

**DEPARTMENT OF WATER RESOURCES AND U.S. BUREAU OF
RECLAMATION
REPORT TO SWRCB ON EXPORT AMOUNTS TO MAINTAIN HEALTH
AND SAFETY
DURING DROUGHT**

FEBRUARY 14, 2014

**Department of Water Resources and U.S. Bureau of Reclamation
Report to SWRCB on Export Amounts to Maintain Health and Safety
During Drought¹**

As required by the January 31, 2014, State Water Resources Control Board 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) (Board Order), this report provides documentation for State Water Project (SWP) and Central Valley Project (CVP) export amounts and deliveries required to maintain public health and safety. The Board Order conditions 1 and 2 require:

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provided in condition 2, below, for a period not to exceed 180 days or until such time as this Order is amended or rescinded based on changed circumstances, the requirements of D-1641 for DWR [the Department of Water Resources] and Reclamation [U.S. Bureau of Reclamation] to meet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 month of February 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.

¹ The report is submitted in compliance with condition 1.b of SWRCB Water Rights Order Approving Temporary Urgency Change modification of D-1641 (January 31, 2014).

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 1,500 cfs shall be limited to natural or abandoned flow, or transfers as specified in condition 1b.

Below is a summary of actions taken under the operations authorized by the Board Order.

Early February Operations

From February 1 through February 9, 2014, and per the Board Order, the Delta Cross Channel gates were open and the SWP and CVP (referred to jointly as the Projects) were operating to a minimum Net Delta Outflow Index of 3,000 cfs, which required Delta exports to be at minimum levels. Combined exports each day during this period were approximately 650 cfs as a short term measure to ameliorate deteriorating water quality in the Delta. However, pumping rates below 1,500 cfs are difficult for the Projects to sustain in the long term due to a combination of certain contractor demands and physical constraints of the facilities.

Reclamation must maintain flow in the Delta Mendota Canal (DMC) to allow the City of Tracy the ability to divert water directly from the DMC. Reclamation typically meets this demand by operating one small pumping unit at Jones Pumping Plant continuously. Jones Pumping Plant has six pumping units with up to five operating at any time. The pumping capacities of the units vary from about 850 cfs to about 1,050 cfs. The small pumping unit used for continuous operations has a minimum design standard of 850 cfs. The pumps were originally designed for long-term operations with minimal starts and stops. And, in accordance with this design intent, Reclamation does not cycle the pumps under normal operations. Excessive starting and stopping of the pumps from cycling the units would greatly degrade the motors and windings of the pump unit and would reduce the reliability of the pumps. This operation would lead to lengthy and costly repairs. As just experienced in February, cycling a pump unit for a short-term emergency variance may occur, but this should not be considered as an option for a sustained operation.

SWP exports during the first week of February went to meet the demands of Byron-Bethany Irrigation District and South Bay Aqueduct contractors (Alameda County Flood and Water Conservation District Zone 7, Alameda County Water District, and Santa Clara Valley Water District) whose only source of SWP water is Delta exports. Contractors that receive water supply through the South Bay Aqueduct are extremely vulnerable to water quality degradation in the Delta because there is limited storage or dilution capability on this system; water is pumped from the Delta at Banks Pumping Plant and conveyed directly through the aqueduct to water treatment plants operated by the Districts. Consequently, degradation of water quality in the Delta is felt at these water treatment plants within 24 hours. Therefore, as a contingency response for possible future salinity degradation, a portion of SWP exports (approximately 1.5 TAF) also went into storage in Lake Del Valle during the first week of February. This water will be used as blending water in the event that Delta salinity conditions become too poor to meet drinking water health and safety standards in the future. No water exported during this period was intended to be stored in San Luis Reservoir or delivered for agricultural use.

Current Operations

Following a series of precipitation events in early February, Delta outflow began to exceed 7,100 cfs and the Delta Cross Channel gates were closed on February 10. As allowed by a provision added to the Order on February 7, "if precipitation events occur that enable DWR and Reclamation to comply with the Delta outflow and Delta Cross Channel gate closure requirements contained in D-1641, then D-1641

requirements shall be operative, except that any SWP and CVP exports greater than 1500 cubic feet per second shall be limited to natural or abandoned flow.” Since February 11, the Projects have been operating to meet the terms of the D-1641 standards that had been modified by the Order; therefore, Delta exports have been increased above minimum levels to capture natural or abandoned flow. The Projects continue to comply with the requirements of the National Marine Fisheries Service (NMFS) and U.S. Fish and Wildlife Service (FWS) biological opinions², as well as the requirements set forth by the California Department of Fish and Wildlife (DFW) for the protection of Longfin Smelt. SWP water exported in excess of 1,500 cfs is currently being stored in San Luis Reservoir and may be used for SWP system-wide blending to meet drinking water health and safety standards in the event that Delta water quality conditions degrade further in the future.

The Projects currently anticipate meeting D-1641 requirements addressed by the Order through the rest of February.

Information to Develop Health and Safety Export Levels

For many reasons, DWR and Reclamation believe that ultimately the minimum health and safety export level at any one time will be a range and that 1,500 cfs is a reasonable cap on that range. The bottom of this range remains undetermined and is the focus of efforts by DWR and Reclamation at this time. Actual health and safety export levels will depend on a number of factors and should take into account not only the need to deliver water directly for drinking water, sanitation, and fire suppression purposes, but also the need to store water now for blending later for health and safety water quality considerations in the event that, without blending, Delta diversions become unusable later in the year. In addition, there are facility operational constraints. Following is a discussion of the factors that will influence this range.

Title 22 CA Code of Regulations and the Health and Safety Code CA Safe Drinking Water Act require that permitted public water systems meet drinking water standards producing drinking water that is pure and wholesome for public consumption. Surface water delivered through the SWP to Municipal and Industrial (M&I) State Water Contractors (SWC) is treated to produce drinking water that meets these standards.

Generally, minimum consumption rates of 50 gallons per capita per day may need to be augmented with water supplies for fire protection and suppression efforts throughout the season. Current drought conditions promote the need to divert south Delta exports to SWP and CVP storage facilities south of the Delta, and to reduce releases from SWP and CVP storage facilities north of the Delta for future use as a source for drinking water, sanitation, fire protection, temperature control, releases to benefit fisheries, etc.

A combined pumping rate of 1,500 cfs is the most biologically protective export rate analyzed in both the 2008 Fish and Wildlife Service biological opinion for smelt (2008 BiOp), and the 2009 NOAA Fisheries biological opinion for salmonids and green sturgeon (2009 BiOp). That rate is based on minimum municipal and refuge contractor supply demands, as well as the physical constraints at Jones Pumping Plant. At the 1,500 cfs level, negative flows in Old and Middle Rivers (OMR) and entrainment risks are reduced. Neither BiOp requires exports of less than 1,500 cfs in recognition of health and safety. Therefore, holding the maximum minimum health and safety level to 1,500 cfs will result in no additional effects to species not already analyzed in the 2008 and 2009 BiOps, would remain consistent

² 2008 CVP/SWP Long Term Operation Biological Opinion, and 2009 NMFS CVP/SWP Long Term Operation Biological Opinion, as confirmed by NMFS and FWS on January 31, 2014, and DFW on February 3, 2014.

with the Board's Order requiring compliance with both the California and federal ESA requirements,³ and, therefore would not have unreasonable effects upon fish.

The Board Order restricting deliveries to SWP and CVP export contractors to health and safety needs could be read as inconsistent with the long understanding that the minimum health and safety level for export pumping is a combined 1,500 cfs, as the water pumped at those levels is needed to satisfy the pumps' physical constraints, and, importantly, refuge supplies off the DMC and San Luis Canal. Refuge deliveries are a legal requirement of the Central Valley Project Improvement Act, yet a strict reading of the Board Order would prevent any of the export water to be used for refuge supply as the refuges are CVP contractors who receive water exported from the Delta. An operation in strict compliance with this provision of the Board Order is impractical and is not consistent with safe operation of the facilities.

Conclusion

Information presented in this report represents the best available information to date on the health and safety rate of exports. DWR and Reclamation recognize that additional information may become available in the future and, and will keep the Board apprised of this additional information. DWR and Reclamation have requested from SWP and CVP contracting water agencies information about forecasted future water needs now and throughout the year. Developing this information is challenging since it is difficult to predict how conditions will change as the drought continues. Our understanding about what we can expect in terms of supply and future water quality continues to evolve as well. As stated above, the Projects' minimum health and safety export is likely to be a range, which will vary according to the circumstances and information related to water agency needs. If DWR and Reclamation determine a refinement of the minimum health and safety export level is appropriate based on the information we may obtain from the agencies, we would provide this information to the Water Board and to the Real Time Drought Operations Management Team.

If you have questions or would like more information about this report, please contact Mr. John Leahigh of DWR at 916-574-2722 or Mr. Paul Fujitani of Reclamation at 916-979-2197.

³ The United States and DWR asserted in 2007 in *NRDC v. Norton* that an export rate of 1,500 cfs was necessary to meet health and safety demands consistent with facility limitations. The court ultimately did not prohibit the Projects from taking any action to protect the structural integrity of CVP or SWP facilities.