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Dear Coordinators/Stakeholders:

WATER BOARD SUPPORT OF REGIONAL SALT & NUTRIENT MANAGEMENT PLANNING EFFORTS; TRANSMITTAL OF INFORMATIONAL DOCUMENT

We commend you for taking a lead role in the development of salt and nutrient management plans (SNMP) and your ongoing groundwater management efforts. We acknowledge that each of the regional SNMP groups within the Central Coast Region consists of diverse stakeholders that are trying to address a unique set of land use, hydrogeological, and geochemical conditions within their given groundwater basins and watersheds. It is our understanding that the pending plans are in various stages of development and need to be tailored to those unique conditions.

The attached document provides information regarding the development and implementation of SNMPs in the Central Coast Region. More specifically, it provides background information regarding the underlying basis of and requirements applicable to SNMPs, guidance regarding assimilative capacity and antidegradation analyses and identifies the minimum elements of and Regional Water Board expectations associated with acceptable SNMPs. It also discusses opportunities associated with streamlining waste discharge monitoring requirements to help fund the SNMP regional groundwater monitoring programs. The latter is intended to foster the development of integrated and consistent SNMP regional monitoring programs and waste

discharge monitoring requirements by groundwater basin/sub-basin and incentivize stakeholder participation in SNMP efforts via potential monitoring cost savings or off-sets.

Please forward this letter and attached informational document to salt and nutrient loading stakeholders within your planning geographic area as appropriate.

Our staff will be available on request to discuss this letter and other SNMP issues at regularly scheduled SNMP stakeholder meetings or other agreed upon times. Please contact Matthew Keeling at (805) 549-3685, or Matt.Keeling@waterboards.ca.gov, or Harvey Packard at (805) 542-4639, or Harvey.Packard@waterboards.ca.gov, if you have any questions or would like to schedule a meeting.

Sincerely,

Kenneth A. Harris Jr.
Executive Officer

Attachment:

Central Coast Water Board Informational Document: Salt and Nutrient Management Plan Development, February 2014

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CALIFORNIA Water Boards

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Central Coast Regional Water Quality Control Board

Informational Document:

Salt and Nutrient Management Plan Development

February 2014

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Background

This document provides information to stakeholders developing salt and nutrient management plans (SNMPs) within the Central Coast Region. It contains background information regarding the underlying basis of and requirements applicable to SNMPs along with guidance addressing specific issues and challenges that are somewhat unique to the Central Coast Region. In particular, a number of stakeholders have requested clarification about the basis for determining available assimilative capacity. This document addresses this question for a number of water quality scenarios with potential supporting strategies and provides additional guidance regarding the use of assimilative capacity for water recycling projects and the implementation of the Antidegradation Policy associated with the development and implementation of salt and nutrient management plans. The latter part of this document also discusses the required technical and basin planning process elements of acceptable plans.

Recycled Water Policy - Salt and Nutrient Management Plans

The State Water Resources Control Board (State Water Board) adopted the Recycled Water Policy in February 2009. The purpose of the Policy is to support sustainable local water supplies by increasing the use of recycled water consistent with state and federal water quality laws. When recycled water is used in compliance with the Policy, Title 22, and all applicable state and federal water quality laws, the State Water Board and Central Coast Regional Water Quality Control Board (Regional Water Board) strongly support its use as a safe alternative for approved uses.

The Policy establishes a framework and schedule for developing basin-wide or watershed-wide SNMPs by 2014. Although the Policy emphasizes recycled water irrigation and groundwater recharge reuse projects, it requires stakeholders to develop SNMPs to manage salts and nutrients from all sources to meet water quality objectives (WQOs) and protect beneficial uses. The Regional Water Board will then consider the SNMPs for incorporation into its water quality control plan (basin plan). The adopted SNMP implementation plans will be used to streamline permitting of individual recycled water projects. Regional Water Board staff is available to provide guidance during the stakeholder-led development of these plans.

Beneficial Uses

The Water Quality Control Plan for the Central Coastal Basin (Basin Plan) designates beneficial uses of surface water and groundwater. The Basin Plan identifies all groundwater throughout the Central Coast Region, with the exception of the Soda Lake Sub-basin, as having beneficial uses of agricultural supply (AGR), municipal and domestic supply (MUN), and industrial supply (IND). The Regional Water Board may remove individual MUN beneficial use designations for groundwater by amending the Basin Plan, consistent with the State Water Board's "Sources of Drinking Water Policy" (Resolution No. 88-63). Basin Plan Table 2-1 assigns one or more of 24 standard beneficial uses to specific inland surface waters. Surface water bodies within the

Central Coast Region that do not have beneficial uses designated for them in Table 2-1 are assigned MUN and protection of both recreation and aquatic life related beneficial uses.

Water Quality Objectives

Water quality objectives (WQOs) are within the Basin Plan to protect present and future beneficial uses, prevent nuisance conditions, and protect historical or existing water quality conditions. Controllable water quality[1] must conform to the WQOs; waste discharges may not cause or contribute to water quality degradation. The WQOs are used to develop effluent and receiving water limitations in waste discharge or water reclamation requirements (i.e., discharge permits) and cleanup levels in enforcement orders such as cleanup and abatement orders.

The Basin Plan contains WQOs for both surface water and groundwater. WQOs can be numeric or narrative. A numeric WQO is expressed as a concentration limit/threshold or other numeric range. Numeric WQOs can either be associated with specific receiving waters (e.g., Basin Plan Tables 3-7 and 3-8) or with all receiving waters that have a particular beneficial use (e.g., Basin Plan Tables 3-1 through 3-6). Narrative WQOs can be interpreted as numeric equivalents (e.g., primary and secondary maximum contaminant levels [MCLs] associated with municipal and domestic drinking water supply) or physical/chemical/biological conditions or thresholds that cause a nuisance condition or otherwise adversely affect beneficial uses.

The Basin Plan does not contain specific WQOs for all waters in the Central Coast Region. Where they apply, the WQOs within Tables 3-7 and 3-8 represent gross areas only and were intended to represent the actual water quality naturally present. The objectives are median[2] values intended to preserve existing water quality or water quality enhancement believed attainable by controllable sources.

Regardless of whether numeric objectives apply, receiving water quality must also meet all applicable narrative objectives. As with numeric objectives, discharges cannot cause or contribute to an exceedance of narrative objectives. For example, discharges to basins with a MUN designation cannot cause groundwater to contain taste or odor producing substances that impair municipal or domestic uses. For waters with a MUN designation, the Water Boards implement the narrative objectives with reference to applicable maximum contaminant levels or other applicable criteria. Similarly, discharges to basins with an AGR designation cannot make groundwater unsuitable for livestock watering or irrigating crop types that are likely to be grown in the basin (e.g., Basin Plan Tables 3-3 and 3-4).

Antidegradation Policy

State Water Board Resolution No. 68-16, "Statement of Policy with respect to Maintaining High Quality of Waters in California," also known as the State Antidegradation Policy, requires that:

[1] "Controllable water quality conditions are those actions or circumstances resulting from man's activities that may influence the quality of the waters of the State and that may be reasonably controlled." Basin Plan Chapter 3, Section II.

[2] The median values represent the [spatial] medians of the [temporal] average concentrations of wells within the study area over a given study period.

> *Whenever the existing quality of water is better than the quality established in policies as of the date on which such policies become effective, such existing high quality will be maintained until it has been demonstrated to the State that any change will be consistent with maximum benefit to the people of the State, will not unreasonably affect present and anticipated beneficial use of such water and will not result in water quality less than that prescribed in the policies.*
>
> *Any activity which produces or may produce a waste or increased volume or concentration of waste and which discharges or proposes to discharge to existing high quality waters will be required to meet waste discharge requirements which will result in the best practicable treatment or control of the discharge necessary to assure that (a) a pollution or nuisance will not occur and (b) the highest water quality consistent with maximum benefit to the people of the State will be maintained.*

The intent of Resolution No. 68-16 is to preserve the State's high quality waters. A receiving water is a high quality water if the baseline water quality is better than applicable WQOs. For purposes of the Antidegradation Policy, "baseline" water quality is the highest water quality conditions that existed at any time since 1968, or since post-1968 applicable objectives were established. This determination is made on a pollutant-by-pollutant basis. The Regional Water Board cannot authorize any degradation, or lowering of the baseline water quality, without first finding that the degradation complies with Resolution No. 68-16.

Determining compliance with Resolution No. 68-16 requires a two-step analysis. The first step is if a discharge will degrade high quality water, the discharge may be allowed only if any change in water quality will 1) be consistent with maximum benefit to the people of the State, 2) not unreasonably affect present and anticipated beneficial uses of such water, and 3) not result in water quality less than that prescribed in state policies (e.g., WQOs in the Basin Plan). The second step is that any activities that result in discharges to such high quality waters are required to use the best practicable treatment or control of the discharge necessary to avoid pollution or nuisance and to maintain the highest water quality consistent with the maximum benefit to the people of the State.

It is the responsibility of the discharger to document compliance with Resolution No. 68-16 and to provide all information that the Regional Water Board needs to make the necessary findings.

Best Practicable Treatment or Control

Activities involving the disposal of waste, including the application of recycled water, that could impact high quality waters must implement best practicable treatment or control (BPTC).

To evaluate what constitutes BPTC, the discharger should compare the proposed method to existing proven technology; evaluate performance data, e.g., through treatability studies; compare alternative methods of treatment or control; and consider the method currently used by the discharger or similarly situated dischargers. Promulgated requirements such as federal best available technology economically achievable (BAT) or other promulgated technologies may be

appropriate for groundwater discharges and would apply to surface water discharges. In certain situations, BAT would be considered BPTC under Resolution No. 68–16. The costs of alternative treatment or control technologies must also be considered. When cost savings to the discharger are part of the justification for allowing degradation, the antidegradation analysis must demonstrate how the cost savings are necessary to accommodate important social and economic development. The analysis must consider costs to the affected public, such as additional costs to treat drinking water supplies.

What constitutes BPTC can vary in different situations involving the same type of discharge. For example, higher levels of wastewater reclamation treatment might be necessary if an irrigation project is located near existing supply wells. BPTC may also vary based on soil or climate conditions and the pollutants of concern in a particular discharge or recycled water supply.

Non-High Quality Waters and Best Efforts

Discharges to waters that are not high quality must attain the best effluent quality that can be achieved using reasonable control methods, or the "best efforts" of the discharger. Relevant factors in a "best efforts" analysis include supply water quality, past effluent quality, the effluent quality achieved by other similarly situated dischargers, good faith efforts to limit pollutant discharges, and available alternatives to achieve compliance. The best efforts approach involves the same considerations as a BPTC determination. At a minimum, "best efforts" requires discharges to achieve all WQOs, after taking into account available assimilative capacity.

SNMP Development and Implementation

Application of WQOs to SNMPs

The SNMP needs to consider all applicable salinity and nutrient WQOs contained in the Basin Plan. These include both numeric and narrative WQOs for all beneficial uses. For receiving waters or areas that do not have specific numeric water quality objectives within Tables 3-7 and 3-8, all other applicable WQOs within the Basin Plan will apply. In addition, the SNMPs need to consider groundwater and surface water interactions as necessary to protect the beneficial uses of both groundwater and surface water. If there is direct hydrologic connectivity between groundwater and surface water (i.e., a gaining stream or other natural discharge of groundwater to surface water), the SNMP needs to consider the impacts on surface water (including surface water WQOs) as necessary to protect beneficial uses. The recharge of groundwater from surface water needs to be considered as part of the overall basin water balance and loading evaluations. The SNMP must consider any direct or indirect discharges of recycled water to surface water that may affect groundwater conditions via recharge. Point source discharges to waters of the United States are subject to NPDES requirements.

The SNMP may include pollutants other than salts and nutrients that could degrade water quality. The Regional Water Board must consider all pollutants of concern when permitting

projects. Including an analysis of all relevant pollutants in SNMP development will streamline later basin planning and/or permitting actions.

Protection of Beneficial Uses and Existing High Quality Waters

Individual recycling projects generally have to comply with all applicable requirements (e.g., WQOs and the Antidegradation Policy) on an individual basis. The Recycled Water Policy allows the Regional Water Board and other stakeholders to address the protection of the beneficial uses and high quality waters present on a basin/sub-basin-scale via the development of a SNMP for a suite of projects. Basin-scale management strategies must protect the most sensitive beneficial uses within a basin or sub-basin. Therefore, the most stringent WQOs and sensitive beneficial uses, along with the existing water quality, must be used as the basis for the SNMP assimilative capacity analysis.

The Recycled Water Policy recognizes that groundwater recharge and landscape irrigation projects are to the benefit of the people of the state, despite having the potential to degrade water quality within a basin. The Recycled Water Policy allows for some degradation to occur for projects covered by the SNMP via the use of assimilative capacity on a regional scale as long as present and anticipated beneficial uses are protected and the degradation is consistent with the Antidegradation Policy. As such, the use of assimilative capacity, or portion thereof, will only be allowable if doing so maintains the baseline water quality water unless the project proponent can demonstrate that any decrease in water quality 1) will be consistent with the maximum benefit of the people of the State, 2) will not unreasonably affect present and anticipated beneficial uses, and 3) will not result in water quality less than prescribed standards (i.e., WQOs). A detailed review of historical water quality data and a systematic water quality impact assessment will be required to inform decisions about the availability and use of assimilative capacity and document compliance with the Antidegradation Policy.

Assimilative Capacity Analysis & Strategies

Assimilative capacity can be calculated by comparing the most stringent WQOs with the existing water quality conditions of the basin/sub-basin[3], either over the most recent five years of data available or using a data set approved by the Regional Water Board. Though the Recycled Water Policy expresses assimilative capacity in units of concentration, the Regional Water Board recognizes that, depending on the complexity of the basin, it may also be appropriate to evaluate and express assimilative capacity as a mass load. In determining whether the assimilative capacity will be exceeded by the SNMP, the Regional Water Board will consider the impacts of the plan, based on an analysis of the impacts, and other relevant data and information provided by the project proponent.

[3] To facilitate a representative comparison, the basin/sub-basin concentration should be estimated via a temporal and spatial statistical approach consistent with the WQOs governing the analysis. For example, if the Table 3-8 WQOs are the most protective (i.e., they govern the assimilative capacity analysis), the spatial median basin/sub-basin concentration should be calculated using the temporal average of well concentrations over the study period. The Water Board may consider the application of other statistical methods on a case-by-case basis provided the SNMP includes sufficient technical justification indicating the methods are representative of the WQOs and receiving water quality, and the resulting assimilative capacity analysis is protective of the receiving water beneficial uses.

If current water quality is meeting the most stringent WQO for a particular pollutant, assimilative capacity exists for that pollutant. For cases where current water quality does not meet the most stringent WQO, assimilative capacity does not exist for the pollutant. However, the latter case doesn't necessarily preclude the implementation of recycled water projects either as part of an SNMP or of individual projects that are not part of an SNMP. Where no assimilative capacity exists for pollutant within a basin/sub-basin, stakeholders may apply various strategies for creating assimilative capacity, or otherwise comply with applicable requirements, as described below. The following strategies may be applied for various assimilative capacity scenarios, particularly when there is limited or no assimilative capacity:

Scenario 1 – Basin-specific WQOs are the most stringent WQOs and are less than the current water quality conditions (i.e., water quality is already exceeding WQOs), and the WQOs are more stringent than necessary to protect beneficial uses (i.e., basin-specific WQOs are more stringent than beneficial use WQOs)[4]:

Strategies:

1. Propose revised WQOs for Regional Water Board consideration that create assimilative capacity. The new/revised WQOs must protect beneficial uses and not lead to unreasonably degraded water quality, but they would be based on beneficial use protection rather than historic water quality.[5]
2. Develop a loading analysis showing that SNMP-related projects will not cause increases in pollutant concentrations on a regional scale while also protecting beneficial uses on both localized and regional scales. This approach requires a comprehensive loading analysis considering all sources within the planning area and the identification of existing and anticipated beneficial uses.
    a. This may entail creating assimilative or loading capacity by reducing loading from other existing sources or by importing/recharging higher quality water in amounts sufficient to offset water quality conditions within the basin.[6] This would require monitoring to document loading balances and project-specific water quality monitoring in addition to regional water quality monitoring.
3. Evaluate water quality conditions and assimilative capacity for distinct subareas, or management areas, within a given basin/sub-basin.[7] The use of subareas to evaluate and apportion assimilative capacity should be based on distinct water quality, land use and loading patterns, along with institutional, geologic and hydrogeologic boundaries. Although this approach will require assimilative capacity and antidegradation analyses,

[4] For example: Table 3-8 of the Basin Plan prescribes a numeric WQO for nitrate of 5 mg/L as N for a groundwater basin with an average or median nitrate concentration of 8 mg/L as N. The MUN beneficial use WQO is 10 mg/L as N (i.e., the primary drinking water standard).
[5] Resolution R8-2004-0001 provides one way to implement this strategy.
[6] Offsets need to be realized prior to implementing recycled water or other project related discharges with the potential to degrade water quality and impair beneficial uses.
[7] Subareas can be used to differentiate between areas with distinctly different water quality and land use characteristic within a given basin such that recycled water projects could be facilitated in a subarea - where assimilative capacity exists - when the basin-wide analysis indicates there is limited or no assimilative capacity.

implementation measures, and monitoring for each subarea, the overall basin water quality still needs to be considered in the context of any subarea management strategy. A subarea management strategy may be appropriate and desirable to target specific implementation measures addressing areas where both poor and high quality waters are present within a given basin/sub-basin even if there is assimilative capacity within the basin as a whole. Strategies 1 and 2 above could be applied to subareas.

4. Propose and implement a SNMP or individual projects for which the discharges meet the lowest applicable WQOs.

Scenario 2 – Numeric or narrative WQOs associated with beneficial uses are the most stringent WQOs and are less than the existing water quality conditions (i.e., beneficial uses are already impaired):

Strategies:

1. Strategies 2, 3 and 4 above for Scenario 1 also apply here. Projects must comply with applicable WQOs on an individual or aggregate basis.
2. Remove the beneficial use associated with the limiting WQO, if the use no longer exists and is not a potential or probable future use. This strategy is essentially a non-starter given the most sensitive beneficial uses of municipal and domestic supply (MUN) and agricultural supply (AGR) currently exist within almost all of the Central Coast basins.
3. Develop a site-specific objective (SSO) for the WQO in question. This would only be applicable to mineral-related WQOs in areas where elevated concentrations of minerals are caused by natural conditions (i.e., sources are not controllable).

Scenario 3 – Assimilative Capacity Exists

For projects or pollutants where assimilative capacity exists based on a representative comparative analysis of applicable WQOs and current water quality conditions, the SNMP and individual recycling projects not covered by the SNMP still need to comply with the Antidegradation Policy and protect beneficial uses.

Special Consideration for Nitrate

Regional Water Board staff recommends limiting the use of available assimilative capacity for nitrate, as well as other parameters with primary maximum contaminant levels (MCLs) (i.e., public health-based drinking water standards), to the maximum extent practicable. The State Water Board places a high priority on water recycling because it preserves and protects scarce freshwater sources for other beneficial uses such as municipal and domestic supply (i.e., MUN). However, the need to preserve scarce freshwater supplies does not justify allowing recycled water or other discharges to pollute available drinking water sources. The Regional Water Board is recommending a more protective approach for nitrate given 1) the applicable WQO for nitrate is based on a public health-based drinking water standard, 2) localized and basin-scale nitrate impacts and associated MUN beneficial use impairments are already significant within

many Central Coast groundwater basins, and 3) nitrate loading from recycling projects is generally more controllable as compared to salts.

Residents of the Central Coast Region and the state are already incurring significant social and economic costs associated with nitrate pollution and people within many disadvantaged communities are shouldering a disproportionately higher share of these costs. In addition to the significant drinking water system monitoring requirements and treatment or replacement supply cost associated with drinking water wells that exceed the MCL for nitrate, water purveyors and users incur increased monitoring and reporting costs when nitrate concentrations are greater than or equal to one-half of the MCL for nitrate.[8] Whereas these costs are more readily absorbed by public water systems (i.e., systems with 15 or more service connections), the costs associated with addressing a polluted water supply can be a significant burden to smaller water systems and individual well owners. Funding is generally not available for unregulated water systems below the public water system threshold, including private domestic wells. Moreover, many of the unregulated systems are not sampled on a regular basis to determine whether the produced water meets drinking water standards. The antidegradation analysis for the use of assimilative capacity within basins/sub-basins with existing nitrate impairment approaching or greater than 50 percent of the MCL will need to consider these costs for all existing and probable MUN beneficial uses (i.e., drinking water systems/wells), including unregulated systems. In addition, ongoing monitoring will be needed to document that individual projects covered by the SNMP will be protective of regional and localized beneficial uses (e.g., sampling of unregulated water systems/wells may be required).

Nitrate and total nitrogen loading from recycled water projects will be controlled using BPTC associated with wastewater treatment, the agronomic application of recycled water and/or other approved strategies. A growing number of wastewater/reclamation facilities within the Central Coast Region and state produce effluent with total nitrogen concentrations as low as 5 mg/L. Consistent with the criteria for streamlined permitting of landscape irrigation projects contained within section 7 of the Recycled Water Policy, recycled water should be applied at agronomic rates that also account for the use of fertilizers within the application areas. That is, the timing, amount, and rate of recycled water application, along with supplemental fertilizer application, must be managed to minimize nitrate leaching to groundwater and incidental surface runoff (i.e., maximize water and nutrient uptake by vegetation). Complete uptake of nitrate contained within applied recycled water by vegetation is unlikely. Therefore, conservative estimates of nitrate uptake and denitrification within the root zone and soil column should be used to determine the relative leaching fraction of nitrate (i.e., loading) and the utilization of assimilative capacity. The agronomic application and leaching fraction analyses need to consider the subsurface soil characteristic and the nitrogen speciation of the produced recycled water given the fate and transport of the different forms of nitrogen varies depending on their physical and chemical properties and the soil conditions.

[8] Title 22, section 64432.1, of the California Code or Regulations requires increased monitoring for nitrate for public water systems when the nitrate concentration is greater than or equal to 50 percent of the MCL.

Antidegradation Policy Compliance

As part of the SNMP development, the Recycled Water Policy requires stakeholders to conduct an antidegradation analysis documenting that implementation projects within the SNMP comply with Resolution No. 68-16, individually or in the aggregate. Proponents of the plan must provide sufficient information for the Regional Water Board to document compliance with Resolution No. 68-16. This analysis will be part of the supporting documentation required for the consideration of the amendment incorporating the SNMP into the Basin Plan as an implementation plan.

SNMP compliance with Resolution No. 68-16 may be demonstrated as follows:

> In addition to verifying the availability and use of assimilative capacity, the antidegradation analysis needs to show:
>
> a) That the SNMP is necessary to accommodate important economic or social development;
> b) Any degradation of water quality will be consistent with maximum benefit to people of the State;
> c) Degradation of water quality will not unreasonably degrade actual or potential beneficial uses; and
> d) Water quality will not fall below WQOs set to protect beneficial uses.
>
> Factors that should be considered when determining whether an implementation plan is necessary to accommodate social or economic development and is consistent with maximum benefit to the people of the State include:
>
> a) Past, present, and probable beneficial uses of the water. Consideration will be given to providing buffers for varying environmental conditions such as droughts, as well as the needs of future generations. The analysis should address any beneficial use impacts on other water bodies that may result from reducing demands on water supplies through the use of recycled water.
> b) Economic and social costs and benefits, tangible and intangible, of the proposed plan. Costs to the dischargers and to the affected community must be considered. For example, affected drinking water users may incur increased costs, or the inability to use recycled water may cause increased demands on surface waters, causing an indirect effect on recreational or aquatic uses. The economic impacts to be considered may include the cost of alternative actions in lieu of the proposed plan, as well as the cost of any mitigation necessary to address degradation resulting from the proposed plan. Examples of social and economic parameters that could be considered are employment, housing, community services, income, tax revenues, and land value.
> c) The environmental aspects of the proposed discharge must be evaluated. For example, the proposed discharge, while degrading water quality in a given water body, may be simultaneously improving water quality in a more environmentally sensitive body of water from which the discharge in question is being diverted.

d) Feasible alternative treatment or control measures that might reduce, eliminate, or compensate for negative impacts of the proposed plan.

Regional Water Board staff recommends that appropriate stakeholders be consulted early in the antidegradation analysis process to provide input on the "maximum benefit" component to make sure that the economic and social costs and benefits are accurately identified and evaluated.[9] This will help ensure that sufficient information is provided to the Regional Water Board to meet all applicable requirements.

The Regional Water Board will ultimately make the decision as to whether or not the SNMP complies with the Antidegradation Policy. The Regional Water Board has considerable discretion in determining whether to approve degradation.

The Recycled Water Policy includes a reference to an example of an approved method for conducting an antidegradation analysis based on a numeric groundwater model. It was used by the State Water Board in connection with Resolution No. 2004-0060 and the Santa Ana Water Board in connection with Resolution No. R8-2004-0001. However, stakeholders have the flexibility to use other methods acceptable to the Regional Water Board. SNMP proponents should vet any such other methods with Regional Water Board staff prior to embarking on an analysis using the method. The Recycled Water Policy also encourages an integrated approach (e.g., using surface water, groundwater, recycled water, stormwater, pollution prevention, water conservation, etc.) to comply with Resolution No. 68-16.

Acceptable SNMPs

The following sections discuss required components of an acceptable SNMP based on issues identified during the development of various plans within the Central Coast Region to date. For the most part these issues are relevant to the development of meaningful plans that effectively identify, evaluate, manage and monitor all controllable sources of salts and nutrients to sustainably manage water resources on a regional scale.

Minimum Required Elements

Paragraph 6.b.(3) of the Recycled Water Policy[10] outlines the minimum elements that need to be included within SNMPs. SNMPs that do not sufficiently address these elements will be incomplete and will not be considered for inclusion in the Basin Plan as implementation plans.

In addition, the SNMP must address the following factors with respect to any new or revised WQOs:[11]

[9] This includes the identification of and outreach to disadvantaged communities (DACs) and environmental justice groups representing them that are potentially affected by the SNMP or individual projects. Reasonable accommodation, such as translation services, should be provided to DACs and their representatives to ensure their informed participation in the process.

[10] http://www.waterboards.ca.gov/water_issues/programs/water_recycling_policy/docs/recycledwaterpolicy_approved.pdf

a) Past, present, and probable future beneficial uses of water.
b) Environmental characteristics of the hydrographic unit under consideration, including the quality of water available thereto.
c) Water quality conditions that could reasonably be achieved through the coordinated control of all factors which affect water quality in the area.
d) Economic considerations.
e) The need for developing housing within the region.
f) The need to develop and use recycled water.

The SNMP should also provide adequate information to support the Regional Water Board's consideration of these factors when permitting the projects covered or contemplated by the SNMP, either individually or in the aggregate.

The Regional Water Board created an expanded list of recommended elements to help guide the development of SNMPs that is located at:

http://www.waterboards.ca.gov/centralcoast/water_issues/programs/nutrient_mgmt/docs/R3_SNMP_%20Elements_030310.pdf

Agricultural Component

The Central Coast Water Board understands that the predominantly municipal stakeholders actively involved in the development of SNMPs have limited control over the participation of and loading associated with other salt/nutrient loading stakeholders, or groups of stakeholders. In the Central Coast Region, the agricultural sector is a significant source of salt and/or nutrient loading within various groundwater basins/sub-basins. This is particularly true in areas of intensive irrigated agricultural land use. The Recycled Water Policy requires SNMPs to address and implement provisions, as appropriate for all sources of salt and nutrient loading. Thus, the SNMPs need to include an evaluation of agricultural loading along with goals and objectives and associated implementation measures addressing agricultural loading as appropriate to sustainably manage the basin/sub-basin. The focus of the analysis should be on the contribution of agricultural discharges to salt and nutrient loading in the basin/sub-basin, whether additional agricultural controls are necessary to ensure adequate assimilative capacity is available for the projects included in the SNMP, and a timeframe for implementing any recommendations. Regional Water Board staff expects that the Central Coast Water Board Conditional Waiver of Waste Discharge Requirements for Discharges from Irrigated Lands will be the primary mechanism for reducing agricultural salt and nutrient loading. As such, the SNMPs should include the following or equivalent information acceptable to staff:

1. Estimates of salt and nutrient loading from agricultural sources as part of the required source identification, assimilative capacity and loading evaluations based on best available information.[12]

[11] Pursuant to Water Code Section 13241
[12] The sources of the data/information relied upon and related assumptions must be clearly referenced within the SNMP.

2. Identification of areas within the groundwater basin/sub-basin where agricultural loading has contributed to and continues to contribute to water quality degradation, and a demonstration that any projects described in the SNMP will not cause or contribute to any impairment.
3. Basic implementation measures as follows:
    a. The implementation of best management practices for agricultural irrigation and nutrient management to control and document loading.
    b. Enrollment in and compliance with the Central Coast Water Board Conditional Waiver of Waste Discharge Requirements for Discharges from Irrigated Lands (Agricultural Order RB3-2012-0011). With an emphasis on:
        i. the development and implementation of farm water quality management plans (Farm Plan) and Irrigation and Nutrient Management Plans.
4. A regional water quality monitoring program that addresses all identified sources, including agriculture, on a basin/sub-basin scale.

Including the required agricultural elements within the SNMP as listed above will not create any responsibility on the behalf of the non-agricultural stakeholders developing SNMPs to carry out the implementation measures in an attempt to achieve the prescribed goals and objectives and will not change the agricultural stakeholders' obligations under the Agricultural Regulatory Program. The level of detail necessary to analyze goals, objectives, and implementation measures will depend upon the range of projects in the SNMP. This will be the responsibility of the agricultural stakeholders under the oversight of the Regional Water Board. The Regional Water Board will continue to address agricultural loading via the implementation of the Agricultural Regulatory Program.

For some basins/sub-basins it may be desirable and beneficial to postpone completion of the SNMPs pending the collection of at least two years' worth of monitoring and reporting data associated with the implementation of the Central Coast Water Board's Agricultural Oder and a sufficient level of participation in the SNMP process by agricultural stakeholders. Allowing more time to capture and evaluate pending water quality and loading data associated with agricultural activities and to better engage appropriate stakeholders will result in the development and implementation of more meaningful and effective plans. Although the Agricultural Order already contains findings recommending growers participate in the SNMP process, the Regional Water Board will continue outreach to agricultural stakeholders in an effort to better inform them about and engage them in the process.

Salt and Nutrient Constituents/Parameters

The SNMPs need to clearly describe the technical basis for the use, or lack thereof, of salt and nutrient constituents and parameters used to conduct the loading and assimilative capacity evaluations and regional monitoring program. The chosen salt and nutrient constituents/parameters need to be relevant to the basin/sub-basin water quality and loading conditions, as well as the Basin Plan. As the initial baseline, the SNMPs must consider all salt and nutrient constituents/parameters contained within the Basin Plan with prescribed WQOs.

This generally includes total dissolved solids (TDS) or electrical conductivity (EC), chloride, sulfate, boron, sodium (including sodium adsorption ratio), and nitrogen (with an emphasis on nitrate and ammonia), as contained within Basin Plan Tables 3-3, 3-7 and 3-8. The following represents the minimum questions that should be considered as the basis for the selection of appropriate constituents/parameters:

1. Is the constituent subject to a numeric or narrative WQO?
2. How should compliance with narrative WQOs be assessed?
3. Is the constituent exceeding any applicable WQOs or other triggers?
4. Is the constituent regularly monitored and detected in source water (e.g., discharges or natural recharge)?
5. Is the constituent found in source waters at concentrations above those found in ambient groundwater and surface water?
6. Is the constituent a known pollutant in either groundwater or surface water in the study area?
7. Is the concentration of the constituent increasing in groundwater or surface water in the study area?
8. Is the constituent a human health threat, toxic to aquatic life, or does it otherwise threaten beneficial uses?
9. Is the constituent conservative (i.e., it does not readily breakdown to harmless products) and mobile in the environment?
10. Is the constituent representative of other salts and nutrients?

In some cases it may be appropriate to use TDS as a surrogate or indicator for other salt constituents such as sodium, chloride, sulfate, etc. Consistent with question number 10 above, an analysis will be required documenting how the chosen surrogate is representative of the other constituents in both the applied or discharged water and the receiving water. For the TDS example, this analysis would generally include the identification of the relative contributions of the salt constituents or minerals making up TDS to facilitate the development and application of mass balance relationships between TDS and individual constituents.

Additional constituents/parameters must also be considered as necessary to address the water quality conditions within the basin/sub-basin associated with salts and nutrients. Although it may not be appropriate to focus on specific constituents/parameters within a basin/sub-basin that do not pose a relative concern due to existing water quality and loading conditions, all constituents/parameters with numeric or narrative WQOs should be represented within the regional monitoring program. However, the sampling frequencies and densities for “low priority” constituents/parameters can be scaled accordingly. Monitoring programs must include monitoring of constituents of emerging concern (CEC) as appropriate pursuant to paragraph 10(b) of the Recycled Water Policy.[13]

[13] See section 6.b.(3)(b) of the Recycled Water Policy

Surface Water & Groundwater Interaction

The SNMPs need to clearly define and address the interrelationships between surface water and groundwater quality and quantity as part of the source loading, fate and transport, and antidegradation analyses such that the beneficial uses of both surface water and groundwater are considered and protected. In addition, consistent with section 6.b.(3)(a)(i) of the Recycled Water Policy, regional monitoring must also consider and be representative of surface water and groundwater connectivity (i.e., surface water and groundwater with significant connectivity must be targeted for monitoring as appropriate to document loading either to or from surface water).

Regional Monitoring Program

One of the primary components of the required SNMPs is the development and implementation of groundwater basin/sub-basin (i.e., regional) monitoring programs.[14] The Recycled Water Policy indicates salt/nutrient contributing stakeholders are responsible for conducting monitoring activities and compiling and reporting the resulting data for the regional groundwater monitoring programs. The Regional Water Board supports the development and implementation of sustainable, consistent, integrated, and coordinated regional groundwater monitoring programs in the Central Coast Region.

Compliance Monitoring Integration

Discharge compliance monitoring requirements should be integrated with ambient monitoring activities to effectively evaluate source (supply), discharge, and receiving water relationships. In many cases, participating SNMP stakeholders consist of local agencies or private entities that are subject to compliance monitoring requirements pursuant to Regional Water Board waste discharge requirements (WDRs or permits, including reclamation requirements and NPDES permits) for municipal or industrial discharges. Consequently, the Regional Water Board encourages participating SNMP stakeholders subject to WDRs to collectively propose modifications to their existing monitoring and reporting programs as part of the regional monitoring component of the pending SNMPs. Individual WDR-related monitoring programs can and should be modified to facilitate consistent, scientifically defensible, and cost-effective regional groundwater monitoring programs while also maintaining a sufficient level of individual discharger monitoring to document compliance with applicable WDRs.

Allowable modifications will generally be restricted to the following:

1. Development of basin/sub-basin consistent compliance monitoring requirements (i.e., monitoring parameters/constituents and frequencies for water supply, influent, effluent, and receiving water [groundwater and surface water]) for participating stakeholders

[14] Paragraph 6.b.(3)(a) of the Recycled Water Policy (http://www.waterboards.ca.gov/water_issues/programs/water_recycling_policy/index.shtml)

subject to WDRs for similar types of discharges that are consistent with the regional groundwater monitoring program.

2. Elimination of groundwater sampling locations that provide redundant data or data of little scientific value with regard to compliance monitoring or regional monitoring (e.g., multiple monitoring wells within berms of treatment or disposal ponds that are essentially monitoring effluent conditions).
3. Reduction of sampling frequencies to levels commensurate with hydrogeological response times within groundwater while also sufficient enough to provide timely and ongoing compliance evaluations for applicable water quality objectives (e.g., reduction of sampling frequencies for deeper wells to annually or once every several years versus semiannual wet and dry season monitoring for shallow wells).

It is the Regional Water Board's intent that participating stakeholders utilize the potential cost savings associated with streamlining and integrating individual WDR-related compliance monitoring programs to help fund the regional monitoring programs. As such, consideration will be given to modified individual WDR monitoring programs that are integrated and consistent with and fund regional monitoring programs via regional cost sharing agreements while also facilitating a sufficient level of compliance monitoring for individual dischargers. Proposed modifications shall clearly identify and substantiate appropriate points of compliance (sampling locations) for individual discharges.

This effort is applicable to individual agricultural dischargers subject to the Conditional Waiver of Waste Discharge Requirements for Discharges from Irrigated Lands (Order No. R3-2012-0011, or Ag Order) that coordinate with a salt and nutrient planning stakeholder group via an approved cooperative monitoring and reporting program as allowed by the Ag Order. Finding number 13 of the Ag Order encourages agricultural dischargers to participate in regional or local groundwater monitoring efforts (e.g., SNMPs, IRWMPs, GAMA Program, etc.).

In addition, reductions in compliance monitoring requirements for participating stakeholders subject to NPDES permits will generally be restricted to groundwater monitoring and various influent, effluent, and surface water monitoring parameters and frequencies as allowable pursuant to applicable statutes and may be subject to EPA approval.

In some cases, landscape irrigation projects included within the SNMP that qualify for streamlined permitting per the Recycled Water Policy may not be subject to project/discharge specific groundwater monitoring requirements. However, the regional monitoring program must be designed to characterize water quality in the basin as a whole with an emphasis on areas of salt and nutrient loading or other critical areas.

Quality Assurance

The SNMP regional monitoring programs shall be accompanied by a sampling and analysis plan (SAP) and a quality assurance project plan (QAPP). The regional monitoring program and discharge-specific monitoring requirements shall be representative of basin/sub-basin specific hydrogeological and geochemical conditions and land use and recycled water use practices.

The parameters to be monitored should be reflective of the water quality conditions and applicable water quality objectives within a given basin or sub-basin. Per the Recycled Water Policy, monitoring for salt, nutrients and other constituents of concern identified in the SNMP will be required in all basins.[15] In addition, the regional monitoring program should consist of spatially distributed and depth discrete monitoring well networks as feasible to evaluate overall basin/sub-basin water quality and loading conditions. This includes an emphasis on shallow or first encountered groundwater to characterize more recent loading conditions.

Electronic Reporting

Consistent with an August 28, 2009 State Water Board Executive memorandum, Regional Water Board approval of SNMPs as implementation plans will be contingent in part on the electronic submittal of regional monitoring program data into the State Water Board's Groundwater Ambient Monitoring and Assessment (GAMA) Program GeoTracker information system via Electronic Deliverable Format (EDF). Although it may be required in the future, electronic reporting of data associated with individual WDR monitoring and reporting programs into GeoTracker is currently not required.

OWTS Policy Coordination

The *Water Quality Control Policy for Siting, Design, Operation, and Maintenance of Onsite Wastewater Treatment Systems* (OWTS Policy) was adopted by the State Water Board on June 19, 2012. The OWTS Policy includes some monitoring requirements, which should be considered in conjunction with the pending SNMPs to maximize the efficiency and coordination of sampling activities in areas affected by both policies.

CCAMP-GAP

The Regional Water Board recently approved the development and implementation of the Groundwater Assessment and Protection (GAP) module of the Central Coast Ambient Monitoring Program (CCAMP). One of the primary goals of GAP is to coordinate with local efforts to build on and develop regional monitoring programs. The SNMP process is one of those efforts and future funding may be available through GAP to help support and build on the SNMP regional groundwater monitoring programs.

Monitoring Program Submittal

Regional Water Board staff will be reviewing the regional groundwater monitoring programs as part of the SNMPs in preparation of the Regional Water Board's consideration of revised implementation plans based on the SNMPs. Please submit the proposed monitoring and reporting program modifications for individual facilities, or groups of facilities, as part of the pending SNMP regional monitoring program. In an effort to facilitate the timely review, Regional Water Board staff recommend you submit the proposed regional monitoring program and associated individual monitoring and reporting program modifications for review at least six months prior to submitting the complete SNMPs.

[15] Monitoring for contaminants of emerging concern (CEC) is required for recycled water groundwater recharge reuse (indirect potable reuse) projects pursuant to paragraph 10(b) of the Recycled Water Policy.

Basin Planning Process Considerations

The Recycled Water Policy indicates the Regional Water Board will consider SNMPs for incorporation into the Basin Plan by adopting them as implementation plans. The basin planning process associated with adopting a SNMP as implementation plans is a very time-consuming technical and public process with a high bar that requires an external scientific peer review and the stepwise review and approval by multiple agencies. In addition to meeting the criteria for an acceptable SNMP listed above and compliance with the Antidegradation Policy, CEQA and external scientific peer review requirements will need to be met for the Regional Water Board to consider individual SNMPs for adoption as implementation plans. Moreover, the SNMP will need to provide tangible regional-scale water quality benefits to warrant pursuing it as an implementation plan.

CEQA Requirements

The Recycled Water Policy requires that SNMPs comply with the applicable California Environmental Quality Act (CEQA) requirements. Additionally, the Policy specifies that stakeholders will fund SNMP development including any necessary analysis and documentation to comply with CEQA.

The Regional Water Boards' basin planning program is a certified regulatory program that requires the preparation of substitute environmental documents in lieu of negative declarations, mitigated negative declarations or environmental impact reports. The basin planning regulations are available at:

http://www.waterboards.ca.gov/laws_regulations/docs/regs011911.pdf.

Stakeholders should coordinate closely with Regional Water Board staff when developing CEQA documentation for the board's use.

Scientific Peer Review

Section 57004 of the California Health and Safety Code requires all Cal/EPA organizations to submit for external scientific review the scientific basis and scientific portion of all proposed policies, plans and regulations. The peer reviewer's responsibility is to determine whether the scientific findings, conclusions, and assumptions are based upon sound scientific knowledge, methods, and practices.

Three additional documents will be required as attachments to the SNMP to facilitate the external scientific review process. They include:

> Attachment 1 – A plain English summary of the SNMP.
>
> Attachment 2 – A description of the scientific portions of the SNMP, including a statement of the scientific findings, conclusions, and assumptions on which the scientific portions of the SNMP are based and the scientific data, studies, and other appropriate materials. This includes direct electronic links to all reference documents, or reference

document files and materials on CDs. Hard copies of documents containing complex maps and tables may also be required.

Attachment 3 - A list of all project participants, including Regional Water Board staff, academicians, consultants, and stakeholders.

Additional information regarding the Water Board's peer review process is available at:

http://www.swrcb.ca.gov/water_issues/programs/peer_review/.

Water Quality Benefit

Regional Water Board staff will consider the potential water quality benefits associated with adopting SNMPs as implementation plans relative to the significant effort and associated resources needed to adopt them. Subsequently, the Regional Water Board may not pursue the adoption of implementation plans via Basin Plan amendments for SNMPs that do not sufficiently address the most significant controllable sources of salt and nutrient loading within the SNMP area. Moreover, for areas where water quality has been degraded by controllable sources, the implementation plans should include feasible actions or projects to improve water quality to levels that protect present and anticipated beneficial uses (i.e., meet narrative or numeric WQOs associated with beneficial uses). The Regional Water Board will use the SNMPs to inform and streamline recycled water project permitting consistent with the intent of the Recycled Water Policy regardless of whether they are adopted as implementation plans.

Available Guidance Documents

There are a number of useful reference and guidance documents available via the following hyperlinks:

- State Water Resources Control Board – Recycled Water Policy
- Regional Water Board Assistance in Guiding Salt and Nutrient Management Plan Development in the Los Angeles Region – June 28, 2012
- Central Coast Regional Water Quality Control Board – Salt and Nutrient Management Planning
- U.S. Geological Survey, Water-Resources Investigations Report 03-4166; Framework for a Ground-Water Quality Monitoring and Assessment Program for California

In particular, Regional Water Board staff encourages the use of the U.S. Geological Survey report, "Framework for a Ground-Water Quality and Assessment Program for California," as a resource when developing the regional monitoring program.