Central Valley-wide Salt and Nitrate Control Program

Proposed Basin Plan Amendments

- Strategies
- Supporting New and Revised Policies
Salt/Nitrate Issues

- Ambient Conditions
  - Upper Zone (Average)
  - Area containing 90% of domestic wells

* Where only Electrical Conductivity data were available, it was converted to TDS
CONTROL PROGRAM DEVELOPMENT PROCESS

- Stakeholder-driven (CV-SALTS)
- Multi-year effort – initiated in 2006
  - Multiple Meetings
    - >140 Policy
    - >50 Technical (+52 for LSJR)
    - >45 Misc. + Education/Outreach Committee
- Agency Oversight/Public Input
  - Annual State Water Board Public Reports
  - Annual Regional Water Board Workshops
- Materials posted at:
  - www.cvsalinity.org

Studies: Conceptual Model, Groundwater Quality, Management Zone Archetype
White Papers: MUN, AGR, Stock Watering, & Aquatic Life Beneficial Uses

Implementation Alternatives: Nitrate (NIMS), Salinity (SSALTS), Aggressive Restoration Scenario

Case Studies: Tulare MUN/AGR De-designation, MUN in Ag-Dominated Waters, Lower San Joaquin River Salinity

CV-SALTS Supporting Policies

Salt & Nitrate Control Programs

Salt & Nitrate Management Plan (SNMP)
CONTROL PROGRAMS FRAMED AROUND THREE PRIORITIZED MANAGEMENT GOALS

Management Goal 1
- Safe a Drinking Water Supply
  - Short & Long Term Solutions

Management Goal 2
- Balanced Salt & Nitrate Loadings
  - Ongoing and Expanding Efforts

Management Goal 3
- Implement Managed Aquifer Restoration
  - Where Reasonable, Feasible & Practicable
SALT & NITRATE MANAGEMENT STRATEGY – BROAD PERSPECTIVE

Nitrate & Salinity Control Programs

Prioritized Program

Nitrate Compliance Pathways
- Generally Maintain Traditional Permitting Approach
- Management Zone Permitting Approach

Phased Program

Salinity Compliance Pathways
- Conservative Permitting Approach
- Alternative Permitting Approach
CENTRAL VALLEY SALT AND NITRATE CONTROL PROGRAM

• **Implementation Elements**
  - Salt Control Program
    - Surface and Groundwater
  - Nitrate Control Program
    - Groundwater
    - Prioritized Basins
    - Management Zones
  - Conditional Prohibition of Discharge
  - Surveillance and Monitoring
  - Program Specific Definitions

• **New/Revised Policies**
  - Variances and Exceptions
  - Drought and Conservation
  - Offsets
  - Secondary Maximum Contaminant Levels (clarify application of SMCLs in permitting actions)

(See Handout)
SALINITY CONTROL PROGRAM
SALINITY CONTROL PROGRAM

- Phased Approach
  - Basin-Wide
  - Long-term Sustainability
    - Maintain Good Water Quality
    - Improve Poor Water Quality
- Management Goals
  - “Managed Degradation”
  - Sustainability and Protect Salt Sensitive Areas
    - Meet Water Quality Objectives/Long-Term Restoration where reasonable, feasible and practicable
    - Protect High Quality Water (anti-degradation)
SALINITY PERMITTING STRATEGY

• Two Compliance Pathways
  – Conservative Permitting
  – Alternative Compliance

• Phased Approach
  – 10-15 years for each phase

• Permittees “elects” their compliance pathway at beginning of each phase

(See Handout)
Phase 1: Prioritization/Optimization Study
  – Expanded Evaluations
    ▪ Hydrologic/Policies/Programs
  – Physical/Non-Physical Projects
  – Governance/Funding

Phase 2: Project Development
  – Funding/Permits/Non-Physical Projects

Phase 3: Project Implementation
  – Construction
## PHASE 1

<table>
<thead>
<tr>
<th>Conservative</th>
<th>Alternative</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>All Discharges</strong></td>
<td><strong>All Discharges</strong></td>
</tr>
<tr>
<td>• Apply conservative assumptions for interpretation of the narrative objectives and application of numeric water quality objectives to protect AGR and MUN beneficial uses</td>
<td>• Participate in the Phase I Prioritization and Optimization Study throughout its duration</td>
</tr>
<tr>
<td>• Limited availability of a compliance or time schedule to meet a salinity-related effluent limit or waste discharge requirement</td>
<td>• Continue implementing reasonable, feasible and practicable efforts to control salinity using performance-based limits, including:</td>
</tr>
<tr>
<td></td>
<td>- Salinity management practices</td>
</tr>
<tr>
<td></td>
<td>- Pollution prevention, watershed, and/or salt reduction plans</td>
</tr>
<tr>
<td></td>
<td>- Monitoring</td>
</tr>
<tr>
<td></td>
<td>- Maintenance of existing discharge concentration or loading levels of salinity</td>
</tr>
<tr>
<td><strong>Groundwater Discharge and Non-NPDES Discharge</strong></td>
<td><strong>Groundwater and Non-NPDES Discharges</strong></td>
</tr>
<tr>
<td>• Limited new or expanded allocation of assimilative capacity in groundwater</td>
<td>• Salinity limits not used as a compliance metric except to ensure implementation of performance-based measures;</td>
</tr>
<tr>
<td>• Does not meet eligibility requirements for an exception</td>
<td>• Permittees that meet requirements of the alternative salinity permitting approach are considered in compliance with their salinity limits</td>
</tr>
<tr>
<td><strong>NPDES Surface Water Discharge</strong></td>
<td><strong>NPDES Surface Water Discharges</strong></td>
</tr>
<tr>
<td>• A new or expanded allocation of assimilative capacity may be authorized only where a permittee can show that the impact of the discharge is temporary or de minimus</td>
<td>• Eligible for a salinity variance</td>
</tr>
<tr>
<td>• Does not meet eligibility requirements for a variance</td>
<td><strong>NPDES Surface Water Discharges</strong></td>
</tr>
</tbody>
</table>
SALINITY ALTERNATIVE PERMITTING APPROACH

**Interim Permit Provisions**

- Continue to Implement Pollution Prevention, Watershed, and Salt Reduction Plans
- Comply with Interim Permit Limits, if applicable
- Maintain Current Salinity Discharge Levels to Extent Feasible, Reasonable, Practicable
- Participate in Phase I Study and Phase II & III, as appropriate
- Conduct Required Monitoring
- Implement Salinity Management Practices & Source Control Activities
## PHASE I – PRIORITIZATION AND OPTIMIZATION STUDY

<table>
<thead>
<tr>
<th>Category</th>
<th>Year of Implementation</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>1</td>
</tr>
<tr>
<td>Stakeholder Coordination</td>
<td></td>
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<tr>
<td>Stakeholder Coordination Meetings (as needed frequency)</td>
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<tr>
<td>SGMA GSA Coordination Meetings (as needed frequency)</td>
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<tr>
<td>Strategic Planning</td>
<td></td>
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<tr>
<td>Regulatory and Policy Evaluations</td>
<td></td>
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<tr>
<td>Phase II Planning</td>
<td></td>
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<tr>
<td>Governance</td>
<td></td>
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<tr>
<td>Governance Plan – Formation and Structure</td>
<td></td>
</tr>
<tr>
<td>Implementation and Refinement of Governance Plan</td>
<td></td>
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<tr>
<td>Funding</td>
<td></td>
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<tr>
<td>Funding Plan and Financing Strategy</td>
<td></td>
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<tr>
<td>Implementation of the Funding Plan and Financing Strategy</td>
<td></td>
</tr>
<tr>
<td>Prioritization &amp; Salinity Management Analyses</td>
<td></td>
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<tr>
<td>Prioritization/Salt Management Analyses to Support Identification of Salt Management Projects</td>
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<tr>
<td>Interim Report</td>
<td></td>
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<tr>
<td>Conceptual Design of Salt Management Project</td>
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<tr>
<td>Concept Design for Subregional Salt Management Projects and Regional CVBL Project</td>
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<tr>
<td>Special Studies</td>
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<tr>
<td>Groundwater Quality Trace Constituent Study</td>
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<td>Emerging Tech Update</td>
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<tr>
<td>Emerging Tech Update</td>
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<tr>
<td>Recycled Water Imports Study</td>
<td></td>
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<tr>
<td>Stormwater Recharge Master Plan Study</td>
<td></td>
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<tr>
<td>Issue</td>
<td>Expectations</td>
</tr>
<tr>
<td>-----------------------------------------------</td>
<td>--------------------------------------------------------------------------------------------------------------------------------------------</td>
</tr>
</tbody>
</table>
| Who could potentially participate?           | • All (or almost all) permitted dischargers of salt (surface water or groundwater)  
                                           | • Non-discharging entities that would benefit from Central Valley salinity management and control activities                                 |
| Who will manage the Study?                   | • Anticipated lead - Central Valley Salinity Coalition                                                                                      |
| How will the Study be implemented?           | • Activities to occur in an open stakeholder process                                                                                    |
|                                           | • Workplan (scope, budget, schedule) to be developed prior to implementation                                                            |
|                                           | • Meet milestones established in Phase I Salinity Control Program                                                                         |
| How will required level of commitment be determined? | • Anticipated to be determined based on a variety of factors, e.g., facility size/type; discharge volume, salt loading, others |
## Salinity Control Program Schedule

<table>
<thead>
<tr>
<th>Regulatory Actions (Current Estimate)</th>
<th>2018</th>
<th>2019</th>
<th>2020</th>
<th>2021 &amp; following</th>
</tr>
</thead>
<tbody>
<tr>
<td>Central Valley Board Consideration</td>
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<tr>
<td>State Water Board Consideration</td>
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<tr>
<td>Office Administrative Law (OAL) Consideration</td>
<td>Trigger to Initiate GW implementation</td>
<td></td>
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<tr>
<td>EPA Approval (Surface Water only: 6/19)</td>
<td>Trigger to Initiate SW implementation</td>
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<tr>
<td>Notice to Comply (NTC) Groundwater</td>
<td></td>
<td>w/in 1-yr of OAL approval</td>
<td></td>
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</tr>
<tr>
<td>Notice of Intent (NOI) – Groundwater</td>
<td></td>
<td>w/in 6-mo of NTC</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Notice to Comply - Surface Water</td>
<td></td>
<td></td>
<td>w/in 1-yr of EPA approval</td>
<td></td>
</tr>
<tr>
<td>Notice of Intent – Surface Water</td>
<td></td>
<td></td>
<td>w/in 6-mo of NTC</td>
<td></td>
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<tr>
<td>Phase I Implementation (10-15 years)</td>
<td></td>
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</tbody>
</table>
RECOMMENDED PRIORITY AREAS

• Groundwater Basins/Sub-basins
  – Priority 1 Area (Central Valley Floor, Red) – Notice to Comply within one year of Basin Plan amendments becoming effective
  – Priority 2 Area (Central Valley Floor, Orange) – Notice to Comply within 2-4 years of Basin Plan amendments becoming effective
  – Remaining Areas (Central Valley Floor, Green, and other Basins/Sub-basins outside of the Valley Floor) – Based on available resources, and as determined necessary by the Executive Officer

• Areas Not Part of a Groundwater Basin
  – As determined necessary by the Executive Officer
Compliance Pathways

- **Path A** – Individual Permittee
- **Path B** – Management Zone

(See Handout)
**Individual**
- *Shallow Zone*

**Management Zone**
- *Upper Zone*

---

See Handout
EARLY ACTION PLAN COMPONENTS (PATH A & B)

**Identification & Outreach**
Process to identify affected residents and outreach used to inform groundwater users of opportunity to participate in development of solutions.

**Coordination**
Process for coordinating with others that are not dischargers: must include affected communities, domestic well users, representatives of affected communities, local agencies and groundwater sustainability agencies.

**Funding**
Funding mechanism for implementing EAP, which may include funding from Management Zone participants, and/or available local, state and federal funds.

**Schedule**
Actions and schedule of implementation that is as short as practicable to address immediate drinking water needs.
### ALTERNATIVE COMPLIANCE PROJECT (ACP) REQUIREMENTS

<table>
<thead>
<tr>
<th>Element</th>
<th>Requirements</th>
</tr>
</thead>
</table>
| **Reasons to Request an ACP**  | • Support an allocation of assimilative capacity on a volume-weighted basis for a Management Zone  
                                 | • Support an allocation of assimilative capacity request where nitrate is above a trigger level  
                                 | • Support authorization for an Exception                                                                                                           |
| **Schedule to Request an ACP** | • Path A, Individual Approach – Submit with Notice of Intent  
                                 | • Path B, Management Zone Approach – Submit with Management Zone Implementation Plan                                                                |
| **Minimum Requirements**       | • Identification of public water supply and domestic wells contaminated by nitrates within a discharge area’s zone of concern  
                                 | • Schedule with milestones for addressing nitrate drinking water issues  
                                 | • Identification of steps to be taken to meet SNMP Management Goals 2 and 3                                                                       |
### NITRATE/SALT MANAGEMENT STRATEGY:
**GENERAL TIMELINE/MILESTONES FOR EXISTING DISCHARGERS**

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<tbody>
<tr>
<td>Effective Basin Plan amendment</td>
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<tr>
<td>Nitrate – Priority 1 Areas</td>
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<td>4</td>
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<tr>
<td>Nitrate – Priority 2 Areas</td>
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<td>2</td>
<td>3</td>
<td>4</td>
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<tr>
<td>Nitrate – Remaining Areas</td>
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<tr>
<td>Salinity Management</td>
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</tbody>
</table>

**Notice to Comply (NTC)**
- **1.** Notice to Comply (NTC) (within 1 year of BPA effective date)
- **2.** NTC (within 2-4 years of BPA effective date)
- **3.** Initial planning (w/i ~15 months of NTC), including develop/implement Early Action Plan to address drinking water concerns
- **4.** ~180 days to complete Management Zone Implementation Plan; per Board review, process to revise existing WDRs/Waivers with discharger-specific nitrate management requirements initiated
- **5.** For remaining areas, the time to a NTC to be determined

---

*Phase I Prioritization and Optimization Study (further define short and long-term projects to manage salt in the Central Valley)*

*Phase II – Permitting, Engineering Design*  
*Phase III – Project Construction*
SURVEILLANCE AND MONITORING
SURVEILLANCE AND MONITORING PROGRAM

Goals (Salt and Nitrate)

– Assess the effectiveness of the Control Program;

– Develop statistically-representative ambient water quality and trends
  • Surface Water and Groundwater (Upper, Lower and Production Zones)

– Maximize the use of existing monitoring programs.

General Requirements:

– **Lead Entity:** Gather, consolidate and evaluate

– **Within two years:** Work Plan and a Quality Assurance Project Plan.

– **Reports at least once every 5-years (unless alternative schedule EO approved)**

– Permittees must provide confirmation of program support through Lead Entity
ENSURE IMPLEMENTATION OF TIME SENSITIVE COMPONENTS
• Permittees that discharge salt and/or nitrate pursuant to a WDR or Conditional Waiver and are not regulated under the Irrigated Lands Regulatory Program (ILRP):
  
  – Upon receiving a Notice to Comply, discharges of salt and/or nitrate are prohibited unless a permittee implements the requirements of the Salt and Nitrate Control Program
  
  – Prohibition applies until such time that the permittees’ existing WDR or Waiver is updated or amended

• Timing for Permit Updates
  
  – Salinity: After receipt of Notice of Intent
  
  – Nitrate: Path A—After receipt of Notice of Intent
  
  Path B—After receipt Management Zone Implementation Plan
SELECT SUPPORTING POLICIES

- Variance/Exception
- Drought and Conservation
- SMCLs
VARIANCE AND EXCEPTION POLICIES

Salt Variance Policy*

• *Extend 15-years from effective date amendment*

• *Requires participation in P&O Study*

Exceptions Policy*

• *Adds Nitrate and Boron*

• *Notes for Phase I Salt Exception not Required*

• *Term generally <10-yrs (Renewable)*
  – Can only exceed 50-yrs if significant, measurable, continuing improvements

• *5-year status reports*

• *Nitrate: MUST insure safe drinking water supplies to impacted users (short and long-term) and meet long-term program goals*

• *Boron: More detailed requirements (reduction workplan; CEQA; etc.)*

*Under Salt Control Program: Only dischargers participating in P&O Study Eligible*
DROUGHT AND CONSERVATION POLICY

Criteria

• Drought and/or local emergency declared that impacts supply

• Conservation and/or Recycling increase salinity in effluent, discharges to receiving water and/or the receiving water

Provisions

• Drought
  – Interim limits to 2,200 EC for 30-day running average
  – Concentration OR Loading Limit

• Conservation and/or Recycling
  – Receiving water quality set as limit if no downgradient impacts
  – Limit based on historic TDS loading with increment for growth
  – GW Limits: Long-term (>10-yr) flow-weighted average
    • Need 20+ year commitment
### Table A

<table>
<thead>
<tr>
<th>Constituents</th>
<th>Maximum Contaminant Levels/Units</th>
</tr>
</thead>
<tbody>
<tr>
<td>Aluminum</td>
<td>0.2 mg/L</td>
</tr>
<tr>
<td>Color</td>
<td>15 Units</td>
</tr>
<tr>
<td>Copper</td>
<td>1.0 mg/L</td>
</tr>
<tr>
<td>Foaming Agents (MBAS)</td>
<td>0.5 mg/L</td>
</tr>
<tr>
<td>Iron</td>
<td>0.3 mg/L</td>
</tr>
<tr>
<td>Manganese</td>
<td>0.05 mg/L</td>
</tr>
<tr>
<td>Methyl-tert-butyl ether(MTBE)</td>
<td>0.005 mg/L</td>
</tr>
<tr>
<td>Odor – Threshold</td>
<td>3 Units</td>
</tr>
<tr>
<td>Silver</td>
<td>0.1 mg/L</td>
</tr>
<tr>
<td>Thiobencarb</td>
<td>0.001 mg/L</td>
</tr>
<tr>
<td>Turbidity</td>
<td>5 Units</td>
</tr>
<tr>
<td>Zinc</td>
<td>5.0 mg/L</td>
</tr>
</tbody>
</table>

### Table B

<table>
<thead>
<tr>
<th>Constituents, Units</th>
<th>Recommended</th>
<th>Upper</th>
<th>Short Term</th>
</tr>
</thead>
<tbody>
<tr>
<td>Total Dissolved Solids, mg/L, or Specific Conductance, μS/cm</td>
<td>500  ---  1,000</td>
<td>1,500  ---  2,200</td>
<td></td>
</tr>
<tr>
<td>Chloride, mg/L</td>
<td>250</td>
<td>500</td>
<td>600</td>
</tr>
<tr>
<td>Sulfate, mg/L</td>
<td>250</td>
<td>500</td>
<td>600</td>
</tr>
</tbody>
</table>
CLARIFICATIONS USE OF SMCLS

Water Quality Objectives

• Incorporate Title 22 Contextual Language
  – Ability to utilize range of salinity to “Upper” level
  – “Short-term” concentrations can only be authorized temporarily under certain conditions

• Encourage use of the “Recommended” concentrations where feasible

• Compliance with Table A & B parameters:
  – Surface Water: Annual Averages
  – Groundwater:
    • Annual Average for water supplied to consumer
    • Long-term average for ambient groundwater quality
CLARIFICATIONS USE OF SMCLS

Implementation

• For waters *NOT* exempt from filtration requirements
  – Utilized dissolved results to measure compliance for up to 10-years
    • Aluminum, Copper, Iron, Manganese, Silver, Zinc, Turbidity, Color
  – During 10-years studies to be completed to determine appropriate total to dissolved ratios (“translators”)

• Factors to consider included in Staff Report Appendix (e.g. environmental conditions; treatment capabilities; cost; cumulative impacts)
NEXT STEPS
<table>
<thead>
<tr>
<th>Date</th>
<th>Deliverable/Action</th>
</tr>
</thead>
<tbody>
<tr>
<td>22 March 2018</td>
<td>Draft Staff Report Released</td>
</tr>
<tr>
<td>7 May 2018</td>
<td>Written Comments Due</td>
</tr>
<tr>
<td>31 May and 1 June 2018</td>
<td>Public Hearing to Consider Adoption</td>
</tr>
<tr>
<td>2019</td>
<td>State Water Board Approval Consideration</td>
</tr>
<tr>
<td>2019</td>
<td>Office Administrative Law Approval Consideration - Groundwater Components Effective Upon Approval</td>
</tr>
<tr>
<td>2020</td>
<td>USEPA Approval Consideration - Surface Water Components Effective Upon Approval</td>
</tr>
<tr>
<td>2020</td>
<td>Initiate Notice to Comply Mailings</td>
</tr>
</tbody>
</table>
We embrace the State Board's philosophy of "Right Water"; incorporating approach into our plan and management, e.g.,

- Avoid use of drinking water where recycled water will work
- Recognize we cannot expect to grow salt-sensitive crops anywhere and everywhere
- Everyone is either above or below someone else – No one should expect to be un-impacted

Questions?
PATH A - INDIVIDUAL DISCHARGER TIMELINE

Receive Notice to Comply

330 Days

If applicable, begin implementation of Early Action Plan, unless Regional Board finds the Plan is incomplete.

Submit Notice of Intent and Initial Assessment, and Early Action Plan (if applicable)

60 Days

Board Process

Implement WDR/Waiver

Board action to issue new or revise existing WDRs or Conditional Waivers, where necessary
Receive Notice to Comply (within 1-year after OAL Approval)

Implement EAP unless Board deems incomplete

Submit Management Zone Implementation Plan (MZIP) within 6 months after Executive Officer accepts FMZP

Submit Preliminary Management Zone Proposal (PMZP) with Early Action Plan (EAP)

Submit Final Management Zone Proposal (FMZP) within 180 Days of Receipt of Staff Comments on PMZP

Board action to issue new or revise existing WDRs or Conditional Waivers, where necessary
Nitrate Issues

- Legacy and existing conditions
- Direct impacts to drinking water supplies
- Significant economic costs
  - Treatment
  - Alternate supply
- Diverse sources of nitrate to managed

Salt Issues

Long-term Sustainability

- More salt enters the Central Valley Region than leaves
  - Impacts (current/legacy)
    - Agricultural Production
    - Drinking Water Supplies
  - Economic Cost
    - Direct Annual: $1.5 Billion
    - Statewide Annual Income Impact: $3.0 Billion
  - Diverse Sources