Welcome – Webinar Protocols

- As an **Attendee:**
  - You are muted and not broadcasting video.
  - Use the **Chat** feature **only** to report technical problems. We will help if we can.
  - Use the **Q&A** function to ask questions about the webinar content. We will organize them and address as many as we can during discussion times.
  - **If we have time,** we will address additional questions during discussion. Click the **Raise Hand** button.

- We are recording the event. It will be available on cvsalts.info.

- **Morning Session:** Overview of New Salt & Nitrate Programs

- **Lunch Break** (noon to 1:00)

- **Afternoon Session** (1:00 to 2:30): Nitrate Management Zones
Webinar Controls

- **Audio Settings**: Change your audio settings. You can also click the upward arrow (^) to change your speaker.

- **Chat**: You can send chat messages to the host or panelists. **Use this to report technical issues only**.

- **Question & Answer**: You can ask questions to the host and panelists. We will queue your question for a live answer or reply in the Q&A window. Type your question into the Q&A box. Click Send. If you have the same question as another, “like” that question.

- **Raise Hand**: If we have time, we will take oral questions. If we do, use the Raise Hand button to raise your hand.

- **Unmute/Mute**: If the host gives you permission (notification will appear on your screen), you can unmute and talk during the webinar. All participants will be able to hear you.

6/30/2020
Workshop Purpose and Goals

- Overview of new nitrate and salinity permitting approaches for the Central Valley
- Consultant orientation to assist permitted dischargers complying with new nitrate control permit requirements
  - Describe new requirements and timelines
  - Identify potential service needs
  - Answer questions
Workshop Agenda

**Agenda**

- **Part 1**
  - Program Overview
  - Salinity Control Program
  - Nitrate Control Program

- **Part 2**
  - Management Zone Formation & Compliance

**Presenters & Panelists**

- Patrick Pulupa
- Daniel Cozad
- Tess Dunham
- Charlotte Gallock
- Parry Klassen
- J.P. Cativiela
CV-SALTS
A Valley-wide effort to address salts and nitrates.

CV SALTS
Central Valley Salinity Alternatives for Long-term Sustainability

The Challenge
Salts and Nitrates threaten the long-term health of the people and economy in the Central Valley.

Salt Control Program
Improved strategies for managing salts across the Central Valley.

Nitrate Control Program
New approaches to provide safe drinking water and manage nitrates.

Management Zones
Collaborative Approach for Nitrates Compliance

For More Information

A Valley-wide effort to address salts and nitrate
What is CV-SALTS?

Central Valley Salinity Alternatives for Long-Term Sustainability

Collective effort to address water quality

Central Valley Salinity Coalition formed to fund studies
CV-SALTS Goals

1. Provide Safe Drinking Water Supplies
   - Short-term and long-term solutions

2. Reduce Nitrate and Salt Impacts to Water Supplies
   - Short-term and long-term solutions

3. Restore Groundwater Quality
   - Where reasonable and feasible
The CV-SALTS Process

Studies 2006-2017
• Scientific and technical studies

Planning 2017-2018
• Salt and Nitrate Management Plan (SNMP)
• New regulatory approaches proposed

Approvals 2018-2020
• Basin Plan Amendment

Central Valley Regional Water Quality Control Board (Central Valley Water Board)
State Water Resources Control Board (State Water Board)
U.S. Environmental Protection Agency (US EPA)
Salts and Nitrates threaten the long-term health of the people and economy in the Central Valley.
There is a Salt Problem in the Central Valley

- 250,000 acres taken out of production
- 1.5 million acres are salinity impaired
- Potential direct annual costs up to $1.5 billion by 2030
There is a Nitrate Problem in the Central Valley

Nitrate Contamination in Groundwater

- Many small communities rely on groundwater for drinking water.

- Some communities and private well owners can’t safely use groundwater for drinking water as nitrate levels present a potential for human health impacts.
Central Valley Water Board regulates Nitrate and Salt discharges

Compliance with previous regulations was difficult and, in some areas, even impossible

Past policies didn't address immediate need for safe drinking water

New, updated, flexible regulations are now in place
State Water Board Adoption
October 2019

Studies 2006-2017

Planning 2017-2018
• Salt and Nitrate Management Plan (SNMP)

Approvals 2018-2020
• Basin Plan Amendment

Notification 2020
• Nitrate Notices to Comply (May 2020)
• Salinity Notices to Comply (Summer 2020)

Implementation

Central Valley Water Board (May 2018)
State Water Board (Oct 2019)
Office of Administrative Law (Jan 2020)
US EPA (Expected 2020)
Salt & Nitrate Management Strategy

Nitrate & Salt Control Programs

Prioritized Program
- Nitrate Compliance Pathways
  - Pathway A: Individual Permitting
  - Pathway B: Management Zone

Phased Program
- Salinity Compliance Pathways
  - Conservative Permitting Approach
  - Alternative Permitting Approach
Salt Control Program

Improved strategies for managing salts across the Central Valley
Salt Control Program

- Long-term strategy
  - Phase 1: Prioritization & Optimization Study (P&O Study)
  - Phase 2: Project Development
  - Phase 3: Project Implementation

- Short-term strategy = Interim Permitting Approach

- Notices to Comply issued by Central Valley Water Board (expected Summer/Fall 2020)
Interim Permitting Approach

Salinity Compliance Pathways

Permitted dischargers must comply by selecting one of two compliance pathways

Conservative Permitting Approach
Demonstrate compliance with stringent permitting requirements in Salt Control Program
Likely more costly than Alternative pathway

Alternative Permitting Approach
Fund and participate in P&O Study
Continue existing monitoring and control activities
Performance based compliance
Conservative Pathway

- Similar to existing permitting with conservative salinity limits for shallow groundwater
- Within 6 months of the NTC submit an NOI documenting compliance with conservative pathway
  - Facility description and receiving water characterization
  - Effluent discharge characterization
  - Demonstrate compliance with conservative limits
    - 700 µS/cm EC (AGR) Monthly average
    - 900 µS/cm EC (MUN) Annual average
    - Antidegradation demonstration
    - Long-term facility changes addressed in guidance

Conservative Permitting Draft Guidance Document
Alternative Pathway

- Within 6 months of the NTC, document selection of Alternative Compliance Pathway
  - Implement reasonable, feasible and practicable efforts to control salt
  - Maintain current salt concentrations or mass loading
    - Accounting for conservation, drought, and incremental growth
  - Performance based limits or triggers may be included
  - Avoids conservative effluent limits
  - Must participate in Prioritization & Optimization Study
Central Valley Study to develop salinity management

- Characterize salt sensitive hydrologic regions
- Identify salinity sources and impacts
- Prioritize projects for long-term salt management (regulated brine lines, salt sinks, de-salters, recharge areas, etc.)
- Design conceptual projects and assess cost and permitting
- Identify non-physical projects and implementation plan
- Develop governance structure and funding plan
- Seek federal and state funds for implementation
- Recommendations for Phase II of the Salt Control Program
P&O Study Cost

- Collaborative 10-year Study - Cost $10-$15 Million
- Participating communities and industries have allocated costs by size, volume, or acreage
  - Irrigated Agriculture and Dairies will participate through their industry groups
  - Food Processors, Wine, Oil & Gas have set fees
  - Communities (POTWs) costs range by size factors
  - Other Permittees: $250 minimum annually
- Website coming for permittees to pay fees
Choosing a Salinity Pathway

Permitees may request support from consultants in choosing between pathways

**Conservative**
- Low salinity source water
- Characterized sources
- Extensive existing data
  - Effluent
  - Receiving/ground water
  - Robust antideg analysis

**Alternative**
- High salinity source water
- Ag or nonpoint sources
- Limited assessment data
  - Discharge
  - Groundwater
  - Zone of Contribution
Program Goals and History

Salinity Compliance
Nitrate Control Program

New approaches to provide safe drinking water and manage nitrates
Nitrates in the Groundwater

150 years of prosperous human activity in the Central Valley

- **Agriculture** – irrigation, fertilizer use, manure
- **Industry** – manufacturing and processing facility wastewater, oil and gas extraction
- **Municipalities** – wastewater treatment effluent, biosolids, fertilizer use
- **Rural Residents** – septic tanks, fertilizer use, and landfills
Nitrates in the Groundwater

- High levels of nitrates in groundwater can result in negative health effects for people who drink the water.
Nitrate Control Implementation

- **Priority 1 Area (Red)**
  - Notice to Comply *May 29, 2020*

- **Priority 2 Area (Orange)**
  - Notice to Comply *within 2-4 years of Basin Plan Amendment*

- **Remaining Areas (Green)**
  - Implementation to be phased in at a later date
Start with Priority 1 Basins

<table>
<thead>
<tr>
<th>DWR No.</th>
<th>Groundwater Basin</th>
</tr>
</thead>
<tbody>
<tr>
<td>5-22.11</td>
<td>Kaweah</td>
</tr>
<tr>
<td>5-22.03</td>
<td>Turlock</td>
</tr>
<tr>
<td>5-22.05</td>
<td>Chowchilla</td>
</tr>
<tr>
<td>5-22.13</td>
<td>Tule</td>
</tr>
<tr>
<td>5-22.02</td>
<td>Modesto</td>
</tr>
<tr>
<td>5-22.08</td>
<td>Kings</td>
</tr>
</tbody>
</table>
Priority 1 Example:
Turlock Groundwater Basin

Red areas: >10.0 mg/L as nitrogen
Goal 1: Provide Safe Drinking Water

Need is often in rural areas and small, disadvantaged communities.
New Nitrate Control Program

- Flexible & locally focused
  - Provide safe drinking water
  - Reduce nitrate impacts to groundwater
  - Restore groundwater quality

- Two options for compliance – ensuring safe drinking water is 1st priority
  - Pathway A – Individual permit action
  - Pathway B – Form a Management Zone with other dischargers
Pathway A: Individual Nitrate Permitting Requirements

- Compliance options may be difficult and expensive
  - If there are drinking water wells near your facility that are high in nitrate
  - If your discharge is high in nitrate
  - If local shallow groundwater exceeds 75% of the nitrate drinking water standard

- If any of these conditions are true, some or all the following may be required:
  - Significant upgrades to facilities
  - Extensive monitoring of discharge and local groundwater
  - Provision of replacement drinking water to local residents
  - Rigorous technical hydrogeologic justification of what groundwater will look like in your area in 20 years
Pathway A: Individual Nitrate Permitting Requirements

- By May 7, 2021, submit Notice of Intent individually or as a group of dischargers with:
  - Initial nitrate assessment of ability to meet the nitrate water quality objective over 20-year horizon
  - Early Action Plan to provide safe drinking water
    - If your discharge is causing any well used for drinking water in your area to exceed the nitrate water quality objective
  - Alternative Compliance Project
    - If required for your nitrate discharge category

- OR, switch to Pathway B and join Management Zone in your area
Pathway B: Management Zone Approach For Nitrates

- Exception from nitrate standard
- Must assure safe drinking water first
- Shared responsibility for implementation
Management Zone Overview

- Locally led, Regional Water Board approved
  - Cooperative effort among dischargers, local government, and communities
  - Regional Water Board review at each deliverable
  - Enforced through discharge permit provisions

- Timeline/Deliverables following Notice to Comply
  - Preliminary Management Zone Proposal and Early Action Plan (March 8, 2021)
  - Final Management Zone Proposal (6 months)
  - Management Zone Implementation Plan (6 months)
Management Zone Formation Under Way

- Meetings underway
- Identify/engage all dischargers
- Discuss MZ boundaries
- Review materials developed by pilot MZs (available at cvsals.ts.info)
- Reach out to local government and disadvantaged community support organizations
Choosing a Nitrate Pathway

Permittees may request support from consultants in choosing between pathways

**Pathway A**
- Effort/cost required to
  - Characterize groundwater conditions and drinking water sources
  - Upgrade facilities
  - Monitor groundwater and drinking water
  - Provide replacement drinking water supplies

**Pathway B**
- Identifying MZ participants
- MZ support needs and costs
Overview of MZ Support Needs

Technical Services
- Hydrogeology and groundwater quality characterization
- Drinking water program development and management
- Nitrate source identification and management
- Compliance mapping, data management, and reporting

Management and Communications
- Management planning and proposal development and documentation
- Outreach, facilitation, and collaboration with permit holders
- Governance agreements and contracts
- Administration, fund management, and program management
- Outreach and engagement with stakeholders and communities
- Cost estimating, cost allocation, and funding
Questions & Discussion

Priority Subbasins

Program Goals

Pathway A
LUNCH BREAK

6/30/2020
Starting again at 1:00 PM
Collaborative Approach for Nitrates Compliance
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- **Afternoon Session** (1:00 to 2:30): Nitrate Management Zones
Workshop Agenda – Part 2

Agenda

- Nitrate Management
- Zone Formation & Compliance

Presenters & Panelists

- Tess Dunham
- Charlotte Gallock
- Parry Klassen
- J.P. Cativiela
What is a Management Zone?

- **Defined area** – for nitrate compliance
- **Collective implementation** – for safe drinking water
- **Discharger cooperative** – to control nitrates

- **Near-term**: Provide replacement drinking water
- **Mid-term**: Best practicable treatment or control to achieve balance
- **Long-term**: restore groundwater, where feasible
Management Zone Purpose

- Regulatory alternative for dischargers that choose this option
- Alternative compliance for nitrate water quality objective
- Contractual agreement among dischargers
  - May be a local agency, but not necessary
- Regional Board ensures implementation through waste discharge requirements (WDRs)
Management Zone Formation

Locally Led – Regional Water Board Approved

- Permitted dischargers work cooperatively to prepare proposal for a Management Zone
- Submit preliminary and final proposals to Regional Water Board for approval
Pilot Management Zones

Two Pilot Management Zones in Turlock and Fresno/Tulare
Pilot Management Zones

- Turlock Groundwater Subbasin
  - Stanislaus and Merced Counties
- Alta Irrigation District and Kings River East GSA
  - Portion of Kings Subbasin in Fresno and Tulare Counties
- Both developed Management Zone proposals
  - Management Zone boundaries and initial participants
  - Initial mapping of nitrate levels
  - Identification of water supplies exceeding nitrate objective
  - Early Action Plan to provide safe drinking water
Management Zone Regulatory Timeline

Priority 1 Areas

- **Notice to Comply**
  - Preliminary Management Zone Proposal & Early Action Plan
    - 270 days (March 8, 2021)
  - Staff Review & Public Comment
  - Begin implementation within 60 days

- **Regional Board**
  - Durations TBD

- **Dischargers**

- **Final Management Zone Proposal**
  - 180 days (6 months)
  - Staff Review & Public Comment

- **Management Zone Implementation Plan**
  - 180 days (6 months)

- **Public Review & Board Adoption**

**Timeline**

- **May 29, 2020**
- **6/30/2020**
Preliminary Management Zone Proposal

- Proposed preliminary boundaries
- Participants and dischargers
- Initial assessment of groundwater conditions
- Current treatment and control efforts
- Initial identification of public water supplies or domestic wells with nitrate concentrations exceeding water quality objective
- Early Action Plan that addresses immediate drinking water needs
Management Zone Delineation and Analysis
<table>
<thead>
<tr>
<th>Estimated Upper Zone Ambient Nitrate (2000-2018)</th>
<th>DWR Domestic Well Count by Township &amp; Range-Section</th>
<th>2010 Census Block Analysis</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Domestic Well Count Outside of PWS Boundaries</td>
<td>% of Total Domestic Wells Outside PWS</td>
</tr>
<tr>
<td>Group 1: ≤ 2.5 mg/L NO₃ as N</td>
<td>324</td>
<td>11%</td>
</tr>
<tr>
<td>Group 2 &gt; 2.5 - 5.0 mg/L NO₃ as N</td>
<td>125</td>
<td>4%</td>
</tr>
<tr>
<td>Group 3: &gt; 5.0 - 7.5 mg/L NO₃ as N</td>
<td>452</td>
<td>16%</td>
</tr>
<tr>
<td>Group 4: Elevated Nitrate (&gt; 7.5-10 NO₃ mg/L as N)</td>
<td>426</td>
<td>15%</td>
</tr>
<tr>
<td>Group 5: High Nitrate (&gt; 10 mg/L NO₃ as N)</td>
<td>1,198</td>
<td>41%</td>
</tr>
<tr>
<td>Group 6: Unknown*</td>
<td>382</td>
<td>13%</td>
</tr>
<tr>
<td>Total (Outside PWS Boundaries)</td>
<td>2,907</td>
<td>100%</td>
</tr>
</tbody>
</table>

*Domestic wells or Census Blocks are located in a "Gap Area", where insufficient Upper Zone nitrate data exist to do a spatial interpolation of ambient nitrate conditions.

Fresno/Tulare Domestic Wells

Summary of Domestic Wells and Population Located Outside Public Water System Boundaries with Estimated Upper Zone Nitrate Area Categories
Ambient Post-2000 Nitrate Concentrations in the Upper Zone, Turlock Management Zone
Turlock Targeted Planning Areas

Targeted Planning Areas for Establishing General Public Access Location to Obtain Safe Drinking Water

3,417 wells outside of public water system areas
1,017 (30%) estimated to exceed 10 ppm nitrate (or about 12,885 of the 57,351 people on wells)
Early Action Plan Components

- **Process to identify affected residents**
  - Outreach to ensure residents are informed of and have opportunity to participate in Early Action Plan development

- **Process for coordinating with others that are not dischargers to address drinking water issues**
  - Meaningful consultation with affected residents, affected water systems, environmental justice organizations, and other stakeholders, including Central Valley Water Board and State Water Board staffs

- **Specific actions and implementation schedule**
  - Address the immediate drinking water needs of those within the Management Zone impacted by groundwater that exceeds nitrate standards

- **Funding mechanism for implementing the EAP**
Water Supply Solutions

Public Access Water Facilities or Alternative Water Supply
Final Management Zone Proposal

- Address Central Valley Water Board comments on PMZP and update to include:
  - Timeline for development of the Management Zone Implementation Plan
  - Updated list of Management Zone participants
  - Governance structure
  - Additional evaluation of groundwater conditions (as needed)
  - Proposed approach for regulatory compliance, e.g., request for an exception
  - Information on how the Management Zone will coordinate with similar water resource management efforts, e.g., SGMA implementation
  - Documentation of actions taken to implement the Early Action Plan
Management Zone Implementation

Plan Content Requirements

- Drinking water needs
- Plan for emergency, interim, and permanent drinking water supplies
- Characterization of nitrate conditions
- Plan to achieve balanced nitrate loadings and aquifer restoration
- Monitoring and adjustment

- Nitrate management measures and priorities
  - Short-term projects (<20 years)
  - Long-term projects (>20 years)
- Milestones and implementation schedule
- Community collaboration
- Participant responsibilities
- Funding and cost share agreements
Who Should Join a Management Zone?

- Permitted dischargers that cannot comply with current nitrate limitations to protect groundwater
- Permitted dischargers that value collaborating for prioritizing nitrate control strategies and costs
- Local city and county governments representing communities with drinking water needs due to nitrate
- Local water agencies and other agencies managing groundwater such as IRWM regions and GSAs
Fresno/Tulare Management Zone

**Key stakeholders:** farmers, cities, dairies, poultry, food processors, environmental justice, GSAs, irrigation districts, county, and Regional Board
Benefits & Results of Joining Management Zone

Ensures safe drinking water supplies to your community, where needed

Shares costs of nitrate management

Locally manages nitrate problems

Applies local knowledge to implement nitrate reduction actions

Supports a vision that manages nitrate for a viable local economy and community
Management Zone Support Needs

Technical Services

- Hydrogeology and groundwater quality characterization
- Drinking water program development and management
- Nitrate source identification and management
- Compliance mapping, data management, and reporting

Guidance to Develop Key Elements of a Management Zone Proposal with Early Action Plan
Management Zone Support Needs

Management and Communications

- Management planning and proposal development and documentation
- Outreach, facilitation, and collaboration with permit holders
- Governance agreements and contracts
- Administration, fund management, and program management
- Outreach and engagement with stakeholders and communities
- Cost estimating, cost allocation, and funding

Guidance to Develop Key Elements of a Management Zone Proposal with Early Action Plan
Questions & Discussion

Management Zones & Lessons Learned
Pathway B Compliance Requirements and Timeline
Consultant Support Needs
## Budgets

<table>
<thead>
<tr>
<th>Turlock</th>
<th>Fresno/Tulare</th>
</tr>
</thead>
<tbody>
<tr>
<td>$1.7 million over three years</td>
<td>$1.3 million over three years (Alta ID/Kings River East)</td>
</tr>
</tbody>
</table>

Very rough estimates, probably too low  
Does not include possibility of grants  
Makes assumptions about Alternate Water Supply households  
Alta ID/Kings River East is ~30% of the subbasin
Subbasin Contacts – Northern Area

**Modesto & Turlock**
- Parry Klassen, East San Joaquin Water Quality Coalition
  - (559) 288-8125, klassenparry@gmail.com
- J.P. Cativiela, Dairy Cares
  - (916) 476-5153, jcativiela@cogentcc.com

**Chowchilla**
- Christina Beckstead, Madera County Farm Bureau
  - (559) 674-8871, (559) 674-0529, cbeckstead@maderaafb.com
- Sarah Woolf, Water Wise
  - (559) 341-0174, sarahwoolf@me.com
Subbasin Contacts – Southern Area

**Kings**
- Charlotte Gallock & Debra Dunn, Kings River Conservation District
  - (559) 237-5567 x105, cgallock@krcd.org
  - (559) 237-5567 ext. 135, ddunn@krcd.org

**Kaweah**
- Sarah Rutherford, Provost & Pritchard
  - (559) 636-1166, SRutherford@ppeng.com

**Tule**
- David DeGroot & Don Tucker, Tule Basin Water Quality Coalition
  - (559) 802-3052, davidd@4-creeks.com
  - (559) 802-3052, don.tucker@4-creeks.com
For More Information

CV-SALTS

- Website: cvsalts.info
- Sign-up for email updates: cvsalts.info
- Email: info@cvsalinity.org
- Webinar and presentation: Posted on cvsalts.info

Regional Water Quality Control Board

- Anne Walters – anne.walters@waterboards.ca.gov
Modesto

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East San Joaquin Water Quality Coalition
(559) 288-8125
klassenparry@gmail.com

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