

SNMP Program of Implementation

- 8.1 Salt and Nitrate Management Goals for the Central Valley Region (p. 2)
- 8.2 Implementation Framework (p.4)
 - 8.2.1 Submittal Options to Comply with SNMP (p. 4)
 - 8.2.2 Implementation Mechanisms (p. 5)
 - 8.2.2.1 WDR and Conditional Waiver Programs (p. 5)
 - RENEWAL OF AN EXISTING WDR OR WAIVER (p. 6)
 - ISSUANCE OF A NEW WDR OR WAIVER (p. 8)
 - 8.2.2.2 Other Regulatory Programs (p. 8)
 - 8.2.3 Schedule and Priority for Implementation in the Central Valley Region (p. 9)
 - 8.2.3.1 Prioritized Implementation Schedule (p.9)
 - 8.2.3.2 Interim and Final Submission Requirements (p. 13)
 - PARTICIPATION IN A MANAGEMENT ZONE (p. 13)
 - NON-PARTICIPATION IN A MANAGEMENT ZONE (p. 14)
- 8.3 Implementation Policies to Support Management Goals and Implementation Framework (Executive Summary only – full text in Attachment) (p. 15 – policies not included)
 - 8.3.1 Policy No. XX: Secondary Maximum Contaminant Levels (SMCLs)
 - 8.3.2 Policy No. XX: Management of Salt and Nitrate through Adoption of Management Zones
 - 8.3.3 Policy No. XX: Salinity Management to Provide Reasonable Protection of AGR Beneficial Uses in Groundwater
 - 8.3.4 Policy No. XX: Nitrate Permitting Strategy for Groundwater
 - 8.3.5 Policy No. XX: Alternative Compliance Program
 - 8.3.6 Policy No. XX: etc.
- 8.4 Salt and Nitrate Management Plan Development (p. 16)
 - 8.4.1 Streamlined Salt and Nitrate Management Plan (p. 16)
 - 8.4.2 Comprehensive Salt and Nitrate Management Plan (p. 17)
- 8.5 Implementation Schedule (p. 19)
- 8.6 Surveillance and Monitoring Program (SAMP) (not included)

Attachment A – Streamlined and Comprehensive Salt and Nitrate Management Plan Development Guidelines (Not included)

Attachment – Implementation Policies Full Text (Not included)

SNMP Program of Implementation

Previous sections of this SNMP have described the significant challenges posed by salt accumulation and elevated nitrate concentrations in the Central Valley, in particular in the groundwater underlying the Central Valley floor. These conditions have been evident since the 1970s and continue to worsen.¹ To reverse this trend, this SNMP establishes a Program of Implementation (POI) for the management of salt and nitrate in the Central Valley Region that includes the following key elements:

- Description of the nature of the actions that are necessary to achieve the salt and management goals established by this SNMP;
- A time schedule for the implementation of the actions to be taken in the Central Valley to implement this SNMP; and
- A description of the surveillance and monitoring program that will be established to provide the basis for evaluating progress towards achieving the salt and nitrate management goals established herein.

The following sections of this chapter provide in detail the POI for salt and nitrate management throughout the Central Valley Region of California. This program identifies the:

- Salt and nitrate management goals for the Central Valley Region;
- The mechanisms for implementation of salt and nitrate management programs at the local or sub-regional level to achieve the management goals; and
- The timeframe for implementation of these actions at the local, sub-regional and Central Valley Region levels.

The implementation timeframes and associated milestones are based on technical analyses that have evaluated the technical and economic feasibility of achieving the salt and nitrate management goals within various timeframes. The findings from these analyses show that making demonstrable positive changes in groundwater quality for salt or nitrate will require the expenditure of substantial resources over a sustained period of time. This POI recognizes this challenge and, accordingly, is built on a framework that prioritizes the allocation of resources towards the most significant Central Valley water quality concerns first. This prioritization will be discussed in detail in Section 8.2.3.

The Water Quality Control Plan for the Sacramento River and San Joaquin River Basin Plan and the Water Quality Control Plan for the Tulare Lake Basin Plan (collectively, Basin Plans) provide the foundation for the Central Valley Water Board's existing regulatory authority to manage salt and nitrate in the region. However, the existing regulatory framework in these Basin Plans currently limits the Board's ability to consider innovative salt or nitrate management strategies, including strategies that are consistent with the intent and purpose of the Recycled Water Policy and the goals of CV-SALTS.

To address these regulatory limitations, CV-SALTS developed a series of policies that allow for consideration of the application of innovative salt and nitrate management strategies to improve water quality. These policies are contained herein as part of this SNMP's POI. Where necessary to facilitate implementation of this Program and to ensure the Central Valley Water Board has the full authority to

¹ Johnston, W.R., D.W. Westcot, and M. Delamore. San Joaquin Valley, California: A Case Study. In *Agricultural Salinity Assessment and Management*, Second Edition. W.W. Wallender and K. J. Tanji, (eds). 2012.

implement these policies, the Central Valley Water Board will propose amendments to the Basin Plans to incorporate these policies into the Basin Plans.

Implementation of this SNMP will be an iterative and adaptive process that will involve periodic review and reassessment so that what has been learned by doing can be incorporated into the SNMP. Where any such changes to the SNMP require additional Basin Plan amendments, these will be addressed in a timely manner.

8.1 Salt and Nitrate Management Goals for the Central Valley Region

This section establishes the management goals for this SNMP. These goals include a combination of an overarching water resource management strategy, statewide environmental policy directives, and water-quality-based goals established through the CV-SALTS process. Each of these goals is described below.

The Central Valley Region SNMP was developed collaboratively through the efforts of the CV-SALTS stakeholder led process. The stakeholders have focused on developing a Central Valley Region SNMP that supports implementation of a water resource management strategy that assures safe and reliable drinking water to all residents while preserving the Central Valley's world-class agriculture economy. In addition, the establishment of management goals must be consistent with statewide environmental policy goals that can affect how salt and nitrate are managed at the local or sub-regional level. These statewide policy goals include directives to increase water conservation, increase the use of recycled water, increase groundwater recharge and reduce greenhouse gas emissions.

Coupled with the above strategy and statewide policies, CV-SALTS has been committed to ensuring that safe drinking water is available to all communities already impacted by elevated salt and nitrate². To meet this commitment, this SNMP establishes three water-quality based management goals to guide the short and long term management of salt and nitrate in the Central Valley of California. In priority order these goals are:

GOAL 1: ENSURE USER PROTECTION FOR THE DRINKING WATER SUPPLY

The most immediate management goal for the Central Valley Region is to ensure that a safe drinking water supply is available to all residents of the region.

GOAL 2: ACHIEVE BALANCED SALT AND NITRATE LOADINGS

The second water quality-based management goal seeks to establish a balance of the mass of salt and nitrate in groundwater underlying each managed area. With regard to salt, balance is defined as achieving a state where inputs of salt (salt flux in) into a managed area are equal to outputs (salt flux out) from the same area. Likewise, Goal 2 includes a balance of nitrate flux in and nitrate flux out of the managed area. The nitrate mass balance will need to account for nitrate taken up by crops and losses of nitrate from the nitrogen cycle in soil, including denitrification in the root zone by soil microbial activity and volatilization to the atmosphere. A periodic evaluation of ambient water quality (volume-weighted average concentration in groundwater in the managed area) will be used as the basis for assessing progress towards attaining this goal.

² For the purposes of this SNMP, nitrate will mean nitrate as nitrogen, with a maximum contaminant level (MCL) of 10 mg/L.

GOAL 3: IMPLEMENT MANAGED AQUIFER RESTORATION PROGRAM

Goal 3 seeks to restore salt and nitrate levels within managed areas to concentrations that are below the water quality objective established for each constituent. Specifically,

- For salinity, the primary goal is to meet a water quality objective of less than 1,000 mg/L TDS or 1,600 $\mu\text{S}/\text{cm}$ EC, consistent with the acceptable Upper Level concentrations established in 22 CCR Table §64449-B.^{3 4}
- For nitrate, the goal is to meet a water quality objective of less than 10 mg/L nitrate (as NO_3 nitrogen).

Assessing compliance with Goal 3 will be based on a volume-based average of water quality data⁵ collected from the production zone associated with the area being assessed, e.g., the specific area targeted for salt and nitrate management.

The above water-quality based management goals are to be implemented in a balanced manner taking into account the overarching water resource management strategy and statewide policy initiatives described above. Establishing the appropriate balance among these potentially competing goals will be a key element in the development of salt and nitrate management plans required by this SNMP, as discussed below in Section 8.2 and following.

It is recognized that for salt the achievement of water quality management Goal 2 is a step along the way to achievement of Goal 3 and that the implementation activities for one goal may be the same as the other goal. Regardless, in many areas achieving Goal 2 in a groundwater basin or subbasin will be a significant accomplishment, thus serving as an important milestone on the way to achieving Goal 3.

Ultimately, as demonstrated in the technical work used to support this SNMP, the challenge associated with simply achieving the salinity and nitrate objectives in all impacted waters is significant. In time it may certainly be possible to achieve a water quality concentration better than the objective (unless the elevated salinity in groundwater is a result of the natural hydrogeology). However, for the purposes of this SNMP it is most important to first meet the objective to ensure that beneficial uses are protected. Accordingly, development of local and sub-regional salt and nitrate management plans under this SNMP will focus first on these water-quality based goals. Achieving water quality better than the objective may be achievable in many areas in the future and the Central Valley Water Board may consider establishing additional, more stringent water quality-based management goals at a future date during the regular review and revision of this SNMP.

With regards to the protection of beneficial uses, the water-quality based management goal to ensure user protection for drinking water supplies (Goal 1) is the highest priority for this SNMP and shall be complied with as quickly as possible in all areas in the Central Valley Region. This goal may be achieved through a combination of the development of alternative water supplies, establishment of treatment systems, or implementation of education and outreach activities.

Technical analyses conducted to support this SNMP indicate that achievement of Goals 2 and 3 in the groundwater of the Central Valley will only be successful through a long-term commitment to salt and

³ Note: considering additional references, e.g., MUN white paper, WHO guidelines, others?

⁴ In some areas of the Central Valley high salinity in groundwater is a result of natural hydrogeology; these areas may not be able to achieve this water quality-based management goal.

⁵ Note: the average will be based on recommendations from the development of the SAMP, e.g., could be a 5-yr, 10-yr or 15-yr moving average.

nitrate management activities at the local or sub-regional level,⁶ and may require commitment to regional solutions such as establishment of regional salt sinks or a Central Valley regulated brine line. As will be discussed below, the selection of specific projects or activities to make progress towards attainment of these goals will be implemented through salt and nitrate management plans tailored to the specific needs of each managed area.

8.2 Implementation Framework

While efforts to reduce nitrate and balance salts have been underway for many years in the Central Valley and will continue, implementation of this SNMP will begin immediately following adoption of approved revisions to the Basin Plans through the Basin Plan amendment process (see Section 8.5 – Central Valley SNMP Implementation Schedule).⁷ The following sections describe the submittal options to comply with this SNMP, the means or mechanism by which this SNMP will be implemented, and the schedule for implementation.

8.2.1 Submittal Options to Comply with SNMP

The submittal requirements to comply with this SNMP vary depending on the salt and nitrate management strategy selected by each discharger and the existing water quality conditions in the area influenced by the discharge. Salt and nitrate conditions in groundwater vary considerably across the Central Valley Region.⁸ Where it is demonstrated that the risks to groundwater quality from salt and nitrate are low, e.g., areas where the concentration of salt or nitrate is well below the water quality-based management goals established in Section 8.1, a streamlined path has been established to comply with this SNMP. Specifically, while all dischargers must prepare a local or sub-regional SNMP, the type of submittal – a *Streamlined Salt and Nitrate Management Plan (S-SNMP)* or *Comprehensive Salt and Nitrate Management Plan (C-SNMP)* - depends on the existing conditions in the groundwater and risks to drinking water supplies.

An S-SNMP may be submitted as an alternative to a C-SNMP in areas where salt and/or nitrate are not existing water quality concerns and not expected to be within the planning horizon (20 years). The S-SNMP is intended to provide a streamlined, less intensive approach to comply with this SNMP in areas where salt and nitrate are not important water quality concerns and the risks to drinking water supplies are low from salt or nitrate. To determine eligibility, dischargers may submit an S-SNMP if all of the following findings can be made within the area that will be affected by the discharge:

- The average nitrate and salt concentration in both the shallow and deep groundwater is less than 10 mg/L nitrate (as NO₃ nitrogen) and less than 1,000 mg/L TDS, respectively; and
- The volume-weighted average of nitrate and salt concentrations in the production zone is less than 10 mg/L nitrate (as NO₃ nitrogen) and less than 1,000 mg/L TDS and there is assimilative capacity that may be allocated by the Central Valley Water Board; and

⁶ Cite relevant NIMS and SSALTS reports

⁷ "Basin Plan Adoption" means the full approval process is complete, including approval by the Central Valley Water Board, State Water Board, Office of Administrative Law and, where appropriate for surface water issues, the Environmental Protection Agency

⁸ Insert reference to ICM

- A trend analysis of groundwater quality data (shallow and deep) shows no existing significant historical upward trend in nitrate or salt concentrations; and
- 20-year projection of water quality data shows no significant upward trend in salt and nitrate concentrations with the permitted activity;⁹ and
- No public water supply wells within the area to be managed (area under the influence of the permitted discharge (s)) are at risk of having a contaminated water supply because of salt or nitrate as a result of the of the permitted activity (ies).

If a discharger does not meet all of the above requirements for submittal of an S-SNMP, then the discharger must submit a C-SNMP to comply with this SNMP. The requirements for submittal of a C-SNMP are described in Section 8.4.2 below.

In addition to determining which submittal is required to comply with this SNMP (S-SNMP or C-SNMP), each discharger or group of dischargers (if covered by a categorical WDR) will need to select one of the two following salt and nitrate management strategies:

- *Participation in a Management Zone* – A discharger may work collectively with other dischargers in the same general area to establish a Management Zone to manage salt and nitrate in a comprehensive, collaborative manner (see Section 8.3.X for a summary of the SNMP Management Zone Policy and Attachment XX for the complete policy). The SNMP submittal requirement for dischargers working collaboratively through a Management Zone is most likely a C-SNMP, but could also be an S-SNMP. Section 8.4 summarizes the expected content of an S-SNMP or C-SNMP. Section 8.2.3 provides the submittal schedule for either deliverable.
- *Non-Participation in a Management Zone* – Given the complexities of salt and nitrate management, dischargers are encouraged to work collaboratively to implement the requirements of this SNMP through the establishment of a Management Zone because of the significant efficiencies that may be gained working cooperatively. However, dischargers may decide to comply with this SNMP’s submittal requirements individually or as part of a categorical-based permit (or General Order) apart from a Management Zone. Dischargers that choose this strategy will need to submit an S-SNMP or C-SNMP depending on the outcome of the water quality evaluation described above.

8.2.2 Implementation Mechanisms

The Central Valley Region SNMP will be implemented primarily through the Waste Discharge Requirements (WDRs) (Water Code §13260) or Conditional Waivers (Water Code §13269) programs. The exception to this implementation approach will be where salt and nitrate controls may be necessary for activities not subject to a WDR or Waiver, e.g., management of septic systems or small agricultural operations. These exceptions and the alternative mechanisms for implementation are discussed in Section 8.2.2.2 below.

8.2.2.1 WDR and Conditional Waiver Programs

The Central Valley Water Board issues WDRs for discharges to surface water and groundwater to ensure protection of beneficial uses. In addition, the Central Valley Water Board may issue a Conditional Waiver (“Waiver”) in lieu of a WDR where the Board determines that the waiver is consistent with the Basin

⁹ The projection of future TDS and nitrate concentrations should include all current and, to the extent known, planned discharges and/or projects.

Plans and issuance of a Waiver is in the public interest. WDRs or Waivers are often issued to individual dischargers (e.g., single POTW, food processor, or industrial discharger), but may also be issued as general discharge requirements (i.e., General Order) to cover a class of dischargers participating in a specific type of discharge activity, herein referred to as a categorical-based WDR.

Under this SNMP, in accordance with the Management Zone Policy (Policy No. XX, see Section 8.3.X), dischargers within a given geographic area may collectively establish a Management Zone to work collaboratively to comply with salt and nitrate management requirements within a delineated area in a more effective manner. Where a Management Zone is established, multiple WDRs or Waivers may exist and be affected by the salt and nitrate management requirements established for the Management Zone. As described in the Management Zone Policy, the individual dischargers within the Management Zone will still have to comply with the relevant WDR or Waiver that authorizes their respective discharges, but each discharger's permit will include the relevant salt and nitrate management requirements consistent with the C-SNMP established for the Management Zone.

Given the varied scenarios under which a WDR or Waiver may be issued and implemented in the Central Valley Region, the following sections provide guidance on SNMP submittal requirements depending on the following factors:

- A discharge is covered by an *existing* WDR or Waiver;
- A discharger has applied for coverage under a *new* WDR or Waiver; and
- The management strategy of the discharger, i.e., whether to comply with this SNMP as part of a Management Zone or separately apart from a Management Zone.

RENEWAL OF AN EXISTING WDR OR WAIVER

The Central Valley Region currently has authorized more than **XX** WDRs or Waivers. Each of these WDRs or Waivers will need to be reopened or reissued to incorporate salt and nitrate management requirements consistent with this SNMP. Given the number of existing permits, the staff resources required to implement this SNMP is significant. Accordingly, the SNMP implementation program has been structured to spread out the submittal deadlines to comply with this SNMP and provide adequate time for Central Valley Water Board staff to revise WDRs or Waivers to incorporate salt and nitrate management requirements. More specifically, this SNMP establishes a prioritized schedule for submittal of the required documents to comply with its requirements (see Section 8.2.3 below). This schedule is independent of an existing WDR or Waiver's requirements to submit a Report of Waste Discharge (ROWD) to renew the permit. After the required SNMP deliverable is submitted to the Central Valley Water Board for review and approval, the relevant WDR(s) or Waiver(s) may be reopened to incorporate the approved salt and nitrate management requirements.

Each discharger with an existing WDR or Waiver will need to determine the strategy that it intends to follow to comply with this SNMP. These options are illustrated in **Figure 8-1**. Dischargers that plan to work collectively to manage salt and nitrate through a Management Zone will be required to:

- (a) Submit a Notice of Intent (NOI) as an interim deliverable. The NOI documents the intent to participate in a Management Zone and whether the proposed submittal will be an S-SNMP or C-SNMP. If the former, then the NOI should include the Delineation and Characterization sections of the S-SNMP (see Section 8.4). These sections shall document compliance with the criteria for submittal of an S-SNMP for Central Valley Water Board staff concurrence. If the discharger(s) plan to submit a C-SNMP, then the NOI is limited to a statement to this fact.

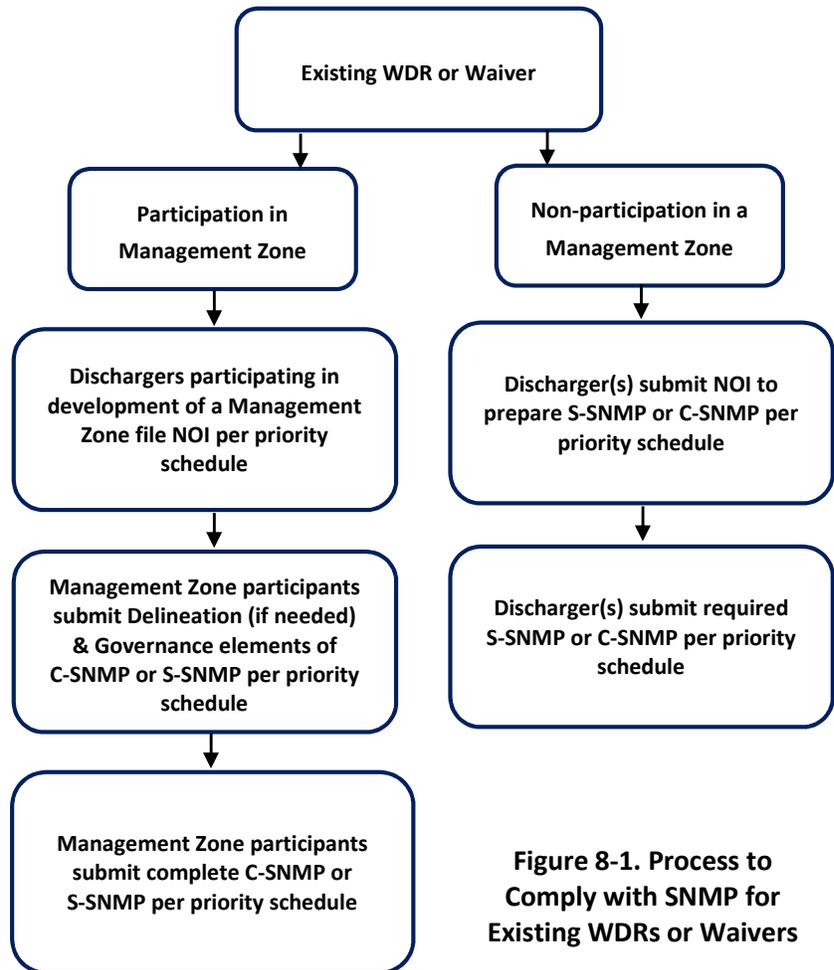


Figure 8-1. Process to Comply with SNMP for Existing WDRs or Waivers

- (b) Submit the Management Zone Delineation (if not provided in the NOI) and Governance elements of the S-SNMP or C-SNMP as an interim deliverable (see Section 8.4).
- (c) Submit a complete S-SNMP or C-SNMP (see Section 8.4) per the priority schedule.

Dischargers that choose to not participate in a Management Zone will be required to submit the following deliverables:

- (a) Submit an NOI with documentation regarding the discharger(s) plan to submit an S-SNMP or C-SNMP (see Section 8.4). If the former, then the NOI should include the Delineation and Characterization sections of the S-SNMP. These sections shall document compliance with the criteria for submittal of an S-SNMP for Central Valley Water Board staff concurrence. If the discharger(s) plan to submit a C-SNMP, then the NOI is limited to a statement to this fact.; and
- (b) Submit a complete S-SNMP or C-SNMP per the priority schedule (see Sections 8.2.3 and 8.4).

The schedule for deliverables varies depending on a number of factors, e.g., the priority level for submittal, decision regarding participation in a Management Zone, and whether the submittal is an S-SNMP or C-SNMP. See Section 8.2.3 for discussion of submittal schedules.

ISSUANCE OF A NEW WDR OR WAIVER

For new WDRs or Waivers, the requirements to comply with this SNMP shall be submitted as part of the submittal of a ROWD. Local SNMP development/submittal requirements can vary substantially depending on local or sub-regional salt or nitrate concerns; accordingly, the information below should be carefully reviewed to determine the SNMP submittal requirements that may be applicable to the area to be covered by the new WDR or Waiver. The content of this submittal will greatly depend on whether the discharger plans to participate in a Management Zone (**Figure 8-2**).

- *Individual or Categorical WDR or Waiver Apart from a Management Zone* – An application for a new WDR or Waiver for an individual discharger or categorical-based discharge that is not participating in a Management Zone requires compliance with all submittal requirements of this SNMP regarding the management of salt and nitrate within the area to be covered by the proposed WDR/Waiver as part of the ROWD submittal. The ROWD shall include either an S-SNMP or C-SNMP (as determined by the criteria in Section 8.2.1) that documents how the discharger proposes to comply with the salt and nitrate management requirements of this SNMP (see Section 8.4 for content requirements).
- *Management Zone* – If the applicant for the new WDR/Waiver plans to participate in a Management Zone, then the timeline for compliance with the requirements of this SNMP may vary:
 - *Existing Management Zone* (approved by the Central Valley Water Board) – If the proposed new discharge is located within the boundaries of an already approved Management Zone, then the applicant’s ROWD submittal will include the S-SNMP or C-SNMP established for that Management Zone and the following two items: (a) an addendum that explains in detail how salt and nitrate in the proposed discharge will be managed within the broader context of how salt and nitrate are being managed in the Management Zone; and (b) how the applicant will participate within the Governance framework established for Management Zone. This information shall be submitted as part of the ROWD for the new discharge.
 - *Developing Management Zone* - If the proposed new discharge is located within the boundaries of a Management Zone that is currently under development by other dischargers in the area, but has not yet been approved by the Central Valley Water Board, then the applicant’s ROWD submittal will include documentation that the applicant is actively participating in the development of the Management Zone. If the Central Valley Water Board determines that it is necessary to issue the new WDR/Waiver prior to the approval of the developing Management Zone, the WDR/Waiver will include a reopener to allow modification of the permit to incorporate salt and nitrate management requirements consistent with the newly approved C-SNMP requirements established for the Management Zone.

8.2.2.2 Other Regulatory Programs

Text to be developed – this section is to cover other sources of salt/nitrate that are not permitted under a WDR/Waiver, e.g., septic systems, small agricultural operations. Need to work with Central Valley Water Board staff on development of implementation steps, notifications, overall implementation schedule, etc.

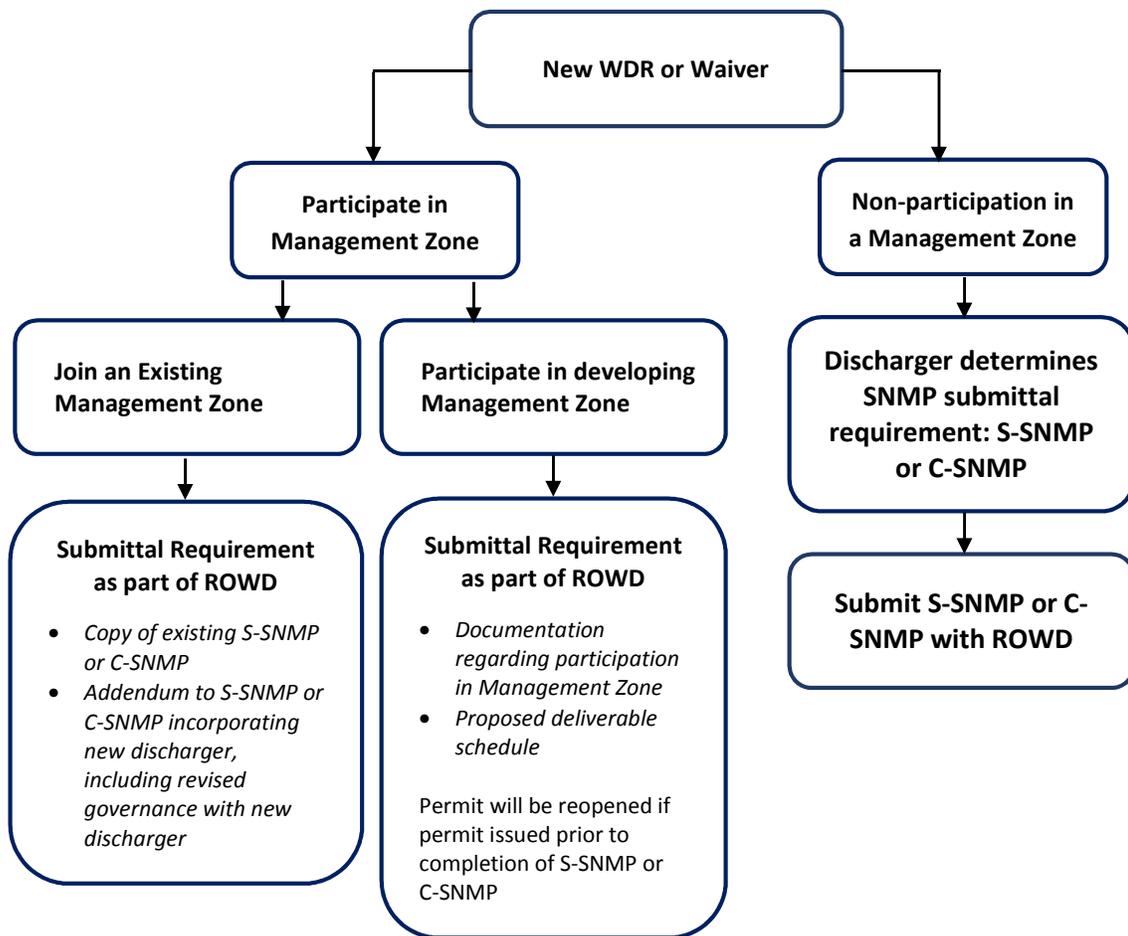


Figure 8-2. Process to Comply with SNMP for New WDRs or Waivers

8.2.3 Schedule and Priority for Implementation in the Central Valley Region

8.2.3.1 Prioritized Implementation Schedule

Given the substantial number of existing WDRs or Waivers already issued in the Central Valley Region, this SNMP establishes a priority-based schedule for submitting the required documents to demonstrate compliance with the salt and management requirements of this SNMP. Establishing a priority-based schedule allows resources to be focused on the most significant areas of water quality concern first. It also creates staggered schedule for submission of SNMP deliverables so that sufficient Central Valley Water Board staff resources are available to review the deliverables at an expedient pace.

This priority-based schedule was developed using the IAZ characterization data developed for this SNMP¹⁰ (also see SNMP Sections X regarding establishment of IAZs). The criteria used to prioritize the 22

¹⁰ Insert citations for ICM, ICM data update, and NIMS

Central Valley Region IAZs include (Note: these bullets will be enhanced based on NIMS Report text that is in development):

- Nitrate Existing Conditions Characterization
 - Ambient nitrate concentration
 - Nitrate loading to groundwater
 - Nitrate concentration trend
- Salinity (TDS) Existing Conditions Characterization
 - Ambient TDS concentration
 - TDS loading to groundwater
 - TDS concentration trend
- Ranking based on California Statewide Groundwater Elevation Monitoring (CASGEM) Program¹¹ findings
- Population

Figure 8-3 illustrates the resulting priority ranking for each IAZ based on these criteria,¹² and Table 8-1 uses these findings to assign a priority for submittals of deliverables to comply with this SNMP. Based on the priority assigned to a particular IAZ, Tables 8-2 and 8-3 establish the schedule for interim and final deliverables, for dischargers participating in a Management Zone and dischargers not participating in a Management Zone, respectively. For example, all dischargers with an existing WDR in IAZ 12, 15, 17 or 19 are shown as “red” in Figure 8-3 and as a consequence have the highest priority for submittal of documents to comply with this SNMP (Priority 1 in Table 8-1).

Table 8-1. Priority to comply with SNMP submittal requirements based on IAZ prioritization (see Figure 8-3)

Priority	Dischargers Affected (see Figure 8-2)
1	Dischargers with an existing WDR in red IAZ: 12, 15, 17, 19
2	Dischargers with an existing WDR in orange IAZs: 6, 11, 16, 18, 20
3	Dischargers with an existing WDR in yellow IAZs: 7, 8, 9, 10, 13, 14, 21, 22
4	Dischargers with an existing WDR in green IAZs: 1, 2, 3, 4, 5 and areas within the Central Valley Region that are outside of an IAZ

¹¹ See <http://www.water.ca.gov/groundwater/casgem/>

¹² NIMS Report reference

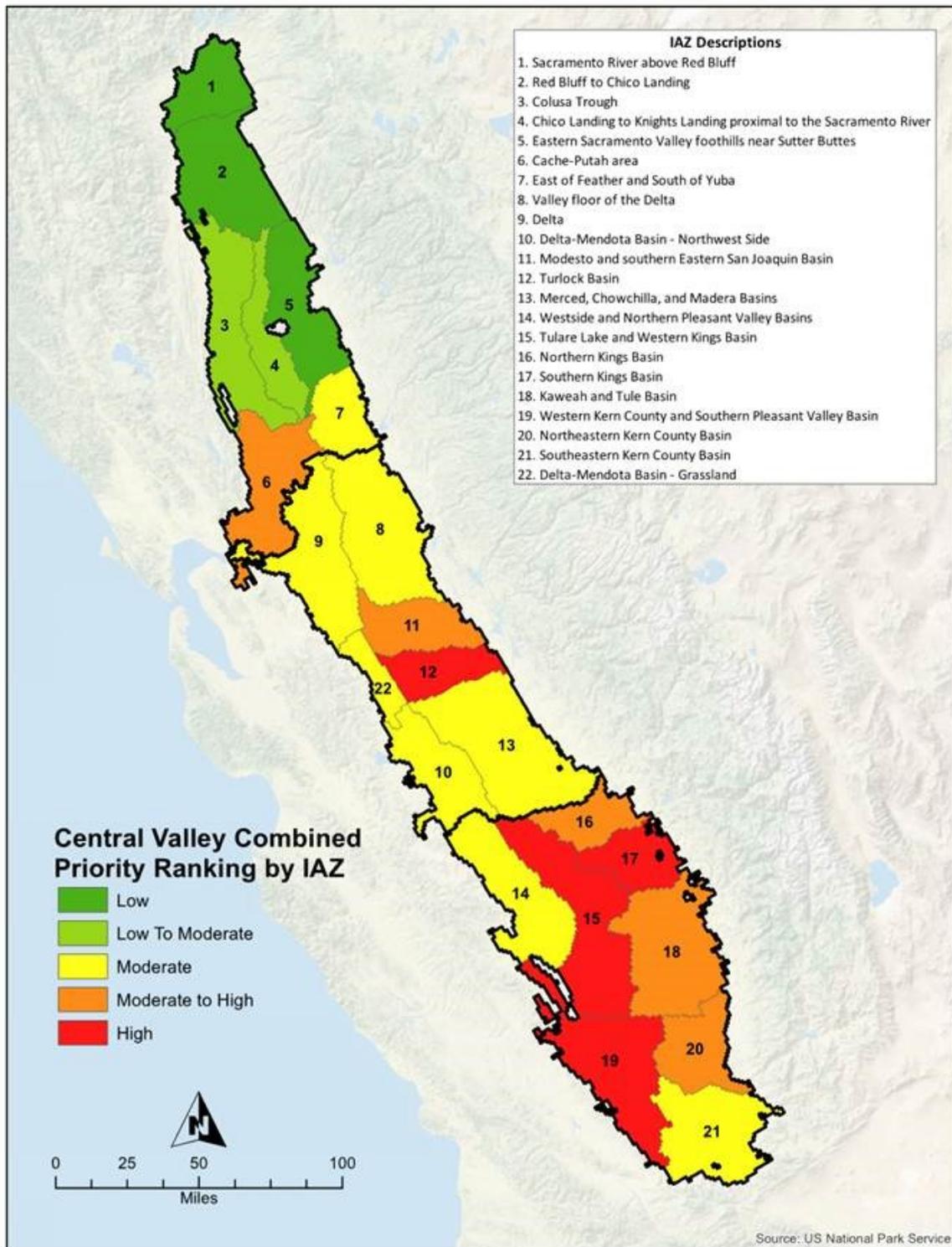


Figure 8-3. Prioritization of IAZs for implementation of the SNMP in the Central Valley Region

Table 8-2. SNMP deliverable schedule for dischargers that participate in a Management Zone

Priority	Deliverable	Number of Years Since Basin Plan Adoption ¹										
		1	2	3	4	5	6	7	8	9	10	
1	Submit NOI to form a Management Zone and proposal to submit a S-SNMP or C-SNMP	X										
	Submit Delineation & Governance Elements of S-SNMP or C-SNMP		X									
	Submit Complete S-SNMP			X								
	Submit Complete C-SNMP				X							
2	Submit NOI to form a Management Zone and proposal to submit a S-SNMP or C-SNMP			X								
	Submit Delineation & Governance Elements of S-SNMP or C-SNMP				X							
	Submit Complete S-SNMP					X						
	Submit Complete C-SNMP						X					
3	Submit NOI to form a Management Zone and proposal to submit a S-SNMP or C-SNMP					X						
	Submit Delineation & Governance Elements of S-SNMP or C-SNMP						X					
	Submit Complete S-SNMP							X				
	Submit Complete C-SNMP								X			
4	Submit NOI to form a Management Zone and proposal to submit a S-SNMP or C-SNMP							X				
	Submit Delineation & Governance Elements of S-SNMP or C-SNMP								X			
	Submit Complete S-SNMP									X		
	Submit Complete C-SNMP											X

¹ "Basin Plan Adoption" means the full approval process is complete, including approval by the Central Valley Water Board, State Water Board, Office of Administrative Law and, where appropriate for surface water issues, the Environmental Protection Agency.

Table 8-3. SNMP deliverable schedule for dischargers not participating in a Management Zone

Priority	Deliverable	Number of Years Since Basin Plan Adoption ¹									
		1	2	3	4	5	6	7	8	9	10
1	Submit NOI for development of S-SNMP or C-SNMP ²	X									
	Submit S-SNMP		X								
	Submit C-SNMP			X							
2	Submit NOI for development of S-SNMP or C-SNMP ²		X								
	Submit S-SNMP			X							
	Submit C-SNMP				X						
3	Submit NOI for development of S-SNMP or C-SNMP ²			X							
	Submit S-SNMP				X						
	Submit C-SNMP					X					
4	Submit NOI for development of S-SNMP or C-SNMP ²				X						
	Submit S-SNMP					X					
	Submit C-SNMP						X				

¹ “Basin Plan Adoption” means the full approval process is complete, including approval by the Central Valley Water Board, State Water Board, Office of Administrative Law and, where appropriate for surface water issues, the Environmental Protection Agency.

² Includes Delineation and Governance sections of the S-SNMP or C-SNMP (See Section 8.4 below).

8.2.3.2 Interim and Final Submission Requirements

PARTICIPATION IN A MANAGEMENT ZONE

When a priority group becomes active per the schedule in Table 8-1, dischargers must first determine whether or not they will comply with this SNMP by participating in a Management Zone. If yes, these dischargers are subject to the following schedule of interim and final deliverables, as shown in Table 8-2:

- *Submit Notice of Intent (NOI)* – The first interim deliverable is submittal of an NOI providing notice to the Central Valley Water Board that the discharger intends to comply with this SNMP through participation in a Management Zone. As part of the NOI, the dischargers shall provide an NOI regarding whether the final deliverable will be an S-SNMP or C-SNMP. Submittal of an S-SNMP may be appropriate where specific water quality findings can be made (see Section 8.2.1 for criteria). Submittal of the NOI provides an opportunity for Central Valley Water Board staff to verify that an S-SNMP is the appropriate mechanism to comply with this SNMP. Accordingly, if a dischargers participating in the Management Zone plan to submit an S-SNMP, then the NOI should include the

- Delineation and Characterization elements of the S-SNMP to demonstrate that the S-SNMP submittal criteria have been met.

The NOI must be submitted within one year of the start date for the dischargers within a priority group, e.g., for the Priority 1 group the NOI must be submitted within one year after all approvals of the Basin Plan amendments have been received (see Table 8.2).

- *Submit Delineation and Governance Elements of S-SNMP or C-SNMP* – Section 8.4 and Attachment A describe the elements required for inclusion in an S-SNMP or C-SNMP. The first two elements (Delineation and Governance for the Management Zone) comprise the second interim deliverable (unless the delineation has already been submitted as part of the NOI). This deliverable is to be submitted within one year after submittal of the NOI, e.g., using the Priority 1 group again as an example, the Delineation and Governance elements of the S-SNMP or C-SNMP must be submitted within two years after all approvals of the Basin Plan amendments have been obtained (see Table 8.2).
- *Submit Complete S-SNMP* – If the final deliverable is submission of a complete S-SNMP, then this submittal is due within one year after submittal of the previous interim deliverable documenting the Delineation and Governance elements of the S-SNMP (See Table 8.2).
- *Submit Complete C-SNMP* – If the final deliverable is submission of a complete C-SNMP, then this submittal is due within two years after submittal of the previous interim deliverable documenting the Delineation and Governance elements of the C-SNMP. The additional time provided for completion of the C-SNMP takes into account the increased level of effort expected for completion of this document.

NON-PARTICIPATION IN A MANAGEMENT ZONE

If the discharger(s) chooses to comply with this SNMP apart from a Management Zone, e.g., as an individual discharger or as part of a categorical WDR/Waiver, then these dischargers shall submit interim and final deliverables per the schedule shown in Table 8-3. Similar to Table 8-2, this schedule is priority-based, but the deliverable schedule is shorter than the schedule for dischargers participating in a Management Zone simply because of the additional time that will be required for dischargers developing a Management Zone to establish the Governance framework and then determine collaboratively the best approach for managing salt and nitrate in the Management Zone in the most effective manner.

For dischargers not participating in a Management Zone, the deliverables and associated schedule in Table 8-3 include:

- *Submit NOI regarding preparation of an S-SNMP or C-SNMP* – Based on initial data analyses, the discharger(s) shall provide an NOI regarding whether the final deliverable will be an S-SNMP or C-SNMP. Submittal of an S-SNMP may be appropriate where specific water quality findings can be made (see Section 8.2.1 for criteria). Submittal of the NOI provides an opportunity for Central Valley Water Board staff to verify that an S-SNMP is the appropriate mechanism to comply with this SNMP. Accordingly, if a discharger plans to submit an S-SNMP, then the NOI should include the Delineation and Characterization elements of the S-SNMP to demonstrate that the S-SNMP submittal criteria have been met.

The schedule for submittal of the NOI is within one year of when the priority group becomes active. For example, if the discharger is in the Priority 1 group, then submittal of the NOI shall occur no later than 1 year after all approvals of the Basin Plan amendments have been received (see Table 8-3).

- *Submit Complete S-SNMP or C-SNMP* – Dischargers submitting an S-SNMP shall do so within one year after submittal of the NOI; dischargers submitting a C-SNMP shall do so within two years after submittal of the NOI. Required content for submittal of an S-SNMP and C-SNMP is provided in Sections 8.4.1 and 8.4.2, respectively (also see Attachment A). The shorter schedule for dischargers preparing a C-SNMP but not working within a Management Zone takes into account the expectation that less work is required to complete preparation of all deliverables.

8.3 Implementation Policies to Support Management Goals and Implementation Framework

The establishment of this SNMP and any revisions made to the Basin Plans are intended to enhance Central Valley Water Board authority to allow consideration of more innovative or holistic approaches to salt and nitrate management through WDRs or Waivers, potentially as part of a Management Zone. This need is especially acute in areas where collaborative salt and nitrate management over relatively large areas may be necessary to achieve the salt and nitrate management goals for the Central Valley (see Section 8.1). Accordingly, this SNMP establishes policies that when adopted into the Basin Plan through a Basin Plan amendment, may provide opportunity to implement innovative approaches for effective management of salt and nitrates that encourage water conservation and reuse of water. These innovative approaches may be especially important during the development of an S-SNMP or C-SNMP.

While this SNMP contemplates the adoption of new policies to facilitate salt and nitrate management going forward, this SNMP does not change any existing permitting tools used now by the Central Valley Water Board to manage water quality. These tools remain available to support SNMP implementation throughout the Central Valley Region.

Policies that will be considered for incorporation into the Basin Plans through a Basin Plan amendment to facilitate implementation of this SNMP through the development of an S-SNMP or C-SNMP are summarized below. Attachment XX to this SNMP includes the full text of these policies.

8.3.1 Policy No. XX: Secondary Maximum Contaminant Levels (SMCLs)

Executive Summary of Policy – full policy in attachment

8.3.2 Policy No. XX: Holistic Management of Salt and Nitrate through Adoption of Management Zones

Executive Summary of Policy – full policy in attachment

8.3.3 Policy No. XX: Salinity Management to Provide Reasonable Protection of AGR Beneficial Uses in Groundwater

Executive Summary of Policy – full policy in attachment

8.3.4 Policy No. XX: Nitrate Permitting Strategy for Groundwater

Executive Summary of Policy – full policy in attachment

8.3.5 Policy No. XX: Alternative Compliance Program

Executive Summary of Policy – full policy in attachment

8.3.6 Policy No. XX: etc.

Executive Summary of Policy – full policy in attachment

8.4 Salt and Nitrate Management Plan Development

As stated above, this SNMP establishes the overarching POI for the management of salt and nitrate in the Central Valley Region. The mechanism for implementation at the local or sub-regional level is through WDRs or Waivers – either collectively through the establishment of Management Zones or as individual or categorical dischargers. Requirements for compliance may be met either through the submittal of an S-SNMP or C-SNMP. These submittals constitute the local or sub-regional salt and nitrate management POI for inclusion in the relevant WDR or Waiver.¹³ The following sections provide an overview of the key elements for inclusion in either an S-SNMP or C-SNMP. Attachment A provides additional detail regarding submittal requirements.

8.4.1 Streamlined Salt and Nitrate Management Plan (S-SNMP)

The level of effort required to comply with this SNMP's salt and management requirements can vary depending on the degree to which salt or nitrate are water quality concerns within the area covered by a WDR or Waiver. The S-SNMP, as an alternative to a C-SNMP, is intended to provide a streamlined path to compliance with this SNMP where the risk to groundwater is low. Specifically, if the criteria provided in Section 8.2.1. are met, i.e., there are minimal existing water quality concerns, e.g., drinking water supplies are not at risk, or any water quality concerns are expected to be limited or *de minimus* over the planning period covered by the S-SNMP, the discharger(s) will document this expectation in the discharger's NOI to submit an S-SNMP. With agreement by Central Valley Water Board staff, the discharger(s) may proceed to complete the S-SNMP. The sections below as well as Attachment A provide additional information regarding S-SNMP submittal requirements.

If a discharger(s) meets the criteria identified in Section 8.2.1, then the key elements to be addressed in the submittal of an S-SNMP are as follows (See Attachment A for additional information):

- *Delineation* – If the S-SNMP is being prepared for an individual WDR/Waiver or categorical WDR/Waiver then the delineated area is equivalent to the zone of influence of the discharge(s). If the S-SNMP is being prepared for a Management Zone, the delineation should include the boundary of the Management Zone and identify all dischargers participating within the delineated zone. Ideally, the Management Zone boundary should have a hydrogeologic basis to facilitate the characterization process.
- *Governance* – If the S-SNMP's is being prepared for an individual discharger or categorical-based discharge, this section would simply document the authority of the discharger(s) to implement the WDR/Waiver. However, in the event the S-SNMP is being prepared for a Management Zone, then

¹³ Note that it is anticipated that dischargers who work collectively with other dischargers through a Management Zone will maintain their own WDR or Waiver, but the permit will contain a section that identifies salt and nitrate management requirements consistent with the Management Zone's S-SNMP or C-SNMP.

the content of this section should be similar to the content required for a C-SNMP (see *Governance* under Section 8.4.2 below)

- *Characterization* – Existing and projected salt and nitrate conditions in the groundwater within the area to be managed under the S-SNMP. This characterization shall be of sufficient content to make the findings necessary to justify submission of an S-SNMP to comply with this SNMP (see Section 8.2.1 above). The NOI submitted as an interim deliverable shall provide the results of this characterization.
- *Program of Implementation*
 - *Existing POI* – This section documents existing water management activities, Best Management Practices (BMPs) or other practices that benefit water quality with regards to the management of salt and nitrate. It is assumed that whatever is documented in this section will continue to be implemented as part of the S-SNMP.
 - *Supplemental POI* – Where necessary, the discharger(s) documents new practices, projects or other activities planned for implementation under the S-SNMP that will support management of salt and nitrate over the long-term.
 - *Monitoring Program* – Document how the existing Monitoring and Reporting Program for the WDR/Waiver will continue to provide the necessary data to evaluate continued compliance with water quality findings made as part of the support for the S-SNMP. If necessary, supplemental monitoring should be identified to provide additional data support where needed.
- *Schedule for Implementation* – Section includes any appropriate milestones (e.g., as related to supplemental POI elements) and documents that the S-SNMP will be reviewed and updated as needed as part of subsequent ROWD submittals. However, note that if in a subsequent submittal the water quality characterization shows that the criteria for S-SNMP submittal are no longer met, then a C-SNMP will need to be submitted. In the event that occurs, the submittal dates will be negotiated with the Central Valley Water Board as part of the permit renewal process.
- *Other Supporting Documentation* - TBD

8.4.2 Comprehensive Salt and Nitrate Management Plan (C-SNMP)

This section describes the requirements for submittal of a C-SNMP to comply with this SNMP. A C-SNMP is a required deliverable for dischargers that cannot meet the requirements for submittal of an S-SNMP. It may be a deliverable for dischargers working collaboratively under a Management Zone or individual or categorical-based discharges that are not participating in a Management Zone.

The purpose of the C-SNMP is to explain how salt and nitrate will be managed within the area to be managed to achieve the Management Goals of this SNMP. To make this demonstration, each C-SNMP will include the following key elements, but tailored for the specific area in which the C-SNMP will apply (see Attachment A for additional detail):

- *Delineation* – The area to be covered by the C-SNMP. It may be relatively small if for an individual discharger with a limited zone of influence or it may be large if the C-SNMP is being prepared for a Management Zone or for a large individual discharger (e.g., large farm or large processing facility). For a Management Zone the delineation should include the boundary of the Management Zone and

identify all dischargers participating within the delineated zone. Ideally, the Management Zone boundary should have a hydrogeologic basis to facilitate the characterization process.

- *Governance* – Explanation regarding how the area covered by the C-SNMP will be managed and funded to meet commitments established in the POI (see below). For a discharger preparing a C-SNMP apart from a Management Zone, this element is limited to documentation showing that the discharger has the authority and funding to implement the activities proposed in the C-SNMP. In contrast, for a Management Zone, the governance element is significant as it must address a number of management issues including, but not limited to, the governance structure or organization; agreements established among dischargers; detailed budget and funding commitments (including commitments to funding long-term regional projects, e.g., a regulated Central Valley brine line, if that is the part of the long-term plan to manage salt in the Management Zone); and mechanism for resolving disputes.
- *Characterization* – Description of nitrate and salt conditions within the area to be managed under the C-SNMP. The characterization includes, among other things, an evaluation of existing water quality conditions, available assimilative capacity, groundwater flow characteristics, risks to adjacent areas, salt and nitrate trends (historical and projected), and risks to drinking water supplies.
- *Program of Implementation* – There are five key parts to the POI to be included in the C-SNMP:
 - Identification of salt and nitrate management priorities within the area to be managed, i.e., Priority Areas.
 - Planned short and long-term management activities within Priority Areas to be addressed in a manner consistent with the range of management goals established in this SNMP (see Section 8.1). If the C-SNMP includes an Alternative Compliance Program (ACP), that program would be described here. Long-term management activities may include commitments to regional projects such as development of regional salt sinks or establishment of a regulated Central Valley brine line.
 - Planned management activities that apply throughout the entire area to be managed.
 - Demonstration that the proposed POI will make progress towards attainment of the water quality based management goals over the short and long term consistent with the overarching water resource management strategy and statewide environmental policies (see Section 8.1).
 - Monitoring approach to demonstrate over time that the proposed POI is achieving the expected results.
- *Implementation Schedule* – Each C-SNMP shall include a detailed phased implementation schedule to support the proposed POI. The schedule should include the following components as illustrated in **Figure 8-4**:
 - A Phase 1 (Years 1-10) short-term detailed schedule of implementation activities linked to the SNMP Management Goals, in particular a schedule to meet water quality-based Management Goal 1 within the first three years of implementation.
 - A Phase 2 (Years 11-20) schedule of planned or projected implementation activities expected to be implemented in the future, but linked to achievement of water quality-based Management Goals 2 and 3. Less detail is necessary here given the time to implementation and the expected

review of these planned implementation activities during the scheduled review of the C-SNMP (see below).

- A long-term schedule for implementation of management activities for Phase 3 and beyond (> 20 years), to the extent known. For example, this schedule could include extended commitments to regional salt or nitrate water quality solutions, e.g., participation in a regulated brine line. It should also show planning activities that may occur in Phases 1 or 2 intended to support a long term solution.
 - An Adaptive Iterative Process (AIP) that should begin by the beginning of Year 9 of Phase 1, Year 19 of Phase 2, etc. The purpose of the AIP is to determine how the C-SNMP should be updated for the next phase (including providing detailed projects/activities for the next 10 year period) and to make those changes. The schedule for implementing this activity should be included in the C-SNMP.
- *Other Supporting Documentation* – TBD

8.5 Implementation Schedule

While this SNMP's POI applies to the entire Central Valley Region, most of the implementation activities will occur at the local or sub-regional level through the WDR/Waiver program. This approach allows for salt and nitrate management activities to be tailored to the specific needs of each area where salt or nitrate are water quality concerns.

As was noted above, implementation of this SNMP through the WDR/Waiver program has the potential to significantly impact the workload of Central Valley Water Board staff – particularly during the startup period when all existing WDRs/Waivers will need to incorporate salt and nitrate management requirements. Accordingly, initial implementation of this SNMP will occur according to a priority-based schedule with four levels of priority (see Table 8-1). This approach will allow Central Valley Water Board staff resources to be more efficiently allocated through this period.

As structured, the startup period for this SNMP will occur over a 10-year period that begins with the adoption of approved Basin Plan amendments (and completion of the approval process for these amendments), which will establish the basis for implementation of this SNMP in the Region's Basin Plans. During the initial 10-year period all existing WDRs/Waivers will be required to have either an S-SNMP or C-SNMP incorporated into the permits (see Tables 8-2 and Table 8-3 for relevant schedules). **Figure 8-5** below illustrates this startup period relative to the completion of the Basin Plan amendment process and implementation of the priority-based schedule for existing WDRs/Waivers.

In parallel to the priority-based schedule for existing WDRs/Waivers, the SNMP includes a schedule for implementation of this SNMP for new WDRs/Waivers (to be addressed through the regular ROWD process – see Section 8.2.2.1) and in areas where salt and nitrate management is required, but no WDR/Waiver is involved (see Section 8.2.2.2). Also in parallel to the overall schedule of implementation will be periodic reviews of the SNMP as part of the Triennial Review process.

Figure 8.5 illustrates the phasing that is associated with the implementation of a C-SNMP. This phasing incorporates a periodic review/revision process so that the C-SNMP can be adaptive and iterative in its implementation (see Section 8.4.2 and Figure 8-4).

8.6 Surveillance and Monitoring Program (SAMP)

This section will include an Executive Level Summary of the SAMP being developed for the Central Valley Region. The full SAMP will be referenced as an attachment.

Figure 8-4. Example phased implementation schedule for inclusion in the initial C-SNMP

Planning Component	Key Element	Phase 1 - Detailed Program of Implementation by Year										Phase 2 - Additional General Program Planning		Phase 3 - Long Term		
		1	2	3	4	5	6	7	8	9	10	11 - 15	16 – 20	> 20		
Short-Term Activities (10 year detail; additional 10 year program planning)	Plan/Schedule to Comply with water quality-based Goal 1	Complete by Year 3														
	Activities towards achieving water quality-based Goal 2	Detailed POI with specific projects/activities										<ul style="list-style-type: none"> Identify projects/activities expected to extend beyond Phase 1. Identify strategy for Years 10-20 (to be reassessed as part of Adaptive/Iterative Process) 				
	Activities towards achieving quality-based water Goal 3	Detailed POI with specific projects/activities (Note: these projects/activities may be the same as those planned to support water quality-based Goal 2)														
Long-Term Activities and Planning (> 20 Years)	Plan and commitments to achieve water quality-based Goal 2	Long term plan to achieve water quality-based management goals – This section should include the long-term management strategy (> 20 Years) as well as any activities that may occur during Phases 1 and 2 that are implemented to support the long term strategy (e.g., planning and design of a regional salt solution)														
	Plan and commitments to achieve water quality-based Goal 3	Long term plan to achieve water quality-based management goals – This section should include the long-term management strategy (> 20 Years) as well as any activities that may occur during Phases 1 and 2 that are implemented to support the long term strategy (e.g., planning and design of a regional salt solution). As noted above the activities for achieving water quality-based Goal 3 may be the same as those planned to support water Goal 2														
Adaptive Iteration Process (AIP) (Begins in Year 9 of every 10 year phase)	<ul style="list-style-type: none"> Review progress towards attainment Update governance as needed Update/revise next phase of activity per existing C-SNMP Revise C-SNMP 									AIP to develop Phase 2			AIP to develop Phase 3			

Implementation Element		Year (2016 – 2042)																								
		'16	'17	'18	'19	'20	'21	'22	'23	'24	'25	'26	'27	'28	'29	'30	'31	'32	'33	'34	'35	'36	'37	'38	'39	'40
Final SNMP		Periodic Review and Revision of SNMP, as needed (part of Triennial Review Process)																								
Complete Basin Plan Amendment Process		Additional Basin Plan Amendments, if needed based on SNMP revisions																								
Implementation through WDRs/Waivers	Existing WDRs/Waivers	Priority 1			Interim & Final C-SNMP Submittals			Phase 1 C-SNMP Implementation					Adapt/Iterate		Phase 2 C-SNMP Implementation											
		Priority 2					Interim & Final C-SNMP Submittals			Phase 1 C-SNMP Implementation					Adapt/Iterate		Phase 2 C-SNMP Implementation									
		Priority 3							Interim & Final C-SNMP Submittals			Phase 1 C-SNMP Implementation					Adapt/Iterate		Phase 2 C-SNMP Implementation							
		Priority 4									Interim & Final C-SNMP Submittals			Phase 1 C-SNMP Implementation					Adapt/Iterate		Phase 2 C-SNMP Implementation					
New WDRs/ Waivers		Ongoing Implementation through ROWD Process																								
Other Regulatory Programs to Manage Nitrate/Salt Sources		Ongoing Implementation per SNMP Requirements																								

Figure 8-5. Example of the long-term SNMP schedule relative to approved Basin Plan amendments and establishment of Management Zones and C-SNMPs according to the priority-based schedule (Note: Complete Basin Plan Adoption process means all approvals have occurred, including approval by the Central Valley Water Board, State Water Board, Office of Administrative Law and, where appropriate for surface water issues, the Environmental Protection Agency)