

Central Valley SNMP Implementation Program (see Executive Summary)

- Establishes three prioritized, overarching goals:
 - Ensuring a safe drinking water supply for all residents in the valley;
 - Balancing salt and nitrate loading to eliminate further degradation;
 - Implementing management restoration where feasible
- Prioritizes implementation of the SNMP based on existing nitrate water quality in the upper zone of DWR Bulletin 118 groundwater basins/sub-basins.
- Notification of priority status triggers timeline for development of Preliminary Management Plan Proposals, and then requires the discharger to determine whether to comply individually (i.e., through a single permit action) or collectively with other dischargers through a Management Zone
- Develop and implement an Early Action Plan to assure that a safe drinking water supply is available within the area under the influence of the discharge, or for the proposed Management Zone area. .
- Where nitrate/salt concentrations in groundwater are of significant concern, e.g., there is no assimilative capacity and/or specific water quality criteria triggers are exceeded, the discharger(s) must develop and implement a Salt and/or Nitrate Compliance Plan to support other SNMP Management Goals: (a) achieve balanced salt and/or nitrate loading and (b) implement a managed restoration program in the aquifer.

Implementation of the SNMP is intended to be supported through the adoption of Basin Plan amendments that incorporate recommendations in the policies, as described below.

Policy Documents

Related to Alternative Compliance Strategies

Although the proposed SNMP does not change any of the existing regulatory options available to the Central Valley Water Board to control salt and nitrate discharges, including permitting, enforcement actions and prohibitions, additional policies are recommended to expand the options.. Establishment of additional options can provide opportunity to implement innovative approaches or alternative compliance strategies for effective management of salt and nitrate, consistent with the intent of the Recycled Water Policy which promotes management of salt/nitrate at the appropriate scale through adoption of local management plans tailored to the water quality concerns of a specific area. There are many instances where salt/nitrate management may be more effective at larger geographic scales - on a zonal, regional, or watershed scale rather than on a local or permit-specific scale. The following policies allow for creative solutions to complex problems by measuring success at the most critical endpoints: net effect on overall environmental quality and user protection.

1. Management Zone Policy

Issues

- Areas of water quality concern on the valley floor range from local hotspots to large geographic areas.

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- Management scale should be commensurate with the regulatory and resource management decisions that must be made to manage salt and nitrate in a practical manner and tied as closely as possible to local management efforts.

Proposed Recommendations

- Amend the Basin Plans to:
 - Allow and encourage management of salt/nitrate through the establishment of Management Zones (MZ)
 - Establish criteria for the formation, operation and approval of a MZ
 - A Management Zone is intended to:
 - Be a portion of a larger groundwater basin/sub-basin that serves as a discrete regulatory compliance unit for salt and/or nitrate;
 - Include all of the groundwater and all of the regulated dischargers that wish to participate in the MZ within the land area encompassed by the MZ.
 - Facilitate the assurance of safe drinking water for all residents in the zone adversely affected by dischargers participating in the MZ and within the zone boundary.
 - Encourage stakeholder coordination, promote better water resource management, and provide greater regulatory flexibility where needed to prioritize salt/nitrate management activities and allow time to comply with SNMP management goals.

2. Exceptions Policy

Background

- Where a discharge is not better than the applicable water quality objective and no assimilative capacity is available, current policy requires the Central Valley Water Board to prohibit the discharge, adopt a time schedule in the order that allows the discharger to come into compliance with needed WDR provisions, or revise the applicable water quality standard.
- Because none of these traditional remedies may be appropriate for salt, the Board adopted a Exceptions Policy that includes a Salinity Exception Program to be in effect during the CV-SALTS process.

Problem Statement

- Current Exceptions Policy prohibits the Board from authorizing new exceptions or reauthorizing previously approved exceptions after June 30, 2019.
- The Salinity Exception Program applies only to electrical conductivity, total dissolved solids, chloride, sulfate and sodium and does not allow for an exception to meeting nitrate water quality objectives.

Proposed Recommendations

- Revise existing Exceptions Policy as follows:
 - Add nitrate to the list of chemical constituents for which the Board may authorize an exception;
 - Expand/revise conditions to reflect goals of the SNMP
 - Remove the existing sunset provision that prohibits the granting of exceptions beyond June 30, 2019; and

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- Retain the existing provision that limits the term of an exception to no more than 10 years, but add a new provision stating:
 - Exceptions may be reauthorized for one or more additional 10-year periods; and
 - Require that a status report (summarizing compliance with the terms and conditions of the exception) be presented to the Central Valley Water Board every 5 years.

3. Offsets Policy

Problem Statement

- Situations may occur where mitigation of a salt or nitrate concern offsite from where a discharge occurs may be permitted if it provides a greater environmental and/or user benefit (and therefore provides maximum benefit to the people of California) than if mitigation were restricted to the area only covered by the permit.

Proposed Recommendations

- Amend the Basin Plan to allow the use of offsets
 - Offsets provide an indirect approach to compliance with a WDR/Waiver requirement for a given pollutant by managing other sources and loads so that the net effect on receiving water quality from all known sources is functionally-equivalent to or better than that which would have occurred through direct compliance with the WDR at the point-of-discharge.
- Authorization to allow use of offsets would provide:
 - Additional option for permitting non-compliant discharges in an area that lacks assimilative capacity while continuing to make progress toward attainment of water quality standards in the basin or Management Zone.
 - Mechanism to re-target the resources required to achieve compliance in order to produce greater public benefits (better net water quality, lower cost, less risk, etc.).
 - Mechanism whereby diverse dischargers within the same MZ can pool available resources to implement alternative compliance projects, in phases, on a risk-priority basis.
 - Mechanism to develop and fund large-scale, long-term regional water quality improvement projects, e.g., as described by the SSALTS or NIMS, by recognizing participation in such efforts as partial credit toward compliance.
 - Market-based incentive to establish “Mitigation Banks” designed to develop and implement water quality improvement projects - Useful for pooling the resources of relatively small dischargers into a critical mass of funding to support projects that would normally be beyond their individual means.

Secondary Maximum Contaminant Level (SMCL) Policy

Background

- SMCLs are established by California Code of Regulation (CCR), Title 22 and are incorporated by reference in the Chemical Constituent sections in the Water Quality Objectives Chapter of the Basin Plans .
- Primary MCLs are set at levels to protect public health, SMCLs are drinking water standards based on consumer acceptance levels for taste and odor.
- The only portions of 22 CCR related to SMCLs and incorporated into the Basin Plans are Tables 64449-A and 64449-B, which includes “Recommended”, “Upper”, and “Short Term” concentrations for TDS, electrical conductivity, chloride and sulfate.
- Basin Plans do not include supporting text in 22 CCR that provides guidance for utilizing the “Recommended”, “Upper”, or “Short Term” concentrations.
- Determining compliance with SMCLs - sample analysis requirements
 - When determining attainment with SMCLs in drinking water, as served to consumers, attainment is measured in the groundwater source or at distribution system entry points. Accordingly, the drinking water standard applies after the water has been treated, which in many cases means that water has been filtered.
 - Comparatively, when SMCLs are used as WQOs, these values have been applied directly to the water body, which has not been treated or filtered. As a practical matter, this means that a water body, such as a river, must meet the SMCL in its raw water state even though the water itself would not be served to consumers without some form of treatment or filtration.
- Determining compliance with SMCLs – assessment period
 - Per 22 CCR §64449, compliance with SMCLs in Table 64449-A is based on a long-term average (running annual average) rather than the results of an individual grab sample. No guidance is provided for determining compliance with Table 64449-B constituents. The Basins Plans currently do not provide guidelines for an appropriate compliance assessment time period for SMCL constituents.

Problem Statements

- Difficult for dischargers to meet numeric requirements based on treated water in source water
- Without guidance on how to apply “Recommended”, “Upper”, and “Short Term” numeric criteria, inconsistencies in application have occurred.

Proposed Recommendations

- Incorporate guidance into Basin Plan as follows:
 - Incorporate text from 22 CCR §64449 that provides guidance on the application of “Recommended”, “Upper”, and “Short Term” consumer acceptance levels.
 - Determine compliance from a filtered water sample, but only for metals, color and turbidity;.
 - Add language to Basin Plans to state that an evaluation of compliance with SMCLs in Tables 64449-A and 64449-B shall be determined from an annual average of collected samples.

AGR Policy

Background

- The AGR beneficial use was designed to protect both crop irrigation and livestock watering and has been designated in the majority of surface waters and groundwater throughout the Central Valley. Although the water quality objectives to protect the AGR beneficial use are narrative, there is currently no guidance on how to interpret the narrative objective in a manner that accounts for local and regional differences.
- As a default, a conservative approach is typically applied that ensures protection of the most sensitive crop in all locations at all times (e.g., electrical conductivity < 700 $\mu\text{mhos/cm}$), even though individual crop and livestock sensitivity to salinity varies widely and potential impacts can be mitigated through management activities.

Problem Statement

- Use of a conservative criteria of 700 $\mu\text{mhos/cm}$ to protect AGR prevents the ability to manage/maximize reuse of drainage water on progressively more salt tolerant crops.
- Many sub-basins and localized areas have elevated background salt concentrations that are higher than 700 $\mu\text{mhos/cm}$.
- Due to consumptive use, very high quality irrigation water would be needed to ensure 700 $\mu\text{mhos/cm}$ in drainage below the root zone under common practices.
- Clarification needed regarding how salinity will be managed within each groundwater basin and sub-basin to provide the appropriate level of protection of the AGR beneficial use and establish procedures to minimize degradation and where needed reduce salt loading to achieve balance and ensure long-term protection of the AGR use.

Proposed Recommendations

- Assign AGR classes to groundwater basins and sub-basins based on existing ambient water quality in the production zone of the basin or sub-basin:
 - AGR Class 1: TDS < 600 mg/L (EC < 1,000 $\mu\text{S/cm}$). Groundwater quality in the production zone that may be used as an agricultural water supply is generally suitable for irrigating all crops and all stock watering.
 - AGR Class 2: 600 mg/L < TDS < 2,000 mg/L (1,000 $\mu\text{S/cm}$ < EC < 3,000 $\mu\text{S/cm}$). Groundwater quality in the production zone that may be used as an agricultural water supply is generally acceptable for stock watering and for irrigating most salt-tolerant crops; it is not generally suitable for irrigating many salt-sensitive crops, except as a temporary, short-term alternative when higher quality water supplies are not readily available.
 - AGR Class 3: 2,000 mg/L < TDS < 5,000 mg/L (3,000 $\mu\text{S/cm}$ < EC < 7,500 $\mu\text{S/cm}$). Groundwater quality in the production zone that may be used as an agricultural water supply is generally acceptable for stock watering but is not generally suitable for irrigating all but the most salt-tolerant crops, except as a temporary, short-term alternative when higher water quality water supplies are not readily available.
 - AGR Class 4: TDS > 5,000 mg/L (EC > 7,500 $\mu\text{S/cm}$). Groundwater quality in the production zone that is not suitable for either stock watering or crop irrigation AGR uses unless blended with

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lower salinity water. Areas within this classification should be considered for AGR de-designation.

- Specific criteria that trigger the requirement to develop a Salt Compliance Plan are currently under discussion.
- Where trigger criteria are exceeded, the discharger shall submit a Salt Compliance Plan for the area under the influence of the discharge that includes short-term (≤ 20 years) and long-term (>20 years) implementation measures consistent with SSALTS goals for balance salt loading and managed restoration. A long-term implementation program may include, but not be limited to:
 - Commitments to direct participation in the development of a Central Valley regulated brine line;
 - Participation in a mitigation bank to support development of a Central Valley regulated brine line;
 - Participation in the development of a Board approved salt management site that serves as a local or regional salt sink; or
 - Other options that will support efforts to achieve balanced salt loading in the affected area and aquifer restoration, where required.

Conservation and Drought Policy

Problem Statement

- Historically, WDRs rarely included any special provision or consideration for variations in effluent quality, directly or indirectly related to recurrent drought conditions that are beyond the control of the discharger.
- Extended periods of below normal precipitation (aka “droughts”) can create compliance issues for some WDRs because of increased TDS in influent and effluent.
 - When less high quality (low TDS) surface water is available, water agencies may increase reliance on lower quality (higher TDS) groundwater to augment supplies. Most treatment systems are not designed to remove TDS; thus higher salinity in the water supply can result in higher salinity in effluent.
 - Mandatory conservation measures during prolonged drought may significantly alter the behavior of water user; cumulative effect is reduced water use, which previously helped dilute average TDS concentration in raw sewage and treated wastewater.
 - Drought-related changes in water quality may temporarily aggravate the more permanent long-term trend toward increased TDS in influent caused by adoption of high efficiency, low-flow fixtures and appliances, and greater use of in-home water softeners.
 - Even where wastewater facilities are able to handle a long-term trend of rising TDS in the influent, drought-related conditions may temporarily eliminate the small but critical buffer needed to assure consistent compliance with salinity-based permit requirements.
 - Drought conditions create similar concerns for agricultural operators. Reduced availability of high quality (low TDS) surface water forces increased reliance on lower quality (high TDS) sources (e.g., groundwater and/or reuse of irrigation return flows), resulting in temporarily higher TDS concentrations recharging to groundwater below the root zone.
- Inability to assure consistent permit compliance for salinity discourages the use of recycled water for landscape or crop irrigation and may disincentive greater implementation of more efficient (drip-style) irrigation systems.

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- Problem compounded because permit requirements for TDS may be evaluated using relatively short-term averaging periods (e.g., daily, weekly, monthly averages or means). Since droughts typically persist for several years, even limits expressed as an annual average may be practically impossible to meet.

Proposed Recommendations

- For discharges to groundwater, calculate compliance with the applicable narrative or numeric salinity objectives using a long-term (10+ year) flow-weighted average while simultaneously taking into consideration the expected recharge and potential dilution from natural precipitation and streambed percolation to the same basin or sub-basin.
- 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 or by discharging well below the WDR threshold in non-drought years. Recognize that the credits needed to achieve compliance during periods of drought must be generated at times of above normal precipitation (especially El Niño winters) and, as such, must remain valid for at least 10 years.
- Consider amending the Basin Plans to establish a temporary variance/exception from salinity-related standards during certain drought conditions. The variance/exception would be automatically triggered when a drought emergency is declared by an authorized federal or state authority or by some other trigger(s) that have been pre-approved the Central Valley Water Board. At such times, more appropriate interim WDRs or effluent limits would apply. Regional guidance should be developed to describe both the automatic triggers and the factors that should be considered when developing the alternate, interim WDRs that should apply when trigger conditions occur.
- Consider amending the Basin Plans 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 will improve receiving water quality while promoting maximum use/reuse of available water supplies. Potential impacts to downstream/downgradient water quality must also be evaluated as part of this demonstration.
- In lieu of authorizing a temporary variance/exception, consider pre-authorizing an automatic allocation of assimilative capacity (where it exists) to accommodate higher TDS concentrations in the discharge/recharge during drought conditions.

Additional Material under Development:

- *Nitrate Permitting Strategy*-- a nitrate management implementation document that is consistent with the SNMP Implementation Program and the Management Zone policy
- *Clarify Factors to Support a Maximum Benefit Finding* – To authorize a discharge that is expected to lower water quality, the Central Valley Water Board must make a finding that authorizing the discharge is "consistent with maximum benefit to the people of the state". It is recommended that guidance be incorporated into the Basin Plan regarding factors to be considered when making a maximum benefit finding.
- *Clarify Allocation of Assimilative Capacity* – Establish guidance on the requirements for allocation of assimilative capacity in groundwater basins/sub-basins for individuals and for participants in Management Zones. Guidance will include the basis for calculating assimilative capacity within a managed area.

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- *Salinity Permitting Strategy* - a salinity management implementation document that is consistent with the SNMP Implementation Program, and addresses how to permit salinity to protect both the AGR and municipal beneficial uses.