

SUSTAINABLE GROUNDWATER MANAGEMENT ACT

Water Quality Frequently Asked Questions

This Frequently Asked Questions document provides guidance to groundwater sustainability agencies (GSAs) about the role of water quality in the Sustainable Groundwater Management Act (SGMA) and the requirements of groundwater sustainability plan (GSP) regulations (23 CCR Section 350).

GENERAL QUESTIONS

1. Why consider water quality?

Degradation of water quality can limit local water supplies and beneficial uses. Many existing federal and state laws and regulations address the deleterious effects of degraded water quality. SGMA does not attempt to resolve all water quality issues but aims to ensure that operation of a basin within its sustainable yield does not cause undesirable results, including water quality degradation. Water Code Section 10727.2 and the GSP regulations require GSAs to characterize the groundwater quality and identify undesirable results associated with groundwater quality in the GSPs for their basin. In addition, any projects or management actions adopted by a GSA within their GSPs should not cause degradation of water quality that could lead to an undesirable result.

AUTHORITIES OF A GSA

2. How do the authorities granted to GSAs in SGMA relate to water quality?

SGMA provides GSAs with authorities that may be used to carry out the objectives of SGMA, which include avoiding significant and unreasonable water quality degradation. GSAs may acquire, transport, or import surface water or groundwater (Water Code Section 10726.2) and may also “transport, reclaim, purify, desalinate, treat, or otherwise manage and control polluted water, wastewater, or other waters for subsequent use” as needed to achieve sustainable groundwater conditions (Water Code Section 10726.2 (e)). In addition, a GSA has the authority to regulate groundwater extractions (Water Code Section 10726.4).

It is the responsibility of a GSA to ensure that its management of groundwater conditions in the basin and any other action taken by the GSA will not significantly and unreasonably degrade water quality. A GSA’s authority does not, however, limit or supersede the authorities of the State Water Resources Control Board (State Water Board), the Regional Water Quality Control Boards (Regional Water Boards), the California Department of Public Health, or county or city governments (Water Code Section 10726.8 (a), (e), & (f)).



3. Can a GSA set objectives in a GSP that improve water quality in the basin or address water quality issues beyond the minimum requirements of SGMA?

While a GSA is not required by SGMA to address undesirable results that occurred before January 1, 2015 (Water Code Section 10727.2 (b) (4)), a GSA has the discretion to set measurable objectives to address undesirable results from water quality degradation that has already occurred. A GSA can choose to exercise its authorities with the objective of improving groundwater quality in the basin.

4. Does a GSA have authority to collect water quality data from a private domestic well?

Yes, a GSA may collect water quality data from a domestic or other privately owned well when necessary to determine the need for groundwater management, prepare and adopt a groundwater sustainability plan, set fees, or monitor compliance (Water Code Section 10725.4 (a)). A GSA has authority to inspect the property or facilities of any person or entity to ascertain whether the purposes of SGMA are being met upon obtaining necessary consent or an inspection warrant through the procedures outlined in Title 13, 1822.50, of Part 3 of the California of Civil Procedure (Water Code Section 10725.4 (c)).

5. Why should GSAs consider the needs of drinking water systems?

SGMA requires GSAs to consider the interests of all beneficial uses and users of groundwater, including municipal well operators and public water systems (Water Code Section 10723.2). Water quality degradation that significantly and unreasonably affects the supply or suitability of groundwater for use in drinking water systems is an undesirable result. Additionally, many drinking water systems are subject to State Water Board and county health department requirements. If a drinking water system does not have access to an adequate supply of water of sufficient quality to meet drinking water standards, the water system may be subject to penalties, prohibited from adding new service connections, or required to secure a higher quality water source in order to operate.

6. Do GSAs need a permit from the State Water Board for groundwater management activities related to water quality?

The following are examples of activities that are potentially related to water quality management and that may require a permit from the State Water Board:

- Infiltration of treated or untreated water into the groundwater basin.
- Diversion of surface water from rivers or streams for direct use or storage.
- Treatment of wastewater for reuse (as “recycled water”).
- Extraction or distribution of potable or non-potable water for wholesale or retail use.
- Drinking water treatment.
- Desalination to supply drinking water.

These activities may require permits administered by the State Water Board’s Division of Drinking Water, Division of Water Rights, Division of Water Quality, or by the Regional Water Boards. For more information, see the State Water Board’s SGMA fact sheet on [State and](#)

Regional Boards Basics

https://www.waterboards.ca.gov/water_issues/programs/gmp/docs/sgma/sgma_waterboards_basics.pdf

7. Do GSAs need to comply with land use plans or coordinate with cities or counties that can regulate land use when addressing water quality degradation?

GSAs are not granted land use authorities by SGMA. GSPs must include, where appropriate, “processes to review [city or county] land use plans and efforts to coordinate with land use planning agencies to assess activities that potentially create risks to groundwater quality or quantity” (Water Code Section 10727.4 (k)). The GSA must exercise its authority to regulate extractions in a manner that is consistent with the city or county general plan, unless there is insufficient sustainable yield in the basin to serve a designated land use (Water Code Section 10726.4 (a) (2)). In that case, GSAs may work with cities and counties regarding changes to the general plan.

WATER QUALITY RESOURCES FOR GSAs

8. Where can a GSA find information on water quality data and existing programs in a specific basin?

The Groundwater Ambient Monitoring and Assessment (GAMA) [Groundwater Information System](http://geotracker.waterboards.ca.gov/gama/gamamap/public/) (<http://geotracker.waterboards.ca.gov/gama/gamamap/public/>) is the most comprehensive source of water quality data collected by multiple parties including the State Water Board and Regional Water Boards, United States Geological Survey, and others. Water quality data from the State Water Board’s Division of Drinking Water is included in GAMA. GAMA also contains a collection of scientific assessment reports that contain results of regionally specific groundwater quality investigations ([GAMA Groundwater Projects and Publications Webmap](https://waterboards.maps.arcgis.com/apps/webappviewer/index.html?id=1ea24606744847f3b7f122289264e53)) (<https://waterboards.maps.arcgis.com/apps/webappviewer/index.html?id=1ea24606744847f3b7f122289264e53>). Additionally, the [Surface Water Ambient Monitoring Program](https://www.waterboards.ca.gov/water_issues/programs/swamp/) (https://www.waterboards.ca.gov/water_issues/programs/swamp/) (SWAMP) and the [California Environmental Data Exchange Network](http://ceden.org/) (<http://ceden.org/>) (CEDEN) contain water quality data collected by state and regional monitoring programs; [GeoTracker](https://geotracker.waterboards.ca.gov/) (<https://geotracker.waterboards.ca.gov/>) includes information on cleanup sites with the potential to impair water quality.

The Regional Water Boards also oversee several regulatory programs that collect and report water quality data, such as the [Dairy General Order](https://www.waterboards.ca.gov/centralvalley/board_decisions/adopted_orders/general_order_s/r5-2013-0122.pdf) (https://www.waterboards.ca.gov/centralvalley/board_decisions/adopted_orders/general_order_s/r5-2013-0122.pdf), the [Dairy Representative Monitoring Program](https://www.waterboards.ca.gov/centralvalley/water_issues/confined_animal_facilities/program_regs_requirements/dairy/) (https://www.waterboards.ca.gov/centralvalley/water_issues/confined_animal_facilities/program_regs_requirements/dairy/), and the [Irrigated Lands Regulatory Program](https://www.waterboards.ca.gov/centralvalley/water_issues/irrigated_land/) (https://www.waterboards.ca.gov/centralvalley/water_issues/irrigated_land/). Some of these data are accessible in GAMA. GSAs can review the website of their Regional Water Board or

contact staff to determine which other water quality regulatory programs are implemented in their basin.

A GSA might also contact local water districts and suppliers to determine if additional water quality data are available.

9. Is there a map of Public Water Systems not meeting water quality standards?

The State Water Board's [Human Right to Water Portal](https://www.waterboards.ca.gov/water_issues/programs/hr2w/) (https://www.waterboards.ca.gov/water_issues/programs/hr2w/) includes an online map showing the exceedance and compliance status of all public water systems. A spreadsheet with details on each exceedance is also available for public water systems out of compliance and public water systems that have recently returned to compliance. This information may be a resource to GSAs to aid in determining where water quality is impacting groundwater use or supply reliability.

10. Can GSAs coordinate with the Regional Water Quality Control Boards on the planning and implementation of SGMA?

Yes, GSAs can coordinate with the Regional Water Boards during the planning and implementation of SGMA. During GSP development, a GSA may request assistance from its respective Regional Water Board when evaluating contaminants, identifying existing monitoring programs, determining minimum thresholds, or determining implementation measures to avoid undesirable results. GSAs may also need permit approvals from the Regional Water Board for the implementation of projects and actions. In addition, a GSA may raise concerns to a Regional Water Board regarding water quality impacts caused by parties within GSA boundaries as part of GSP implementation that may be addressed through the Regional Water Board's permitting or cleanup programs.

11. Should a GSA consider coordinating with other water quality regulatory agencies and programs?

Depending on the source and nature of the water quality impairment, federal, state, and local agencies, in addition to the State Water Board and Regional Water Boards, may have jurisdiction, including the United States Environmental Protection Agency, California Department of Toxic Substances Control, or county environmental health departments. GSAs may benefit from engaging with these other agencies. See the answer to the question above regarding coordination with the Regional Water Boards.

ADDRESSING WATER QUALITY IN A GSP

12. The GSP regulations state that the hydrogeologic conceptual model must describe general water quality in each basin's principal aquifers. What does "general water quality" mean?

General water quality may include, but is not limited to, the chemical composition, physical parameters, biological and bacteriological characteristics, radiologic constituents, or other properties. A principal aquifer refers to an aquifer or system of aquifers that stores, transmits,

and yields significant or economic quantities of groundwater to wells or surface water (23 CCR Section 351 (aa)).

Below are example analytes for the general water quality categories discussed:

- **Chemical Composition:** major cations and anions, calcium, magnesium, sodium, potassium, sulfate, chloride, carbonate, nitrate, or dissolved metals (iron, manganese, chromium, or arsenic).
- **Physical Parameters:** pH, total dissolved solids, dissolved oxygen, redox potential, specific conductance, or temperature.
- **Biological and Bacteriological characteristics:** *E. coli* or *Coliforms*.
- **Radiologic Constituents:** Gross Alpha, uranium, or radon.

A selection of [fact sheets regarding groundwater and general water quality](https://www.waterboards.ca.gov/water_issues/programs/gama/factsheets.html) (https://www.waterboards.ca.gov/water_issues/programs/gama/factsheets.html) can be found on the State Water Board's Division of Water Quality website.

13. How might water quality affect a basin's water budget?

Water quality affects the supply of water available to satisfy various demands. If a GSA determines that a specific supply component of the water budget is of insufficient water quality, then that component of the water budget should be noted by the GSA and should not be included as a supply source. Quantifying a water budget without considering water quality may lead to inclusion of artificial surpluses of water in the budget.

14. How should a GSP assess water quality conditions prior to January 1, 2015?

A GSP must characterize historic and current water quality conditions in principal aquifers as part of the hydrogeologic conceptual model (23 CCR Section 354.14 (b) (4) (D)) and must address groundwater quality that may affect the supply and beneficial uses of groundwater (23 CCR Section 354.16 (d)). To determine water quality trends and conditions as of January 1, 2015, a GSP will need to evaluate groundwater quality conditions prior to 2015. A GSP, however, is not required to address undesirable results that occurred before and were not corrected by January 1, 2015 (though a GSA may choose to do so) (Water Code Section 10727.2 (b) (4)).

15. Does a GSA need to address water quality considerations when planning groundwater recharge projects?

Yes. A GSA must consider potential impacts to water quality when planning groundwater recharge projects. Recharge methods vary from surface infiltration (e.g., using recharge ponds or flooding agricultural lands) to groundwater well injection. Sources of water for recharge may include treated wastewater, stormwater, irrigation return flow, purchased water, or streamflow diverted under a permit or other basis of right. Depending on the source, the project may require a permit from the Regional Water Quality Control Board and may need to comply with waste discharge requirements, which include extensive water levels and quality monitoring around the recharge site. Even relatively unpolluted water used for recharge, such as most purchased water or streamflow, may contain constituents of concern. For treated wastewater,

stormwater, or irrigation return flows, contaminants such as pesticides, sediments, nutrients, salt, pathogens, and heavy metals should be considered. Potential changes in the receiving groundwater due to geochemical reactions with the recharge water or causing the mobilization of existing constituents of concern may also be a factor. A GSA can find out more information about water quality concerns associated with recharge projects by contacting its respective Regional Water Board.

16. Which water quality constituents should a GSA consider when setting minimum thresholds?

Neither SGMA nor the GSP regulations specify which groundwater quality constituents a GSA should monitor and consider. A GSA should consider the best available water quality information for the basin, including data used to develop the hydrogeologic conceptual model, geochemistry of geological formations (for the potential of mobilization of natural constituents), and groundwater uses in the vicinity of the representative monitoring sites and the basin as a whole when determining which constituents to evaluate for minimum thresholds. Different constituents may cause undesirable degradation of water quality in different areas based on the purposes for which groundwater is beneficially used.

Not all water quality impacts to groundwater must be addressed in the GSP but significant and unreasonable water quality degradation due to groundwater conditions occurring throughout the basin, and that were not present prior to January 1, 2015, must be addressed in the GSP's minimum thresholds. Both groundwater extraction and the implementation of projects to achieve sustainability may cause impacts from migration of contaminant plumes, changes in the concentration of contaminants due to reduction in the volume of water stored in the basin, or release of harmful naturally occurring constituents. A GSA should particularly consider whether any groundwater quality constituents in the basin may impact the state's policy of protecting the right of every human being to safe, clean, affordable, and accessible water adequate for human consumption, cooking, and sanitary purposes (Water Code Section 106.3). Coordination by the GSA with agencies that oversee the remediation of existing groundwater contamination is highly recommended, both in setting minimum thresholds and developing a plan of implementation.

17. How might a GSA consider existing water quality regulatory programs when identifying which constituents and concentrations are of concern for the basin and when developing sustainable management criteria?

Water quality regulatory programs may have identified constituents of concern and established values that can be used in the development of sustainable management criteria. Existing regulatory thresholds can be utilized as the basis for minimum thresholds that define impaired supply wells, volume of water, or a location of an isocontour that exceeds concentrations of constituents determined by the GSA to be of concern for the basin (23 CCR Section 354.28 (c) (4)). GSPs must explain how state, federal, and local standards relate to minimum thresholds, and if there is any variance from existing regulatory thresholds, the nature and the basis of the difference must be explained in the GSP (23 CCR Section 354.28 (c) (4)).

For example, Regional Water Boards establish water quality objectives in their Water Quality Control Plan (Basin Plan). Where appropriate, a GSP may align minimum thresholds with these regulatory standards. The sustainable management criteria [Best Management Practices \(https://water.ca.gov/LegacyFiles/groundwater/sgm/pdfs/BMP_Sustainable_Management_Criteria_2017-11-06.pdf\)](https://water.ca.gov/LegacyFiles/groundwater/sgm/pdfs/BMP_Sustainable_Management_Criteria_2017-11-06.pdf) document and the information in Questions 18 and 19 below provide examples and further information for establishing quantitative minimum thresholds.

18. Is a GSA required to establish sustainable management criteria for the degradation of water quality in its GSP? Can a GSA defer developing these criteria until a later date (e.g., a five-year update)?

A GSP must include sustainable management criteria for all undesirable results unless the GSA can demonstrate that a particular undesirable result is not present and not likely to occur in the basin (23 CCR 354.26 (d)). A GSP that does not include elements required by the GSP regulations may be found to be incomplete or inadequate by the Department during its review (23 CCR 354.26 (e) (2) *et seq.*).

19. Can a GSA use water levels as a proxy for minimum thresholds for degradation of water quality?

Yes, if the GSA can demonstrate how representative groundwater elevation values are a reasonable proxy to indicate that water quality is not significantly and unreasonably degraded (23 CCR Sections 354.28 (d) & 354.30 (d)). For example, water level minimum thresholds may be an adequate proxy for water quality when water level gradients control the extent or migration of contaminants. In contrast, using water level minimum thresholds as a proxy may not be reasonable for evaluating naturally occurring constituents.

Relying on water levels as a proxy to define minimum thresholds and undesirable results related to water quality degradation does not eliminate the monitoring network requirements in the GSP regulations. The GSP must establish a monitoring network to collect “sufficient spatial and temporal data from each applicable principal aquifer to determine groundwater quality trends for water quality indicators, as determined by the Agency, to address known water quality issues” (23 CCR Section 354.34). This monitoring will aid in verifying that water levels are a suitable proxy to demonstrate avoidance of significant and unreasonable water quality degradation. Principal aquifers used as a drinking water source should be subject to more stringent monitoring to ensure beneficial uses of water are protected for communities dependent on these aquifers.

GRANT OPPORTUNITIES

20. How can a GSA align GSP development to take advantage of grant opportunities related to water quality?

Both the State Water Board and the Department of Water Resources have funding opportunities for GSP development and implementation. Eligible entities, including California Native American tribes, public agencies, public utilities, non-profits, and mutual water companies, may apply for grants to assist with development of GSP components such as

groundwater contamination cleanup and water recycling projects, and other projects and management actions that will assist in achieving the sustainability goal for the basin (Water Code Section 10727.4 and 23 CCR Section 354.44). Details about these funding programs can be found at the following links:

- Department of Water Resources: [Grant and Loans Program \(water.ca.gov/Work-With-Us/Grants-And-Loans\)](http://water.ca.gov/Work-With-Us/Grants-And-Loans).
- State Water Resources Control Board: [Division of Financial Assistance \(https://www.waterboards.ca.gov/water_issues/programs/grants_loans/\)](https://www.waterboards.ca.gov/water_issues/programs/grants_loans/).
- State Water Resource Control Board: [Funding Opportunities for GSAs \(https://www.waterboards.ca.gov/water_issues/programs/gmp/docs/sgma/sgma_funding_opportunities_gsas.pdf\)](https://www.waterboards.ca.gov/water_issues/programs/gmp/docs/sgma/sgma_funding_opportunities_gsas.pdf)

To stay up to date on grant program announcements, please subscribe to the applicable [mailing lists](#) (https://www.waterboards.ca.gov/resources/email_subscriptions/swrcb_subscribe.html) for the State Water Board and [mailing lists](#) (<https://water.ca.gov/Contact/Email-Subscriptions>) for the Department of Water Resources.

This document was produced by the State Water Resources Control Board and offers non-binding, advisory opinions to assist in the development and revision of GSPs.

Posted online *October 10, 2019*.