

California Regional Water Quality Control Board San Francisco Bay Region

STAFF-INITIATED CHANGES

To the Tentative Order for
City of Benicia Wastewater Treatment Plant and Sanitary Sewer System
Benicia, Solano County

We revised the Fact Sheet to clarify that the chlorine water quality-based effluent limitation is carried over from the previous order, as amended by Order R2-2023-0023. The Revised Tentative Order would not impose a new, less stringent chlorine effluent limitation. As such, we also simplified the anti-backsliding and antidegradation findings. The following revisions to the Tentative Order are shown with underlined text for additions and ~~strikethrough~~ text for deletions:

4.2.2.3. **Chlorine.** Basin Plan Table 4-2 contains an instantaneous limitation for total residual chlorine of 0.0 mg/L. This Order continues to replace the instantaneous limitation in the Basin Plan with a higher water quality-based effluent limitation (see Fact Sheet section 4.3.4.5) imposed in the previous order, as amended by Order R2-2023-0023, because Basin Plan section 4.5.3 allows less stringent effluent limitations when certain conditions are met. It states, "The Water Board will consider establishing less stringent limitations, consistent with state and federal laws, for any discharge where it can be conclusively demonstrated through a comprehensive program approved by the Water Board that such limitations will not result in unacceptable adverse impacts on the beneficial uses of the receiving water." These conditions are met. The requirements of this Order (specifically Provision 6.3.4.4 and footnote 4 to Table E-3) include a comprehensive program that will ensure that these limitations will not result in unacceptable adverse impacts on the beneficial uses of receiving waters. Chlorine is a non-persistent pollutant that quickly degrades to a non-toxic state, and the mixing zone described in Fact Sheet section 4.3.4.2 is very small relative to the size of the receiving water. This Order requires the Discharger to continue to implement a Chlorine Process Control Plan to target a chlorine residual of 0.0 mg/L at Discharge Point 001. This will ensure that chlorine will typically not be present in discharge and, if chlorine is detected, the duration of such discharges will be relatively short.

The ~~less stringent~~ water quality-based effluent limitation is consistent with state and federal anti-backsliding (CWA sections 402(o), 303(d)(4), and 40 C.F.R. section 122.44(l)) and antidegradation (Resolution 68-16 and 40 C.F.R. 131.12) laws. In terms of anti-backsliding, the water quality-based effluent limitation is not less stringent than the limitation imposed in Order R2-2023-0023 ~~the previous order~~. In terms of antidegradation, this Order

~~does not authorize lowering water quality as compared to the level of discharge authorized in the previous order (as amended by Order R2-2023-0023), which is the baseline by which to measure whether degradation will occur. any decrease in water quality resulting from this limitation is consistent with the maximum benefit of the people of the state, does not unreasonably affect any current or anticipated beneficial uses, and does not result in lower water quality than that prescribed in applicable policies. Additionally, this Order requires the Discharger to implement a control plan to demonstrate that these limitations will not result in unacceptable adverse impacts on beneficial uses.~~

~~The removal of the 0.0 mg/L chlorine limitation addresses the over-application of sodium bisulfite that results in extra operational cost and can decrease dissolved oxygen concentrations and depress pH in the effluent and receiving water. Municipal wastewater treatment plants that use chlorine to disinfect must apply a dechlorinating chemical, typically liquid sodium bisulfite, to remove residual chlorine and comply with the residual chlorine effluent limitation. Because wastewater is a complex mixture and the 0.0 mg/L effluent limitation is an instantaneous maximum (i.e., no amount may be discharged, ever), wastewater treatment plant operators routinely add sodium bisulfite in amounts well beyond what would theoretically neutralize residual chlorine. The excess use of dechlorination chemicals costs dischargers up to \$2 million per year (Bay Area Clean Water Agencies, September 29, 2023). These funds could be better invested in other important water quality projects. Therefore, the less stringent water quality-based effluent limitations are consistent with the maximum benefit of people of the state.~~

~~Compliance with the less stringent effluent limitations will not unreasonably affect current or anticipated beneficial uses because the chlorine water quality criteria implemented in this Order are protective of most aquatic life.² To ensure that any migration corridors for threatened and endangered species will not be compromised, the mixing zone established for the less stringent limitations in this Order (see Fact Sheet section 4.3.4.5) is small relative to the sizes of the receiving water body. This revised approach for establishing chlorine effluent limitations thus reflects the updated understanding that overdosing with dechlorination chemicals is no longer the best practicable treatment or control of chlorine because of its adverse impacts to water quality.~~

~~Since the imposition of the 0.0 mg/L instantaneous chlorine limitation, there have been significant improvements in chlorine process control. For~~

² U.S. EPA's *Guidelines for Deriving Numerical National Water Quality Criteria for the Protection of Aquatic Organisms and Their Uses* (EPA 822-R-85-100) indicates that aquatic organisms and their uses should not be affected unacceptably by the 304(a) numeric criteria except possibly where a locally important species is very sensitive.

~~example, instead of collecting periodic grab samples to evaluate compliance, continuous monitoring devices that evaluate chlorine residual levels at least every five minutes are now commonplace. Additionally, this Order requires the Discharger to continue to implement a Chlorine Process Control Plan to target a chlorine residual of 0.0 mg/L at Discharge Point 001. This will ensure that chlorine will typically not be present in discharge and, if chlorine is detected, the duration of such discharges will be relatively short.~~