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FILE:CF/42-0.19-9 SWRCB Order
Approving Temporary Urgency Change in
Permits 12947A, 12949, 12950 & 16596
(Order WR 2009-0027-DWR)

December 30, 2009

Victoria Whitney, Deputy Director
State Water Resources Control Board
Division of Water Rights
P.O. Box 2000
Sacramento, CA 95812-2000

Dear Ms. Whitney:

**Re: TEMPORARY URGENCY CHANGE PETITION-ORDER WR 2009-0034-EXEC
TERM 18 REPORT**

The Sonoma County Water Agency (Agency) has prepared this letter report to fulfill the requirements of Term 18 of the State Water Resources Control Board (SWRCB) Order WR 2009-0034-EXEC.

The Agency filed a temporary urgency change petition with the SWRCB on April 6, 2009. This petition requested temporary changes to the minimum instream flow requirements specified in water-rights Decision 1610. The Agency asked for these changes so that it could conserve stored water in Lake Mendocino to maintain lake levels into the fall so that sufficient releases could be made to support Chinook salmon migration and spawning. On April 6, 2009, you approved the petition by issuing Order WR 2009-0027-DWR. This order was amended on May 28, 2009 by Order WR 2009-0034-EXEC. One of the amendments was the addition of Term 18, which requires the Agency to report when project water releases are being made to the Russian River.

Term 18 states:

“SCWA shall develop a water right accounting procedure and a method for determining when the Russian River is being supplemented by project water. SCWA shall submit a report to the Deputy Director by December 31, 2009 describing the proposed water right accounting procedure. Beginning December 31, 2009, SCWA shall post on its website notification of periods when the Russian River is being supplemented by project water for purposes of meeting instream flow requirements or to satisfy downstream water demands other than those of SCWA.”

Agency Water-Right Permits

The Agency is authorized to divert Russian River water under four water-right permits. Permit 12947A (Application 12919A) authorizes diversions to storage of up to 122,500 ac-ft per year in Lake Mendocino and diversions and rediversions of stored water of up to 92 cfs and 37,544 ac-ft per year. Permit 16596 (Application 19351) authorizes diversions to storage of up to 245,000 ac-ft per year from October 1st through May 1st in Lake Sonoma and diversions and rediversions of stored water of up to 180 cfs. Permit 12949 (Application 15736) authorizes direct diversions of up to 20 cfs. Permit 12950 (Application 15737) authorizes direct diversions of up to 60 cfs from April 1st through September 30th.

Other Water-Rights in the Russian River

In addition to supporting Agency diversions, Lake Mendocino project water also serves other water-rights holders in the watershed. Specifically, project water released from Lake Mendocino supports diversions in Mendocino County of up to 8,000 ac-ft/yr under water-right Permit 12947B (Application 12919B), which is administered by the Mendocino County Russian River Flood Control and Water Conservation Improvement District, and diversions in Sonoma County of up to 10,000 ac-ft/yr under the reservation for Russian River diversions in Sonoma County that was created by water-rights Decision 1030. Additionally, reservoir operations must pass through enough Lake Mendocino inflow (when available) to satisfy pre-1949 water-rights on the Russian River.

Reservoir Operations

Lake Mendocino and Lake Sonoma are U.S. Army Corps of Engineers (USACE) projects that provide both flood protection and water supply benefits. The Agency is the local sponsor of these projects and shares operations of these facilities with the USACE. When lake levels rise above the water supply pool, water storage encroaches into the flood control pool and the USACE has operational control of the reservoir. The USACE maintains control and determines the amounts of releases while reservoir storage is within the flood control pool. When reservoir storage levels are below the flood control pool, the Agency has operational control of the reservoir and determines the amounts of water to be released.

The flood control and water supply pool elevations for these reservoirs are documented in the USACE water control manuals.

For Lake Mendocino, the *Coyote Valley Dam and Lake Mendocino, Russian River California, Water Control Manual (Appendix I)* of the *Master Water Control Manual, Russian River Basin, California* describes the pool elevations, which vary over the course of the year, in the *Water Control Diagram (Plate A-10)*. This diagram was last revised in January 2004. A copy of the water control diagram is included with this letter as Attachment 1, and a data table of the values in this diagram is included as Attachment 2. During the winter season, starting approximately November 1, the elevation of the top of the water supply pool is 737.5 feet above mean sea level. During the summer season, the elevation of the top of the water supply pool is 761.8 feet above mean sea level. The transition from the higher to lower level for the top of the water supply pool in the fall occurs over a one month period starting October 1. The start date for the period of transition from the lower to higher level for the top of the water supply pool in the spring is discretionary based on an assessment of hydrologic and meteorological conditions. This transition may start on either March 1 or April 1. The rate of transition for the March 1 start date is more gradual than for the April 1 start date, but for either start date the top of the water supply pool reaches the higher elevation by mid-May.

For Lake Sonoma, the *Warm Springs Dam and Lake Sonoma, Dry Creek, California, Water Control Manual (Appendix II)* of the *Master Water Control Manual, Russian River Basin, California* describes the pool elevations, on the *Flood Control Diagram (Chart A-12)*. The elevation of the top of the water supply pool is maintained year-round at 451.1 feet above mean sea level.

Water stored in either reservoir's water supply pool for future release is project water. Storage and releases that occur for flood control purposes are not storage or releases of project water, because their purpose is to regulate high flows in the river and to minimize downstream flooding. Project

water is water that is stored in Lake Mendocino under either the Agency's water rights or the Mendocino District's Permit 12947B, that then is released to supplement the natural flows in the Russian River to provide water for water supply, recreation or aquatic habitat. During the periods when the reservoir is not operating in the flood control regime, releases from the reservoir can be categorized as being of either 'pass-through water' or 'project water'.

Methodology

A water balance model of each reservoir was developed to assess the status of reservoir operations. When the Agency is responsible for operational control of a reservoir, the Agency monitors real-time streamflows on a continual basis and sets reservoir releases in response to changing conditions. For project water releases to be occurring to satisfy minimum instream flow requirements or non-Agency diversions, several conditions all must be satisfied. First, the Agency must be in control of releases from the reservoir. Second, the Agency must be making releases of water that is project water. Third, the streamflow at each compliance point upstream of Agency diversions must be less than the sum of the applicable requirement and the applicable operational buffer. A map showing the minimum instream flow requirements that are specified in Decision 1610 and the USGS stream gage locations that are the compliance points for these requirements is included as Attachment 3. Agency Operations staff utilize an operational buffer when making release decisions to ensure compliance with minimum instream flow requirements. The magnitude of the operational buffer varies with seasonal conditions and the associated uncertainties of river diversion estimates.

Lake Mendocino

The Agency analyzes the reservoir operations status of Lake Mendocino every day. The following equation describes the water balance model of the reservoir:

$$[\text{Inflow}] = [\text{Change in Storage}] + [\text{Evaporation}] - [\text{Precipitation}] + [\text{Release}] + [\text{Redwood Valley CWD Diversion}]$$

Inflow: value calculated by Agency

Change in Storage: derived from calculated values of reservoir storage (based on a bathymetric survey completed in 2001), using water surface elevations measured by USACE;

Evaporation: derived from value of pan evaporation measured by USACE

Precipitation: value measured by USACE

Release: measured value of streamflow, as recorded at USGS Station 11462000 (EF RUSSIAN R NR UKIAH CA)

Redwood Valley CWD Diversion: value measured by Redwood Valley County Water District of diversions directly from Lake Mendocino

This equation makes the following assumptions in the calculation of reservoir inflow:

- o Storage loss to seepage is negligible
- o Diversions of stored water for on-site use by USACE is negligible

The amounts of project water releases will be determined with the following equation:

$$[\text{Project Water}] = [\text{Release}] - [\text{Inflow}].$$

Project Water: value calculated by Agency

Inflow: calculated as described in previous equation

Release: measured value of streamflow as recorded at USGS Station 11462000 (EF
RUSSIAN R NR UKIAH CA)

If $[\text{Release}] > [\text{Inflow}]$, and if the Agency is controlling reservoir operations, then project water is being released. If project water is being released, then the Agency will assess whether the project water releases are being made to meet the the minimum instream flow requirements. The following USGS stream gages are monitored by Agency Operations staff for upper Russian River compliance:

- o East Fork - USGS Station 11462000
- o Hopland - USGS Station 11462500
- o Cloverdale - USGS Station 11463000
- o Digger Bend - USGS Station 11463980
- o Healdsburg - USGS Station 11464000

If the measured streamflow at any of these locations is less than the sum of the applicable minimum instream flow requirement plus the operational buffer (and if project water is being released), then project water is being released to meet instream flow requirements and this condition will be reported on the Agency website.

Lake Sonoma

The Agency analyzes the reservoir operations status of Lake Sonoma every day. The following equation describes the water balance model of the reservoir:

$$[\text{Inflow}] = [\text{Change in Storage}] + [\text{Evaporation}] - [\text{Precipitation}] + [\text{Release}]$$

Inflow: value calculated by Agency

Change in Storage: derived from calculated values of reservoir storage (based on a bathymetric survey completed in 1983), using water surface elevations measured by USACE

Evaporation: derived from value of pan evaporation measured by USACE

Precipitation: value measured by USACE

Release: value measured by USACE

The amounts of project water releases will be determined with the following equation:

$$[\text{Project Water}] = [\text{Release}] - [\text{Inflow}]$$

Project Water: value calculated by Agency

Inflow: calculated as described in previous equation

Release: value measured by USACE

If [Release] > [Inflow], and if the Agency is controlling reservoir operations, then project water is being released. If project water is being released, then the Agency will assess whether the project water releases are being made to meet the minimum instream flow requirements. The following USGS stream gages are monitored by Agency Operations staff for Dry Creek compliance:

- o Dry Creek Mouth - USGS Station 11465350
- o Dry Creek Geyserville - USGS Station 11465200

If the measured streamflow at either of these locations is less than the sum of the applicable minimum instream flow requirement and the operational buffer (and if project water is being released), then project water is being released to meet instream flow requirements and this condition will be reported on the Agency website.

Lower Russian River

There are two checks on river operation conditions in the Lower Russian River reach between the confluence with Dry Creek and the Hacienda Bridge in Guerneville. Both of these checks will be used to determine whether project water is being released from either reservoir to meet instream flow requirements in this reach. If project water releases have already been determined to be occurring, based on the above calculations for either Lake Mendocino and Lake Sonoma, and either of the checks described below for the Lower Russian River reach is met, then the Agency is releasing project water to meet instream flow requirements in the Lower Russian River, and this condition will be reported the Agency's website.

The first check determines whether the total of the flows in Dry Creek and the Russian River at the Healdsburg gages is less than the sum of the applicable minimum instream flow requirements plus the applicable operational buffer minus the Agency's diversions at its Wohler and Mirabel Water Production Facilities. This check will be made as follows:

If $[\text{Dry Crk Flow}] + [\text{Russian Flow}] - [\text{Agency Diversions}] < [\text{Minimum Instream Flow}] + [\text{Operational Buffer}]$, then project water is being released to meet the instream flow requirement.

Dry Crk Flow: as measured by USGS at the Dry Creek gage (the Dry Creek Mouth stream gage will be used during low flows; the Dry Creek Geyserville stream gage will be used during high flows)

Russian Flow: as measured by USGS at the Healdsburg gage

Agency Diversions: as measured by Agency at its Wohler and Mirabel facilities

Minimum Instream Flow: minimum instream flow requirements specified in Decision 1610

Operational Buffer: as determined by Agency operators based on current conditions

The second check on river operation conditions evaluates the reach flows downstream of the Agency's diversions at the Wohler and Mirabel Water Production Facilities. This check determines whether river flows in this reach are less than the sum of the applicable minimum instream flow requirement and the applicable operational buffer. The Lower Russian River has the following USGS stream gage that is monitored by Agency Operations staff for minimum instream flow compliance:


- o Hacienda Bridge - USGS Station 11467000

If this check is satisfied while project water is being released, then project water is being released to meet this instream flow requirement, and this condition will be reported on the Agency's website.

Public Notification of River System Operations

Commencing on December 31, 2009, Agency staff will use the above-described methodology to determine "periods when the Russian River is being supplemented by project water for purposes of meeting instream flow requirements or to satisfy downstream water demands other than those of SCWA," as required by Term 18 of Order WR 2009-0034-EXEC. As required by this term, this status will be posted on the internet at the Agency's website—<http://www.scwa.ca.gov/> each day. Specifically, this information will be posted in the *Daily Reservoir Operations Status* section of the *Current Water Supply Conditions* webpage that is accessible from the Agency's homepage via the pull-down menu found under *Water Supply*. The URL for this webpage is <http://www.scwa.ca.gov/current-water-supply-levels/>. A copy of a sample webpage is included as Attachment 4.

Sincerely,


Randy D. Poole, P.E.
General Manager / Chief Engineer

Attachments

- (1) Lake Mendocino Water Control Diagram
- (2) Lake Mendocino Water Control Flood Pool Designation Table
- (3) Streamflow Requirements
- (4) Sample of *Current Water Supply Conditions* Webpage from Sonoma County Water Agency Website

c: Todd Schram, Donald Seymour, Pamela Jeane, James Zambenini – Sonoma County Water Agency
Steve Shupe – Sonoma County Counsel
Alan Lilly – Bartkiewicz, Kronick & Shanahan