

## GSP Review Guide v1.0:

### Using the Drinking Water Tool to Review Groundwater Sustainability Plans

This guide provides information for using data layers available in Community Water Center's Drinking Water Tool to evaluate drinking water related components of a Groundwater Sustainability Plan (GSP) under development to comply with the Sustainable Groundwater Management Act (SGMA). For each GSP review prompt, you are guided through combining summary data tables and data layers available on the Drinking Water Tool's California Water Data interface. The resulting information, in turn, can guide your assessment of the thoroughness and accuracy of various GSP components and the development of related GSP comments. Review prompts were selected from the *Groundwater Leadership Forum's* GSP review template that best aligned with available data in the Tool; this is not a comprehensive set of GSP Review prompts.

To use the tool for this purpose, take the following steps:

- 1) **Define the geographic area of interest.** Decide which Groundwater Sustainability Agency (GSA) you'd like to learn more about.
- 2) **Gather information related to drinking water uses and users of groundwater for that area.** Use the data layers provided in the Drinking Water Tool's [California Water Data](#) interface as outlined below to compile important information about the drinking water groundwater nexus specific to the geography defined above and make notes of your findings under "Tool Notes" or elsewhere;
- 3) **Review the local Groundwater Sustainability Plan.** Located and download your Groundwater Sustainability Agencies Groundwater Sustainability Plan from their website or the [Department of Water Resources' SGMA portal](#). Review sections of the plan using GSP review prompts below.
- 4) **Compare answers from your GSA's GSP and the Drinking Water Tool.** Use your compiled notes from step two to evaluate how your community's drinking water needs are being considered. Help ensure that the GSP adequately accounts for drinking water users' groundwater uses, priorities, needs and vulnerabilities.
- 5) **Provide public comments.** Draft a comment letter to your GSA and to the Department of Water Resources to share feedback on how drinking water needs are being addressed in your community's GSP. Examples include identifying omissions that should be addressed such as drought contingency planning or suggesting increased discussion of drinking water implications for specific components such as setting minimum thresholds.



[Drinking Water Tool: California Water Data](https://drinkingwatertool.communitywatercenter.org/ca-water/)  
<https://drinkingwatertool.communitywatercenter.org/ca-water/>

**1) Define the geographic area of interest:  
*Selecting the Groundwater Sustainability Agency***

- Select the *Groundwater Sustainability Agency* (GSA) interactive layer.
- To zoom to the GSA of interest, search by:
  - Individual address, or
  - GSA name
- Once the GSA is selected, a data table on the left-hand side will appear showing key pieces of information summarized by GSA.
- To find your GSA’s Groundwater Sustainability Plan (GSP), the **More Info** field in the data table links to the GSA’s website (if available). GSPs should be available for download from their website. By the end of February, GSPs should also be able via the [State SGMA Portal](#).

**2) Gather information related to drinking water uses and users of groundwater for the area of interest:  
*Use the Drinking Water Tool to answer the prompts below***

For each of the **GSP review prompt** questions in the left column, most answers can be found in the interactive GSA layer’s **summary data table** matching the fields listed in the middle column. *Suggested combinations of interactive and reference layers to visualize the data are in italics.* At the end of each review table, the final row lists the datasets used in the Tool.

**Beneficial Users: Were key beneficial users identified?**

A GSP must identify all “beneficial users” of groundwater, which may include private domestic wells, community water systems and the disadvantaged communities that rely on them, among other beneficial users. The tool includes the following information information relevant to identifying beneficial users:

<b>GSP Review Prompts:</b>	<b>Relevant data available in the Tool</b>	<b>Tool Notes</b>
Are all of the required beneficial users identified within the GSP including Disadvantaged Communities, domestic well owners and public water systems?	<input type="checkbox"/> <b>Number of Disadvantaged Communities (DAC) Places</b> <input type="checkbox"/> <b>Number of Severely Disadvantaged Communities (SDAC) Places</b> <input type="checkbox"/> <b>Total # of DAC Places</b> (sum the above numbers)  <i>To visualize DACs, select from Demographic Layers (Place, Tract, or Block Group).</i>	
	<input type="checkbox"/> <b>Number of People on Domestic Wells</b> <input type="checkbox"/> <b>Number of Households on Domestic Wells</b>  <i>To visualize the location of Domestic Well Communities, select from Groundwater Users</i>	

	<p><input type="checkbox"/> <b>Number of Community Water Systems*:</b></p> <p><i>To visualize where Community Water Systems are located, select from Groundwater Users.</i></p> <p>The Drinking Water Tool does not yet include any <b>Tribal</b> information nor any <b>non-community water systems</b> like schools, daycares, etc.</p> <p>*Note that the count of water systems in a GSA is based on a spatial relationship between the two data layers and may not be a comprehensive count due to inaccurate or missing water system boundaries.</p>	
What data were used?	Demographic Layers in this tool are based on 2013-2017 American Community Survey (ACS) Census data. DWR's DAC Mapping currently tool uses the 2012-2016 ACS data.	

**Maps related to beneficial users:**

The California Water Data part of the Drinking Water Tool can be used to make maps highlighting different beneficial users, like those listed above. Additional data related to drinking water users includes well location and density data:

<b>GSP Review Prompts:</b>	<b>Relevant data available in the Tool</b>	<b>Results/ Notes:</b>
Does the GSP include maps related to drinking water users?	<p><i>To visualize and compare against GSP maps, select a layer from Groundwater Users.</i></p> <ul style="list-style-type: none"> <li><input type="checkbox"/> <b>Map of Public Supply Well Locations</b> <i>Layer: Public Supply Well Location</i></li> <li><input type="checkbox"/> <b>Map of Domestic Well Locations*</b> <i>Layer: Private Domestic Well Location</i></li> <li><input type="checkbox"/> <b>Map of Domestic Well Density*</b> <i>Layer: Domestic well count per 1 mile squared (section)</i></li> </ul> <p>*Note that these domestic well layers will differ slightly. The Private Domestic Well Location layer includes <i>all</i> domestic wells in California available in OSCWR, while the domestic well count layer only includes domestic wells <i>outside</i> of a community water system service area and <i>within</i> a populated section (1x1 mile square).</p>	
What data were used?	Well density and locations in this tool are based on DWR's Online Systems for Well Completion Reports (OSCWR).	

### Groundwater Conditions:

GSPs must describe current conditions which are an important issue for current drinking water users. The Drinking Water Tool provides information about groundwater quality in relation to Maximum Contaminant Levels (MCL); an MCLs is the highest level of a contaminant allowed in drinking water, and is set and enforced by the federal Environmental Protection Agency and the State Water Board. The four contaminants in the Tool were selected due to their acute or carcinogenic health effects.

GSP Review Prompts:	Relevant data available in the Tool	Results/ Notes:
<p>Does the GSP identify all water quality concerns relevant to the region?</p> <p>Is groundwater quality discussed in terms of drinking water quality?</p> <p>Does the GSP include water quality maps related to drinking water users? Which contaminants ?</p>	<p><i>Groundwater quality data in this tool is presented in relation to the MCL:</i></p> <ul style="list-style-type: none"> <li>● 0 - 50% MCL</li> <li>● 50 - 100% MCL</li> <li>● 100 - 200% MCL</li> <li>● Over 200% MCL</li> </ul> <p><i>To visualize, select a Groundwater User and Contaminant from Water Quality</i></p> <p><input type="checkbox"/> <b>Map of Community Water Systems Water Quality</b> <i>Layers: Arsenic, Nitrates, Hexavalent Chromium, or 1,2,3-Trichloropropane</i></p> <p><input type="checkbox"/> <b>Map of Private Domestic Wells Water Quality</b> <i>Layers: Arsenic, Nitrates, Hexavalent Chromium, or 1,2,3-Trichloropropane</i></p>	
<p>What data were used?</p>	<p>Water quality values in this tool, for community water systems and the Private Domestic Well Communities layers were developed by <a href="#">Pace et al. (2019)</a>. Both layers provide averaged values over multiple years.</p>	

### Undesirable Results:

One of the main charges of GSAs under SGMA is to avoid future instances of “significant and undesirable results” from lowering groundwater levels. The Tool offers *Drought Scenarios* that allow us to evaluate potential impact of groundwater level declines for groundwater-dependent drinking water users. A drought scenario is a scaled version of observed changes in groundwater levels from the 2012 to 2016 drought (see [Gailey 2020](#) for more information).

GSP Review Prompts:	Relevant data available in the Tool	Results/ Notes:

<p>Does the plan identify DACs that could be impacted by declining groundwater levels and quantify the impact?</p> <p>Does the plan address where wells are at risk of going dry?</p>	<p><i>To visualize, select from Groundwater Supply, select a Drought Scenario and Result: Impact or Cost</i></p> <ul style="list-style-type: none"> <li><input type="checkbox"/> <b>Map of Small Community Water Systems</b> <i>Layer: Number of Impacted Public Supply Wells</i> <i>Layer: Cost to Remediate Impacted Public Supply Wells</i></li> <li><input type="checkbox"/> <b>Map of Private Domestic Wells</b> <i>Layer: Number of Impacted Domestic Wells</i> <i>Layer: Cost to Remediate Impacted Domestic Wells</i></li> <li><input type="checkbox"/> <b>Map of GSA or County</b> <i>Layer: Number of Impacted Domestic Wells</i> <i>Layer: Cost to Remediate Impacted Domestic Wells</i></li> </ul>	
<p>Should groundwater levels decline, due to drought or management decisions, who will be impacted?</p>	<p><i>To visualize, in addition to the above layer(s), select from Demographics, Place (2017) and <b>Disadvantaged Community</b>, or any of the demographic layers, to illustrate who may live near impacted private domestic wells or may be served by a small community water system with impacted public supply wells.</i></p>	
<p>What data were used?</p>	<p>Estimated drought impacts and costs are based on an analysis by <a href="#">Gailey (2020)</a>. Note: this analysis is different from an analysis of Management Objectives (MO) or Minimum Thresholds (MT) that may be identified in a GSP.</p>	

### Final steps:

- 3) Download your Groundwater Sustainability Agencies Groundwater Sustainability Plan (GSP) from their website, or from [DWR's SGMA Portal](#), and review sections of the plan using the same key questions;
- 4) Compare answers from your GSA's GSP and the Drinking Water Tool to evaluate how your community's drinking water needs are being considered;
- 5) Draft a comment letter to your GSA and to the Department of Water Resources to share feedback on how drinking water needs are being addressed in your community's GSP. Check out the Drinking Water Tool's [Getting Involved](#) or CWC's [SGMA Engagement](#) site for more ideas.

## Endnotes

### GSP Review Prompts:

1. Prompts for the **Beneficial Users** and **Groundwater Conditions** section are based on the following selected relevant requirements and guidance: GSP Element 2.1.5, “Notice & Communication” (§354.10); GSP Element 2.2.2, “Groundwater Conditions” (§354.16); GSP Element 3.3, “Minimum Thresholds” (§354.28).
2. Prompts for the **Related Maps** section are based on the following selected relevant requirements and guidance: GSP Element 2.1.4 “Additional GSP Elements” (§354.8); GSP Element 3.5 Monitoring Network (§354.34).
3. Prompts for **Measurable Objectives, Minimum Thresholds, and Undesirable Results** are based on the following selected relevant requirements and guidance: GSP Element 3.4 “Undesirable Results” (§354.26); GSP Element 3.2 “Measurable Objectives” (§354.30).

### Drinking Water Tool Data limitations:

1. Well location data in this tool is from DWR’s Well Completion Reporting System (OSWCR) and located at the centroid of a section (1-mile square). No wells were ‘retired’ or ‘excluded’ from this tool based on age or other criteria.
2. The Drought Scenario results are available groundwater users in the Central Valley’s alluvial groundwater basin; wells were excluded from this analysis due to incomplete or missing data, see Gailey (2020) for more information.
3. Domestic well communities were developed by combining 1) private domestic well locations, 2) 2010 census block-level population estimates, 3) residential parcels, 4) community water system locations (see Pace et al. 2019).
4. Estimates of groundwater quality for Community Water Systems are based on a nine-year average from 2005-2013 (see Pace et al. 2019).
5. Estimates of groundwater quality for domestic wells are based on averages over multiple years 2005-2019 and over a large area (36 square miles) (see Pace et al. 2019).

### References:

Pace, C., Balazs, C., Cushing, L., Morello-Frosch, R. (2019) Locating domestic well communities in California: A Methodological Overview. Domestic Well Layer (version 1.0). Prepared by the Water Equity Science Shop, UC Berkeley, CA. [Download](#).

Gailey, R. (2020) California Supply Well Impact Analysis for Drinking Water Vulnerability Webtool. Prepared by Robert M. Gailey Consulting Hydrogeologist PC. [Download](#).

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**For more information about data layers in this tool visit:**  
<https://drinkingwatertool.communitywatercenter.org/data/>