Principles to Govern Development of a Drought Policy in the SAR Watershed

Background

1) In the Recycled Water Policy (Res. No. 2009-0011), the State Water Resources Control Board ("State Water Board") found that severe drought was *"challenging California's ability to provide the clean water needed to support a healthy population, a healthy environment and a healthy economy now and in the future."*

2) In adopting the Recycled Water Policy the State Water Board declared their *"independence from relying on the vagaries of annual precipitation and move towards sustainable management of surface water and groundwater, together with enhanced water conservation, water reuse and the use of stormwater."*

3) The Recycled Water Policy directs the State Board and the Regional Water Quality Control Boards ("Regional Board") to *"exercise the authority granted to them by the Legislature to the fullest extent possible to encourage the use of recycled water, consistent with state and federal water quality laws."*

4) *"When used in compliance with this [Recycled Water] Policy, Title 22 and all applicable state and federal water quality laws, the State Water Board finds that recycled water is safe for approved uses, and strongly supports recycled water as a safe alternative to potable water for such approved uses… The State Water Board [also] finds that the use of recycled water in accordance with this Policy, that is, which supports the sustainable use of groundwater and/or surface water, which is sufficiently treated so as not to adversely impact public health or the environment and which ideally substitutes for use of potable water, is presumed to have a beneficial impact." [RWP, §1 & §3, pgs. 2 & 3]*

5) The Recycled Water Policy requires the Regional Board to develop and implement regional and sub-regional salt and nutrient management plans to encourage greater use of recycled water while assuring compliance with applicable water quality standards. The degree of specificity within these plans will vary with a number of site-specific factors including stormwater recharge. *"It is also the intent of the State Water Board that because stormwater is typically lower in nutrients and salts and can augment local water supplies, inclusion of significant stormwater use and recharge component within the salt/nutrient management plans is critical to the long-term sustainable use of water in California." [RWP, §6(b)(2), pg. 5]*

Regulatory Issues

6) Permit limitations governing the discharge of treated municipal wastewater (aka "recycled water") may include restrictions on the salt concentration in the final effluent. The limits themselves may be derived based on the applicable narrative or numeric water quality objective, or based on high quality receiving water, or based on a maximum allowable increase in Total Dissolved Solids (TDS) compared to the average salinity concentration in the municipal water supply source, or based on the best demonstrated performance of the treatment plant using representative prior discharge data.

7) Historically, NPDES limits and waste discharge requirements (WDRs) rarely included any special provision or consideration for variations in effluent quality that may be directly or indirectly related to recurrent drought conditions.

8) Extended periods of below normal precipitation (aka "droughts") can create conditions that may make it more difficult to comply with some WDRs governing salinity.

   a) First, during droughts, there is generally less high quality (low TDS) surface water available and water agencies commonly increase their reliance on lower quality (higher TDS) groundwater sources to augment their water supply. Most wastewater treatment plants are not designed to remove TDS. Consequently, higher salinity in the water supply tends to result in higher salinity in recycled water.

   b) Second, mandatory conservation measures undertaken in response to prolonged drought may significantly alter the behavior of residential and commercial water users. The cumulative effect of shorter showers, larger laundry loads, less frequent flushing, etc. combine to reduce water waste which previously helped dilute the average TDS concentration of raw sewage and, eventually, recycled water.

   c) These drought-related changes in water quality temporarily aggravate a long-term trend toward increasing TDS that is caused by widespread adoption of high efficiency, low-flow fixtures and appliances that reduce water waste and subsequent dilution, and by greater use of in-home water softening technologies that increase TDS discharged to the sewer system.

   d) The net result is that, even where wastewater treatment plants have been able to cope with the long-term trend of rising TDS in the sewage influent, drought-related conditions may temporarily eliminate the small but critical buffer needed to assure consistent compliance.

Regulatory Issues *(continued)*

9) Inability to assure consistent compliance with WDRs governing salinity makes it more difficult to increase the use of recycled water for landscape or crop irrigation. In addition, these requirements may inadvertently disincentivize greater implementation of more efficient irrigation systems.

10) This problem is compounded by the fact that compliance with WDRs for TDS is often evaluated using relatively short-term averaging periods (e.g. daily, weekly, monthly means). Since droughts typically persist for several years, even WDRs expressed as an annual average may be practically impossible to meet given the elevated salinity concentrations in the best available water supplies during such times.

Recommendations

11) For discharges to groundwater, calculate compliance with the applicable narrative or numeric salinity objectives using a flow-weighted annual average while simultaneously taking into consideration the annual recharge from natural precipitation (median value of the last 100 years).

    Such an approach would be consistent with the Recycled Water Policy in that it accounts for the influence of stormwater recharge over the long-term and is also consistent with the State Board's previous precedential orders deeming it appropriate to consider "system mixing." [SWRCB Order No. 81-5; Lompoc]

    Many of the short-term averaging periods most commonly used originated in EPA regulations intended to protect surface waters [see, for example, 40 CFR 122.45(d)]. These averaging periods are unnecessarily restrictive where surface recharges routinely take several years to reach the groundwater after passing through the vadose zone.

    Most important, this approach would continue to protect water quality by assuring that compliance with a receiving water limitation for salinity is evaluated, holistically, based on the cumulative net effects on the receiving water.

Recommendations *(continued)*

12) Authorize the use of "Offset Projects," particularly increased stormwater capture and recharge, to demonstrate compliance with WDRs governing salinity discharges. Allow offset credits to be created and banked by constructing and operating such projects. Recognize that the credits needed to achieve compliance during periods of drought must be acquired and accumulated during the years of above normal precipitation (esp. El Niño winters) and, as such, must remain valid for at least 10 years.

13) Consider amending the Basin Plan to establish a temporary variance/exception from salinity-related standards when the Governor or State Water Board has declared a drought emergency or when some other pre-defined trigger condition has been met. At such times, alternate interim WDRs or effluent limits would apply. In general, the purpose of this approach is to exempt dischargers from temporary non-compliance for exceedances/violations caused by the loss of high quality (lower TDS) water supplies and/or salinity increases directly related to mandatory conservation measures.

14) Consider amending the Basin Plan to establish a temporary variance/exception from salinity-related standards where the TDS concentration in the permitted discharge is significantly better (lower) than the TDS concentration in the receiving water and is expected to provide progress toward re-attaining said standards by improving receiving water quality while promoting maximum use/reuse of available water supplies.