



GROUNDWATER QUALITY

BACKGROUND

At the November 2, 2020 TAC meeting, the topic of groundwater quality was introduced. This is one of the Sustainability Indicators for SGMA. Key aspects relating to groundwater quality include:

- Drinking water quality
- Possible impacts to groundwater from man-made or naturally occurring constituents
- Possible contributions of groundwater to surface water quality (for example, impacts to a Wild & Scenic River)

What We Know: Available Data

- The information currently available on Sierra Valley groundwater quality comes from DWR’s Groundwater Ambient Monitoring and Assessment (GAMA) program. While 206 wells have contributed data, going back as far as 1955, there are significant data gaps in terms of:
 - ** Temporal distribution of data (duration of data [over years], frequency of data collection). For example, over the past 30 years, only 29 wells have twice been tested for nitrates
 - ** Spatial distribution of data (location of data points across the basin)
 - ** Basic information about well type and depth of well
- Other Monitoring Considerations:
 Various agencies at different levels (local, state, federal) have different requirements for monitoring water quality for different types of wells:
 - ** For example, wells that provide drinking water must monitor for certain compounds and those compounds cannot exceed established levels
 - ** Another example is that the Irrigated Lands Regulatory Program and the Ag Commissioners’ Office provide information on pesticide use.
 - ** Also, the state is asking for proof that septic systems do not affect water quality.

Examples of Constituents of Concern for Groundwater Quality

- Constituents of Concern (COCs) refer to those compounds or elements that can affect uses and users of groundwater – such as drinking water supplies, agricultural production, wildlife, recreation. These constituents may be naturally occurring or man-made. Examples of COCs that could be relevant to the Sierra Valley Basin include:

Arsenic **	Iron (total)
Boron **	Manganese (total)
Chloride	MTBE
Chromium	Nitrate **
Fluoride	Total Dissolved Solids (TDS)

*** Stakeholder-identified priorities from survey results*



Sierra Valley Groundwater Sustainability Plan
Advisory Committee Summary Sheet

Undesirable Results Relating to Groundwater Quality (from December 2020 TAC meeting)

It would be unacceptable to:

- violate state drinking water standards or other standards for groundwater quality
- have constituents transferred between older wells without sanitary seals
- have degraded water quality spread to other areas
- have water quality that is not suitable for agricultural uses

Creating a Monitoring Network for Groundwater Quality – consider:

- Building on existing monitoring networks to the extent possible
- Looking at wells that have been regularly monitored in the past (and not part of GAMA)
- Addressing data gaps in spatial distribution or for specific COCs

PROPOSAL FOR GROUNDWATER QUALITY SECTION IN GSP (revised)

Set Sustainable Management Criteria (SMCs) for Constituents of Concern (COCs) consistent with GSA responsibilities:

- Nitrate as nitrogen (septic tanks, fertilizer, animal waste):
Maximum Threshold of 10 mg/L (CDPH standard); **trigger of 9 mg/L**
- Total Dissolved Solids [TDS] (naturally occurring, septic tanks, fertilizers, wastewater)
Maximum Threshold of 500mg/L (US EPA secondary standard); **trigger of 210 mg/L**

Monitor for:

- Nitrate as nitrogen
- Total Dissolved Solids
- pH (naturally occurring)
- Arsenic (naturally occurring, wood preservatives, pesticides)
- Boron (naturally occurring, industrial waste, sewage, fertilizers)

Not addressed in GSP: MTBE (cleanup sites); manganese (naturally occurring)

Monitoring Network: Add at least 5 more monitoring locations using existing wells

Stakeholder Comments

- General support that this is a reasonable approach
- For arsenic – consider setting SMC, track levels at Calpine even if outside basin boundary

Next Steps

- Clarify role of SMCs
- Create initial write-up for GSP section on Groundwater Quality, present at April TAC meeting
- Develop process for selection of additional monitoring locations