conservation of upstream storage), can only be achieved

if barrier implementation is carried out in concert with an Emmaton standard relaxation (see below).

Specifically, Reclamation and DWR request that the Order be modified to allow for the following:

**April 1 through May 30, 2014**

D-1641 provisions #1 and #2 of this proposal are intended to be an extension of existing TUC Order provisions 1(a) and 1(b), which terminate on March 31, 2014. D-1641 provisions #3 and #4 of this proposal are considered within existing D-1641 flexibility and with the process of implementation defined therein.

1. The minimum Delta Outflow levels specified in Table 3 are modified as follows:

The minimum monthly Net Delta Outflow Index (NDOI) described in Figure 3 of D-1641 during the months of April and May shall be no less than 3,000 average (mean)cubic-feet per second (cfs).

2. The maximum Export Limits included in Table 3 of D-1641 are modified as follows:

During April and May when footnote 10 of D-1641 is not being met, or the Delta Cross Channel (DCC) gates are open during a period inconsistent with footnote 23 of D-1641, 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 will 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 is being met [3-day average 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) if applicable<sup>1</sup>], but any 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 and under the existing Biological Opinions (with implementation modifications or limits, as specified in BiOps section, below).

3. Continue to vary the averaging period of the Delta Export/Inflow Ratio (E/I ratio) pursuant to Footnotes 18, 19, and 20 of D-1641 as was approved in the March TUC Order. Operate to a 35 percent E/I ratio with a 3-day averaging period on the rising limb of a Delta inflow hydrograph, and operate to a 14-day averaging period on the falling limb of the Delta inflow hydrograph.

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<sup>1</sup> The Standard does not apply in May if the best available estimate of the Sacramento River Index for the water year is less than 8.1 MAF at the 90% exceedence level.

4. Implement combined export limitations as specified in Table 3, Footnotes 17 and 18 of D-1641. The timing and duration of this action is to be coincident with a coordinated pulse flow on the San Joaquin River system as described below under BiOps (1) and (2) of up to but not to exceed 31 days.
5. The compliance location for the D-1641 Agricultural Western Delta Salinity Standard at Emmaton (14-day running average of 2.78 millimhos per) is moved to Three Mile Slough on the Sacramento River.

Reclamation has consulted with NMFS and FWS on the following adjustments to the biological opinions for long-term operations of the CVP, and DWR has consulted with CDFW on consistency of these adjustments with CESA, which are provided here for reference (BiOps provisions):

1. NMFS RPA Action IV.2.1 will be implemented with the following modification:

Before the approximately 31-day Stanislaus River pulse flow (to be initiated between April 7-15, 2014), Action IV.2.1 would be modified to allow for increased export pumping to capture abandoned or natural flows in the Delta, up to OMR limits, as provided in the NMFS BiOp (Action IV.2.3) and USFWS BiOp (Action 3). Action IV.2.1 will be implemented during the 31-day pulse flow period. Action IV.2.1 will likely be implemented following the Stanislaus River pulse flow, through May 31. However, in the unlikely event that there is abandoned or natural flows in the Delta during the latter half of May, exports would increase to capture those flows.

2. Schedule the Stanislaus River pulse flow release in coordination with releases from other San Joaquin River tributaries for 31 days, to begin sometime between April 7 and April 15. The exact timing and duration will be developed through the SOG in coordination with the WOMT and RTDOT processes. Reclamation and DWR will maintain a San Joaquin River inflow-to-export ratio of 1:1 (with a minimum combined export of 1,500 cfs), for the duration of the pulse.
3. All OMR flow related actions, including those based on the NMFS salmonid density triggers, remain in place. The OMR Index Demonstration Project as specified in the NMFS concurrence letter continues.
4. Modification of DCC gate operations (NMFS RPA Action IV.1.2): If the Projects determine that the DCC gates must open to provide for salinity management in the Delta, the Projects will provide at least a 5-day notice to the fish and wildlife agencies so that enhanced monitoring can begin. The Projects will implement enhanced monitoring and triggers to open and close the gates, as needed for protection of listed species.

**June 1 through November 15, 2014**

Reclamation and DWR may request further modifications of requirements contained in D-1641. Below is a description of those anticipated items, for which Reclamation and DWR would provide a supplemental request, which would include analyses of impacts on other water users, as well as any additional biological consultation requested by the fisheries agencies. These requests would be subject to approval by the State Water Board's Executive Director.

**Scenario 1: With Emergency Drought Barriers in Place June through November 15**

1. The minimum monthly Net Delta Outflow Index (NDOI) described in Figure 3 of D-1641 during the months of June through October shall be no less than 2,000 mean cubic-feet per second (cfs).
2. During the month of June, continue to vary the averaging period of the Delta E/I ratio pursuant to Footnotes 18, 19, and 20 of D-1641 as was approved in the March TUC Order. Operate to a 35percent E/I ratio with a 3-day averaging period on the rising limb of a Delta inflow hydrograph, and operate to a 14-day averaging period on the falling limb of the Delta inflow hydrograph.
3. Set aside the critical year D-1641 Agricultural Western Delta Salinity Standard at Emmaton (14-day running average of 2.78 millimhos per centimeter through August 15).
4. The number of required days for 150 mg/l Cl at Contra Costa Canal Intake shall be 56 days.
5. The mean monthly Rio Vista flow standard in September, October, and November shall be no less than 2,000 cfs.

**Scenario 2: Without Emergency Drought Barriers in Place**

1. The minimum monthly Net Delta Outflow Index (NDOI) described in Figure 3 of D-1641 during the months of June through October shall be no less than 3,000 cfs.
2. Modify the critical year D-1641 Agricultural Western Delta Salinity Standard at Emmaton (14-day running average of 2.78 millimhos per centimeter through August 15) by moving the compliance point to Three Mile Slough.
3. The number of required days for 150 mg/l Cl at Contra Costa Canal Intake shall be 56 days.

4. The mean monthly Rio Vista flow standard in September, October, and November shall be no less than 2,000 cfs.
5. Vernalis: For June 1 through June 30, no specific minimum flows are required; flows will be maintained sufficient to meet D-1641 San Joaquin River EC requirements.

### **Effects on Other Uses**

Analysis indicates that legal users of water will not be injured by this action. Delta water quality objectives protective of municipal/industrial and agricultural uses remain in place and increased SWP/CVP diversions at these higher outflow levels are expected to generally improve salinity conditions in the southern Delta. However, as occurs in the South Delta when water quality objectives are met, there may be an exception in achieving the agricultural objective for Old River at Tracy Road. Operation of the emergency salinity barriers will provide better water quality in the Delta than would otherwise be possible, given the limited storage available in upstream reservoirs for releases during the April through November, 2014 period.

This request has been considered and is supported by the Real Time Drought Operations Management Team established to recommend additional changes to the Order necessary to address risks presented by the ongoing and severe drought.

This action should also not have an unreasonable impact to fish and wildlife. Reclamation has concurrence from National Marine Fisheries Service and U.S. Fish and Wildlife Service that these actions are consistent with the federal Endangered Species Act (see attached). DWR has also consulted with the California Department of Fish and Wildlife and has determined that the existing Consistency Determination would remain in effect.

### **Health and Safety Report Update**

A report setting forth a refined estimate of health and safety deliveries and needs is also attached. This report updates the information delivered to the State Water Board on February 14, 2014. The update outlines the methods used to quantify health and safety needs, the volumes of water exported, and estimates of future delivery volumes needed for 2014 and 2015 under continuing drought conditions.

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If you have any questions or would like to discuss further, please contact me at  
(916) 653-7007.

Sincerely,



Mark W. Cowin  
Director

Attachments