

Technical and Practical Considerations for Assessing New/Replacement Well Permits under Executive Orders N-7-22 And N-3-23

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Abbreviations and Acronyms

CEQA	California Environmental Quality Act
CVP	Central Valley Project
DAC	disadvantaged community
DWR	California Department of Water Resources
EOs	Governor's Executive Orders
ft	foot/feet
GDEs	groundwater-dependent ecosystems
GSAs	Groundwater Sustainability Agencies
GSPs	Groundwater Sustainability Plans
IWFM	Integrated Water flow Model
LEA	local enforcing agency
OSWCR	Online System for Well Completion Reports
SGMA	Sustainable Groundwater Management Act
SMC	sustainable management criteria
SWP	State Water Project



1 Introduction

In California, groundwater is a critical source of water for both irrigation and drinking water, supplying 40 percent of water in a typical year and as much as 60 percent in drought years. Hence, groundwater sustains agricultural, domestic, municipal, and industrial beneficial uses for millions of Californians and is a critical resource for the 5th largest economy in the world. Many areas of the state are entirely groundwater dependent while other areas use a combination of groundwater and surface water. Further, groundwater is an important contributor to the health

of rivers and riparian vegetation. Recent drought periods and over-reliance on groundwater resources during these dry periods have resulted in renewed attention to this often underappreciated resource.

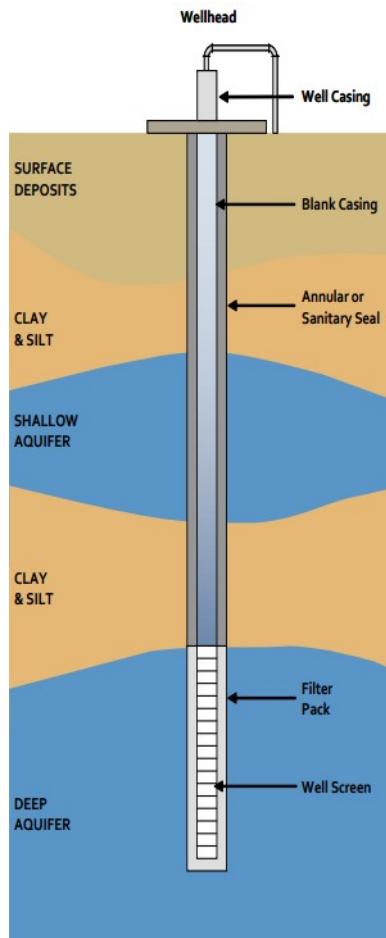


Figure 1: Groundwater Well Schematic

A water well provides the physical infrastructure to access groundwater (Figure 1). As many as 2 million water wells tap California's groundwater, with approximately 7,000 to 15,000 new wells constructed each year¹. According to the Online System for Well Completion Reports (OSWCR), released by the California Department of Water Resources (DWR) in May 2018, over 488,000 new wells have been drilled across the state since 1980. These range from small-diameter, shallow wells to carefully designed high production-rate wells drilled to great depths. In California, regulatory authority over well construction, alteration, and destruction activities rests with local jurisdictions (cities, counties, or water agencies), who have the authority to adopt a local well ordinance that meets or exceeds DWR Well Standards. Permitting and enforcement are carried out by the local enforcing agency (LEA)². Any water well construction activities must be performed only by a C-57 licensed well drilling contractor and must meet applicable local and state well standards. Depending on site conditions, a licensed California geologist or hydrogeologist may be consulted on well siting, design, and/or construction.

Groundwater overdraft in several basins in California, along with recurring severe drought conditions (2012-2015 and 2020-2022), led to the passage of the landmark Sustainable Groundwater Management Act (SGMA) in 2014 and subsequent Governor's Executive Orders (EOs); both aimed to add additional requirements for permitting new, modified, and

¹ <https://water.ca.gov/Programs/Groundwater-Management/Wells#:~:text=As%20many%20as%20two%20million,new%20wells%20constructed%20each%20year.>

² <https://water.ca.gov/Programs/Groundwater-Management/Wells/Permitting-Agencies>



replacement wells in high- and medium-priority basins. The goals of the EOs were to “*promote conservation, build drought resiliency, and minimize drought and overdraft impacts.*”

Specific to groundwater, the EOs are intended to limit potential impacts from extractions from new, modified, and replacement wells on overdraft conditions and associated undesirable results, such as declining water levels, dry domestic wells, and subsidence.

This White Paper developed by the Groundwater Resources Association of California (GRA) discusses general technical and practical considerations for the EOs, highlighting the roles, responsibilities, and coordination between well permitting agencies and Groundwater Sustainability Agencies (GSAs). It also presents a (non-exhaustive) range of tools and techniques available to the GSAs and LEAs to assess groundwater conditions and impacts to support well permit reviews, as required under the EOs. The White Paper has been developed by a group of industry experts (part of GRA’s Technical Committee) to support the GRA membership as they navigate the evolving landscape of groundwater well permitting in California. This document is *not* meant to provide technical or regulatory guidance specific to a basin. Every groundwater basin is unique and will require its own set of specific technical, regulatory, and legal considerations. Local agencies should consult their legal and technical teams locally to decide on the best approach to evaluate well permits.

The remainder of this White Paper is organized as follows: Section 2 provides background information about the well permitting framework in California, SGMA, and the drought conditions leading to the issuance of the EOs; Section 3 describes the well permitting process under the EOs, and Section 4 summarizes challenges for well permitting in California with recommendations to meet or mitigate these challenges.



2 Background

2.1 Overview of the Well Permitting Framework in California

Well permits promulgate minimum well standards to protect human health and groundwater quality as detailed in Water Code Sections 13800 - 13806. California Water Well Standards are compiled in DWR Bulletin 74-81 and the draft supplemental Bulletin 74-90. Bulletin 74 delineates minimum technical standards for the “location, construction, maintenance, abandonment, and destruction” of new groundwater wells. These standards have been primarily developed to protect water quality and establish minimum requirements, such as sanitary well seals and horizontal setbacks from potential contaminating activities (e.g., septic systems, feedlots) to prevent degradation of groundwater quality from surface contaminants such as bacteria. DWR is in the process of updating the Bulletin 74 Well Standards (last updated in 1991), with final standards, anticipated to be published in 2025³.

In California, permitting and enforcement of well construction, alteration, and destruction activities is undertaken by local jurisdictions (counties, cities, or water agencies) who have the authority to adopt a local well ordinance that meets or exceeds DWR Bulletin 74 Well Standards. Permitting and enforcement are carried out by the LEAs⁴, such as the county environmental health agencies. Historically, these local agencies have issued well construction permits as ministerial⁵ or ‘over-the-counter’ decisions, such as a local official issuing (or rejecting) a permit based on adherence to adopted technical construction standards (the local well ordinance in this case). Permitting agencies typically treated all well permit applications as ministerial if the proposed or altered well complied with the local well ordinances.

Several recent developments have come to the ministerial process of approving well permits, applying discretionary standards that require a case-by-case evaluation. These process alterations started with the adoption of groundwater ordinances designed to address deteriorating groundwater conditions that were exacerbated towards the end of the 2012-2015 drought. For example, Stanislaus County and Merced County adopted new groundwater ordinances in 2014 and 2015, respectively, in response to drought conditions, wells going dry, and large exports of groundwater. Legal challenges and new precedence set by court rulings added additional considerations to well permit approvals. In particular, the 2020 California Supreme Court decision in *Protecting Our Water and Environmental Resources v. County of*

³ <https://water.ca.gov/well-standards>

⁴ <https://water.ca.gov/Programs/Groundwater-Management/Wells/Permitting-Agencies>

⁵ A project is “ministerial” if the agency is required to approve or deny a project using fixed standards without the authority to use its own judgement. Common examples of ministerial permits include automobile registrations, dog licenses, and marriage licenses. (Cal. Code Regs. tit. 14 § 15369). A building permit is ministerial if the ordinance requiring the permit limits the public official to determining whether the zoning allows the structure to be built in the requested location, the structure would meet the strength requirements in the Uniform Building Code, and the applicant has paid his fee.



Stanislaus, Case No. S251709 (“Protecting Our Water,” also referred to as “POWER”) found that counties could not automatically classify all groundwater well construction permits as ministerial actions because the Bulletin 74 standards represent minimum requirements, and that discretion must be exercised during their implementation in some instances (for example, when the well is near a contamination source). This ruling opened the door to wells being subject to discretionary approval - and, therefore, California Environmental Quality Act⁶ (CEQA), unless a local ordinance limits the permitting agency’s ability to exercise discretion in approving wells.

The implementation of the SGMA and development of Groundwater Sustainability Plans (GSPs) added further considerations to the well permitting process. More recently, the signing of Executive Order N-7-22 (**Attachment 1**) and Executive Order N-3-23 (**Attachment 2**) further modified the process and requirements for well permitting. These developments in the well permitting process are discussed in further detail in the following sections.

2.2 The Sustainable Groundwater Management Act (SGMA)

The passage of SGMA in 2014 set forth a statewide framework to help protect groundwater resources over the long term. Each groundwater basin in California has unique hydrology and hydrogeology, soils, microclimates, sources of water supply, cropping patterns, water uses/beneficial uses, ecosystem considerations, and governance. In signing SGMA, then-Governor Jerry Brown emphasized that “groundwater management in California is best accomplished locally.” SGMA requires local agencies to form GSAs for the high- and medium-priority basins, which includes 21 critically overdrafted basins. GSAs develop and implement GSPs to avoid undesirable results, mitigate overdraft, and reach their sustainability goals within 20 years (2040 for critically overdrafted basins and 2042 for other high- and medium-priority basins). Since the passage of SGMA, over 260 GSAs in over 140 basins have been formed. At the time of writing this White Paper, 119 GSPs have been submitted from 91 subbasins, with 57 GSPs from 51 subbasins approved, 10 GSPs from seven subbasins found incomplete, 23 GSPs from six critically overdrafted subbasins (all in the San Joaquin Valley) found inadequate, and the remaining still in review⁷.

SGMA identifies six sustainability indicators and associated “undesirable results” that need to be measured and avoided (Figure 2):

1. Chronic lowering of groundwater levels indicating a significant and unreasonable depletion of supply.
2. Significant and unreasonable reduction of groundwater storage.

⁶ The CEQA process applies to “discretionary” agency decisions: those that involve judgement when deciding whether to approve the project and how to implement it. Ministerial decisions, on the other hand, are exempt from the CEQA process, even if they could impact the environment.

⁷ <https://sgma.water.ca.gov/portal/gsp/all>



3. Significant and unreasonable seawater intrusion.
4. Significant and unreasonable degradation of water quality.
5. Significant and unreasonable land subsidence.
6. Groundwater-related surface water depletions that have significant and unreasonable adverse impacts on beneficial uses of surface water.







Sustainability Indicators	 Lowering GW Levels	 Reduction of Storage	 Seawater Intrusion	 Degraded Quality	 Land Subsidence	 Surface Water Depletion
Metric(s) Defined in GSP Regulations	<ul style="list-style-type: none">• Groundwater Elevation	<ul style="list-style-type: none">• Total Volume	<ul style="list-style-type: none">• Chloride concentration isocontour	<ul style="list-style-type: none">• Migration of Plumes• Number of supply wells• Volume• Location of isocontour	<ul style="list-style-type: none">• Rate and Extent of Land Subsidence	<ul style="list-style-type: none">• Volume or rate of surface water depletion

Figure 2: Sustainability Indicators and Metrics to Avoid Undesirable Results under SGMA

Groundwater management under SGMA needs to be based on the best available data and science, requiring monitoring and tracking progress against quantitative management metrics (minimum thresholds, interim milestones, and measurable objectives) for the applicable sustainability indicators. The GSPs also need to quantify a “sustainable yield” for the basin (the amount that can be pumped on a long-term basis without causing undesirable results) accounting for current and future conditions (including changes in land use and climate change) and develop projects and management actions to reach basin sustainability goals. Projects and management actions can include “supply” side projects, such as groundwater storage and recharge, as well as “demand” side projects, such as allocations, curtailments, or land fallowing.

SGMA (under Sections 10725 and 10726 of the California Water Code) gives GSAs a broad range of powers to implement the GSP (see **Attachment 3**). These include: the authority to collect data and conduct studies; register and track groundwater well development; impose spacing and separation requirements for new groundwater wells; manage and limit construction of new groundwater wells, enlargement of existing groundwater wells, or reactivation of abandoned groundwater wells; measure groundwater extractions that pump more than 2 acre-feet per year; require reporting of groundwater use by individual pumpers; manage and limit or suspend groundwater extractions; establish groundwater allocations and accounting frameworks to transfer and carry over allocations; and assess fees to implement the groundwater sustainability program (see Sections 10725 and 10726 of the Water Code for a comprehensive list of GSA



powers and authorities). If and how each of the GSAs exercise these authorities is at the discretion of each basin and the local governance structure. Overall, GSAs are at the beginning of the GSP implementation stage and have not yet fully exercised their authorities. Several GSAs are still evaluating the need to manage groundwater pumping or are in the process of developing water allocation frameworks to do so.

It is important to note that SGMA does *not* give GSAs the authority to change or determine water rights⁸ or issue well permits, unless given that authority by the local well permitting entity (city, county, or water agency)⁹.

2.3 Drought Conditions Leading to Issuance of Executive Orders N-7-22 and N-3-23

The historic drought of 2012-2016 was arguably a primary catalyst for the passage of the SGMA. Soon after its passage, the drought of 2020-2022 was even more extreme, with that 3-year period being the driest on record and breaking the old record set by the previous drought from 2012-2016. With a lack of local surface water supplies and significant reductions in State Water Project (SWP) and Central Valley Project (CVP) deliveries, water users in several basins relied more and more on groundwater supplies. Based on the OSWCR database, nearly 35,000 wells were completed from 2012-2015, with another 31,000 new wells constructed from 2019-2022, far higher than typical construction of 7,000 to 15,000 new wells each year. The shift to more groundwater pumping during these drought conditions led to an exacerbation of ongoing overdraft in several California aquifers, being particularly acute in the Central Valley. The growing overdraft led to several impacts on beneficial uses and users and critical infrastructure. Roughly 2,400 dry wells (including agricultural, irrigation, and domestic, though a majority were domestic drinking water wells) were reported in DWR's Dry Well Reporting System¹⁰ from 2014-2023 (Figure 3). Overdraft and dropping water levels led to the exacerbation of subsidence in parts of the San Joaquin Valley during that period, threatening critical infrastructure such as the Friant Kern Canal.

Owing to the prevailing drought conditions and associated impacts, the Governor issued EO N-7-22 on March 28, 2022, to promote conservation, build drought resiliency, and minimize drought and overdraft impacts.

⁸ GSAs *do* have the ability to acquire, appropriate, transfer, or exchange surface water or groundwater rights (Water Code 10726.2) as may be necessary for GSP implementation.

⁹ Water Code 10726.4 (b) states, "This section does not authorize a groundwater sustainability agency to issue permits for the construction, modification, or abandonment of groundwater wells, except as authorized by a county with authority to issue those permits. A groundwater sustainability agency may request of the county, and the county shall consider, that the county forward permit requests for the construction of new groundwater wells, the enlarging of existing groundwater wells, and the reactivation of abandoned groundwater wells to the groundwater sustainability agency before permit approval".

¹⁰ <https://mydrywatersupply.water.ca.gov/report/>



Section 9 in both EOs focused on additional well permitting requirements for new groundwater wells and alteration of existing wells. January 2023 brought relief to the drought of 2020-2022, thanks to historic rainfall

(the wettest 3-week period on record) and snowpack (254 percent of average based on May 2023 measurements)¹¹. While the wet winter alleviated the surface water drought, it was not expected to eliminate groundwater overdraft in several parts of the state. With that in mind, the Governor issued EO N-3-23 on February 13, 2023, leaving most of the provisions of EO N-7-22 in full force and amending select sections.

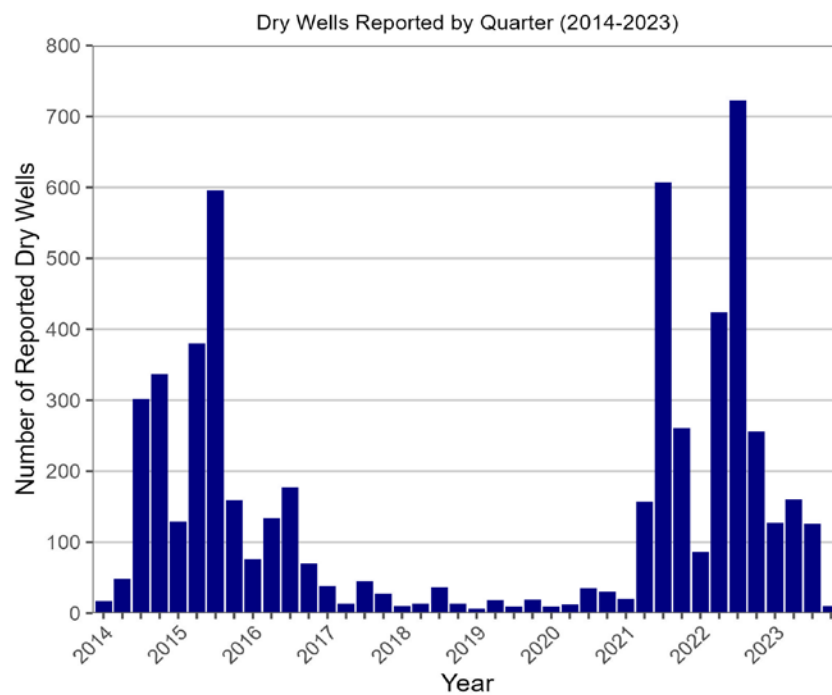


Figure 3: Dry Wells Reported to DWR

¹¹ <https://water.ca.gov/News/News-Releases/2023/May-2023/May-2023-Snow-Survey>



3 Well Permitting under the Executive Orders

3.1 Overview of N-7-22/N-3-23 EOs

Section 9A of EO N-7-22 specifies that a well permit for a new groundwater well or alteration to an existing well in medium- or high-priority groundwater basins subject to the SGMA cannot be approved by the LEA¹² without written verification from the corresponding GSA that extraction from the proposed or altered well would not (1) be inconsistent with any sustainable management program in the adopted GSP and (2) decrease the likelihood of achieving a sustainability goal for the basin under its GSP.

Section 9B of the EO states that a permit cannot be issued by the LEA³ without first determining that the extraction of groundwater from the proposed altered well is (1) not likely to interfere with the production and functioning of existing nearby wells and (2) not likely to cause subsidence that would adversely impact or damage nearby infrastructure. Note, that 9B applies to all wells, irrespective of whether that well is in a SGMA priority basin or not. While not explicitly called out in the EOs, replacement wells requiring a well permit are also covered under sections 9A and 9B¹³.

Section 9 of the EO also defines what type of well permits are exempt. The exemptions are:

- Wells producing less than 2 acre-feet per year for individual domestic water use.
- Public supply system wells as defined in Health & Safety Code § 116275.

EO N-3-23 kept all the provisions for well permitting and exemptions from EO N-7-22, adding one additional exemption for certain replacement wells:

- Replacement wells that would produce an equivalent quantity of water as the existing well that has been acquired by eminent domain or acquired while under threat of condemnation.

3.2 Overlapping Roles and Responsibilities

The EOs build on the existing well permitting framework in California and add additional considerations related to groundwater sustainability, well interference, and subsidence. Under the EOs the authority to issue well permits is retained by the LEA that enforces the Statewide Well Standards (Bulletin 74) and any local well drilling ordinances or moratoriums. Under the EOs, GSAs are required to take a much more active role in the permitting process and verify that extractions from the proposed or altered wells would not be inconsistent or interfere with the

¹² <https://water.ca.gov/Programs/Groundwater-Management/Wells/Permitting-Agencies>

¹³ As clarified by DWR in the FAQ accompanying EO N-7-22 https://water.ca.gov/-/media/DWR-Website/Web-Pages/Water-Basics/Drought/Files/Publications-And-Reports/FAQ-Documents/Executive-Order-N-7-22-Action-9_ay11.pdf



groundwater basin sustainability program and goals¹⁴. Finally, the EO imposes an additional requirement for the LEAs to verify that extractions from the proposed or altered wells would not lead to well interference and subsidence impacts. LEA and GSAs roles and existing and additional responsibilities under the EOs are summarized in Figure 4.



Figure 4: LEA and GSA Well Permitting Roles and Responsibilities

The EOs do not lay out minimum standards or recommended tools, techniques, or datasets for GSAs and LEAs to make these evaluations. For example, it is at the discretion of the GSAs to determine what level of analysis is necessary to evaluate the “consistency” of future extractions from the proposed or altered well with the GSP and sustainability goal. Similarly, the LEAs have to decide what level of well interference is significant enough to lead to a disapproval of the permit. The EOs also do not require the necessary analysis be carried out by licensed or certified professionals; however, given the technical nature of the evaluations, LEAs and GSAs are likely to rely on licensed Professional Engineers, Professional Geologists, or Certified Hydrogeologists to make the determinations or to assist in developing processes to make the determinations.

The coordination between GSAs and LEAs is complicated by the fact that well interference and subsidence can be considerations under both 9A and 9B. The GSAs may need to evaluate impacts (from groundwater declines and subsidence) on surrounding beneficial use (other groundwater users) and infrastructure to assess consistency with the GSP and sustainability

¹⁴ GSAs are given this authority under SGMA, as outlined in Water Code 10726.4 (4) (b) (Attachment 3); the EO requires them to exercise these authorities.



goal. LEAs have final authority under the EOs to evaluate such impacts. In most basins, GSAs have more data, expertise, and resources related to hydrogeology and groundwater than LEAs such as counties, cities, or water agencies. As such, LEAs may need to rely on GSAs to perform the analysis and help them make determinations related to impacts on surrounding groundwater users and subsidence.

Overall, the EOs appear to impose some discretionary considerations (as opposed to the traditional ministerial process) involving exercise of judgment in the evaluations conducted by both the LEAs and GSAs (or their designated consultant or professional) in the well permitting process. As such, it is imperative that LEAs and GSAs develop a collaborative framework when processing well permits. This entails resolving several details to develop a fair process that is workable for both agencies and considers the impacts to well permit applicants while addressing EO requirements.

In developing this framework, several key questions may come up:

- Who takes the responsibility for the technical review of the various components of the well permit? The LEA, GSA, or an independent consultant?
- What level of data and analysis are necessary to support the findings by the GSA and LEA under Sections 9A and 9B?
- Who is responsible for bearing the cost of this additional analysis? The LEA, the GSA, or the permittee? Should the cost be shared?
- What type of liability do each of the parties (including the licensed professional assisting the permit review) incur?
- What is the process to appeal unfavorable determinations or rejected permit applications?

While the EOs pertain to the issuance of permits for well construction or alteration, the requirements are specific to impacts from future *extractions* from the well. The format and content of well permit applications vary in different parts of the state. It is *not* standard practice to require reporting of expected extractions from the proposed or altered well. Some counties (e.g., Sonoma and Napa Counties) and GSAs have begun asking for water use assessments to better comply with the EOs. Others are making the determinations without this information or based on proxy data (such as land use and associated water demands). Moreover, metering/reporting groundwater extractions is not mandatory in most of the state, hence the LEAs or GSAs may not have the requisite data to verify future extractions and associated impacts.

The above issues are further discussed in subsequent sections; however, they provide a sense of the need for (1) the LEAs and GSAs to work together to review permits, and (2) relevant data



and technical analysis in order to determine the impacts from the proposed new well or altered well on local and regional groundwater conditions.

3.3 Collaborative Framework to Implement EO Requirements

LEAs and GSAs must develop a collaborative framework to respond to the requirements of the EOs. Figure 5 shows a concurrent review framework that LEAs and GSAs may use to coordinate their well permit applications reviews. Once the LEA provides the GSA with the well permit application materials and requests the GSA's review, the concurrent review process involves the GSA evaluating a well permit relative to 9A, while the LEA evaluates the well permit relative to 9B. The LEA makes its final determination based on the outcome of its assessment of 9B and upon receiving verification and recommendations from the GSA.

One of the pros of a concurrent evaluation is it may result in a faster review time, but one of the cons is that it may result in a difference in the findings of the two agencies. Therefore, it is important that both agencies are coordinating throughout the evaluation process and sharing data and expertise. A more linear process may involve

- the LEA submitting the well permit to the GSA first for the 9A evaluation,
- resolving any differences in opinion on the 9A evaluation, and
- following it with the 9B evaluation by the LEA.

This framework would ensure more consistency between the GSA and LEA, but would prolong the well permitting timeframe. Note, that neither of these frameworks preclude the GSA and LEA collaborating or communicating during their respective review process, especially on areas of overlap such as subsidence and drinking water well impacts.

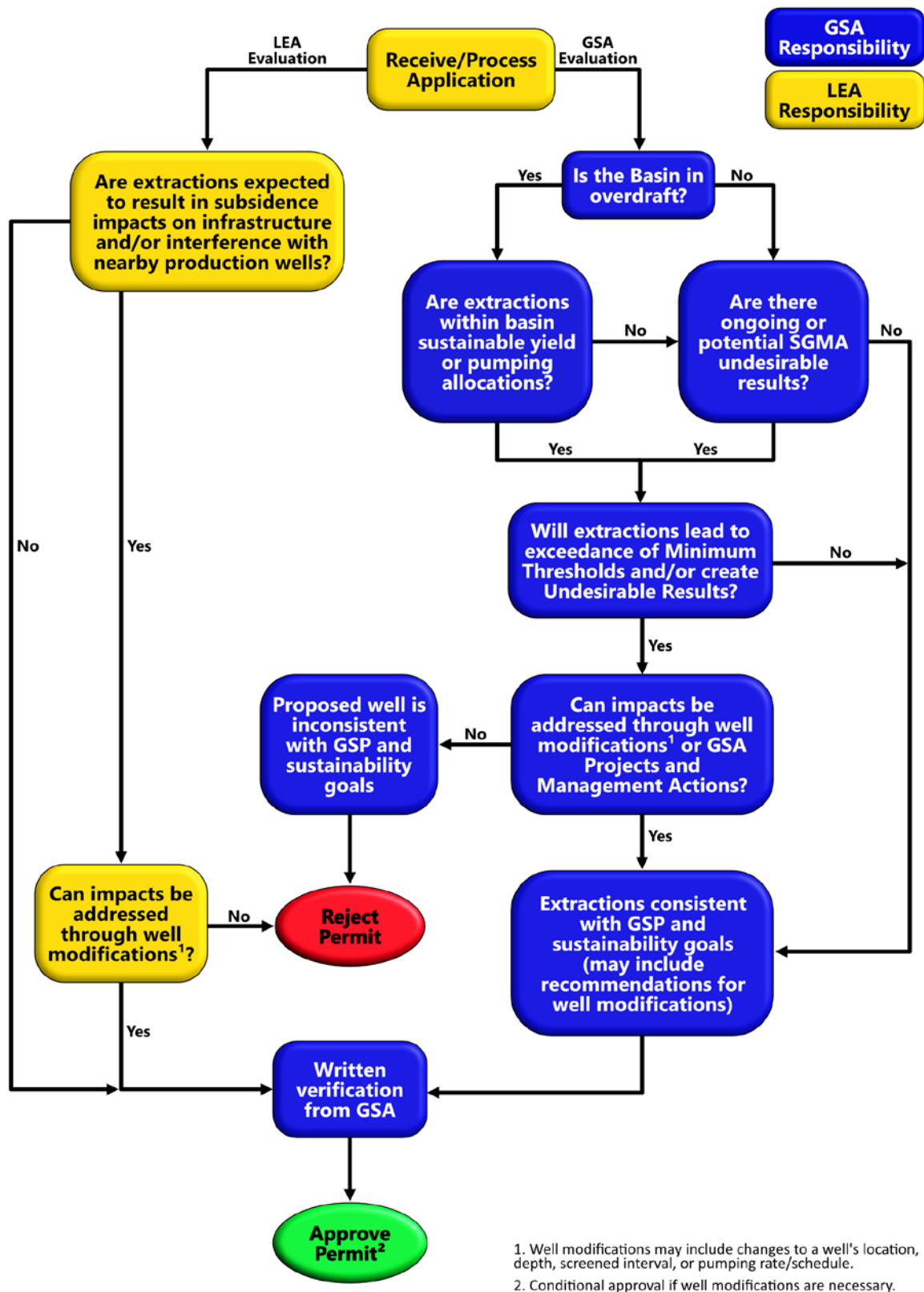


Figure 5: Collaborative Framework for LEAs and GSAs to Review Well Permits



In basins where groundwater conditions are sustainable and where subsidence is not likely to occur, the new well permitting review by GSAs may not need to be as extensive. On the other hand, in basins where groundwater is in overdraft and undesirable results are known to exist or anticipated in the future, well permit reviews would necessitate a closer look at current and projected groundwater conditions within a basin and how they may impact the production of existing wells, subsidence rates, and sustainability indicators. GSAs will need to identify areas that are at risk of experiencing undesirable results due to extractions from wells under permit review. The EOs require the GSAs to assess “consistency” of well extractions with the GSP and sustainability goals; however, the EO does not establish a standard for the determination of consistency. As such, in areas with potential risks from well extractions, the GSAs may need to evaluate the impact from well extractions for applicable sustainability indicators (Figure 2), corresponding minimum thresholds, and the proposed extractions against the basin’s sustainable yield and/or any pumping allocations. Similarly, the well permitting entity will need to ensure that extractions from the well do not interfere with nearby wells and cause subsidence that would lead to damage to nearby infrastructure. Note that under SGMA, chronic lowering of groundwater levels (leading to depletion of groundwater supplies) and subsidence (interfering with surface land use) are two of the six sustainability indicators that GSAs manage within their respective basins. Hence, Sections 9A and 9B of the EOs imply joint responsibility by both the GSAs and the LEAs to manage impacts on surrounding groundwater supplies and subsidence by extractions from the proposed or altered well. However, under the EOs primary responsibility for evaluating well interference and subsidence impacts lies with the LEA.

In some cases, significant technical evaluation may be necessary for an adequate assessment of the above impacts by both the GSA and LEA. Since SGMA mandates long-term planning considerations for groundwater sustainability and the evaluation of projected climate change and prolonged drought conditions, additional data collection or modeling analysis may be warranted.

Overall, basin-wide considerations when reviewing a new well permit are as follows (Figure 5):

- Is the well permit consistent with existing ordinances on constructing new or replacement wells?
- Is the portion of the basin experiencing or at risk of experiencing overdraft or undesirable results¹⁵ (as defined in the GSP)?
- Are nearby representative monitoring points experiencing or at risk of exceedances of minimum thresholds?

In addition, more localized and well-specific information may also need to be evaluated:

¹⁵ These could include significant and unreasonable impacts on beneficial use from chronic lowering of groundwater levels, loss of groundwater storage, seawater intrusion, subsidence, depletion of interconnected surface water, or groundwater quality impacts (Figure 2).



- What is the location and depth of the proposed or altered well?
- What is the expected extraction rate for the proposed or altered well?
- What is the anticipated radius of influence of extractions from the proposed or altered well?
- Are existing wells within the radius of influence of the proposed new well affected by low water levels or going dry?
- What is depth of the proposed or altered well in relation to the depths of wells in the area?
- Is the proposed or altered well in or near an area experiencing or vulnerable to subsidence that may damage local infrastructure?

Once the above information is evaluated, GSAs may provide written verification of their findings to the LEA for the well permit. The GSAs may also provide conditional verification requiring certain conditions or mitigation measures be met before permit approval by the LEA, such as moving the well a minimum distance away from surrounding domestic wells or critical infrastructure; modifying depth or other well design considerations to not impact existing surrounding wells, interconnected surface waters, or groundwater-dependent ecosystems (GDEs); or screening above a clay zone to avoid subsidence or limit connection of separate and distinct aquifer systems, etc. Hence, the EO provides the GSAs an opportunity to work with the well owner and LEAs to minimize impacts from future (permitted) well or alterations.

3.4 Technical Considerations when Evaluating Well Permits

While the EOs are not prescriptive on how the GSA and LEA should perform the well permit evaluations, it is recommended that both entities coordinate their efforts while utilizing and sharing the best available data and tools. Figure 6 summarizes some of the key considerations for LEAs and GSAs when evaluating well permits. For each of these considerations, there are a range of tools and techniques available to the GSAs and LEAs to meet the requirements under the EOs.

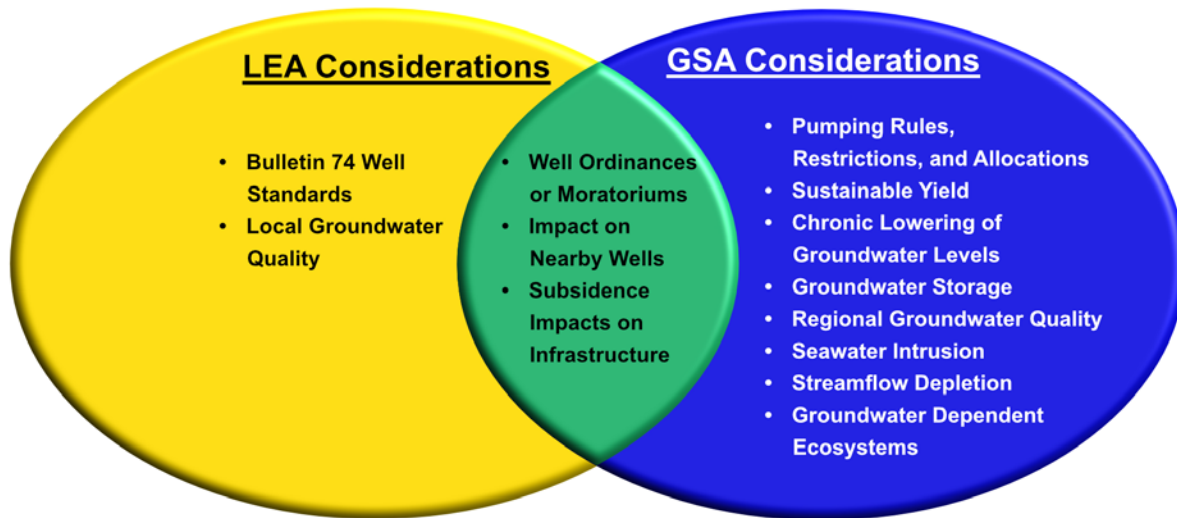


Figure 6: Key Considerations for LEAs and GSAs when Evaluating Well Permits

As discussed above, the LEA is responsible for ensuring that the proposed or altered well meets all Statewide Well Standards (Bulletin 74) and local ordinances. Water quality is an important consideration under Bulletin 74¹⁶. Hence, existing well standards are meant to ensure that groundwater quality is protected during construction and after the well is completed. Groundwater quality in the basin can also be impacted by extractions due to mobilization of contaminant plumes or leaching of metals/metalloids from aquitards. GSAs may need to evaluate these more-regional groundwater quality impacts of extractions, if these are a concern (and identified as such in the GSP) in the basin.

The first EO was released in the middle of the last severe drought with several domestic wells impacted by rapidly declining groundwater levels and a shortage of drinking water supplies. As such, several counties had already imposed a well permitting and drilling moratorium to allow time to evaluate the drought situation, to help prevent additional domestic wells going dry or being impacted, or to address public trust considerations. Examples include Ventura County, Glenn County, Sierra Valley Groundwater Management District, and Sonoma County. In addition, the GSP development process, in which most counties in high- and medium-priority basins were involved, spurred a desire by many GSA Boards and county representatives to review their well ordinances and develop stronger restrictions and requirements to avoid future negative well impacts during droughts and ensure minimum thresholds are not violated and undesirable results do not occur. These efforts had already started bringing county well

¹⁶ California Well Standards Bulletin 74-81 and Bulletin 74-90, Combined Part II. Water Well Construction, Section 13. Sealing Off Strata states, "In areas where a well penetrates more than one aquifer, and one or more of the aquifers contains water that, if allowed to mix in sufficient quantity, will result in a significant deterioration of the quality of water in the other aquifer(s) or the quality of water produced, the strata producing such poor-quality water shall be sealed off to prevent entrance of the water into the well or its migration to other aquifer(s)".



permitting agencies and GSAs together to evaluate the best path forward. These ordinances and moratoriums would be enforced by the corresponding LEA when issuing well permits.

In addition to the well standards and drilling ordinances/moratoriums, the LEAs and GSAs have several other technical considerations that may need to be evaluated to meet EO requirements. The following subsections summarize key technical considerations, tools, and techniques that may be used to support well permit evaluations. As noted earlier, the EO requirements pertain to impacts from extractions from the proposed or altered well. Hence, the information below will rely on the accurate and representative reporting or estimation of future extractions from the proposed or altered well. Lack of standardization in permit applications requiring the inclusion of this information is a continued challenge in the implementation of the EOs.

3.4.1 LEAs: Evaluating Well Interference with Nearby Wells (9B)

Groundwater well interference refers to the potential for nearby groundwater wells to affect each other's functioning (Figure 7). When a well is pumped, it creates a lowering of groundwater levels (i.e., drawdown) that potentially impacts groundwater levels in nearby wells. Drawdown resulting from pumping at a nearby well can reduce the efficiency and yield of affected wells, can damage pumps through the introduction of air, and can result in an inability to pump water due to groundwater levels lowering below the pump. Determining if a new groundwater well is likely to cause an unacceptable level of well interference is performed through an estimation of drawdown at the proposed or altered well relative to existing nearby wells within the anticipated radius of influence.

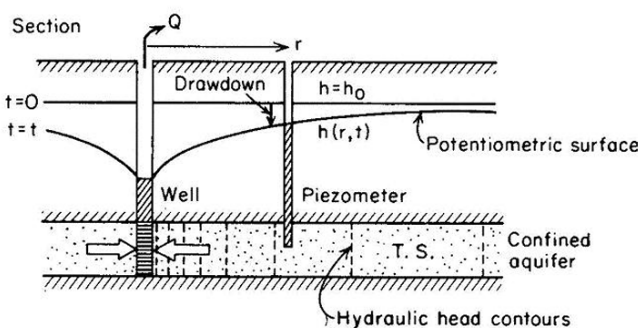


Figure 7: Drawdown around Pumping Well Calculated based on the Theis Solution (Freeze and Cherry, 1979)

Prior to the permit agency issuing a permit for a new groundwater well or for alteration of an existing well, EO Section 9B requires the LEA to determine that extraction of groundwater from the proposed or altered well is not likely to interfere with the production and functioning of existing nearby wells. Well interference can be quantified by estimating the amount of drawdown at nearby wells due to the pumping of the

proposed or altered well. Typically, a distance-drawdown plot will be produced to show the estimated drawdown at a radial distance from the groundwater well of interest.

Methods for estimating well drawdown include analytical solutions such as the Theis or Cooper-Jacob equations, numerical modeling such as with MODFLOW or the Integrated Water flow Model (IWFM), and conducting a pumping test at the proposed or altered site and reviewing nearby wells' drawdown. The pumping test is typically useful in data gap areas where well data



is sparse. However, pumping tests are expensive, so analytical and numerical options are generally pursued in place of pumping tests. Development of numerical models can also be a time-consuming and costly process and is typically undertaken for basin-wide evaluations. Regional models may not have the requisite scale to assess local well interference. For example, a numerical model with a horizontal discretization of 0.5 miles (2,650 ft) may be adequate for simulating regional hydrologic conditions for the basin, but not for specific wells. Hence, typically a combination of regional numerical and local analytical models is used to assess well interference under a range of future groundwater conditions. Analytical models need to be carefully chosen to be representative of local conditions (including confined/unconfined conditions) and boundary effects (faults, rivers, groundwater divides) into the analytical model formulation.

Analytical or numerical analyses of well interference to meet the requirements of the EO typically rely on an understanding of site-specific aquifer properties and information on the proposed and existing nearby groundwater wells.

Specifically, this information includes:

- Information on the proposed groundwater well
 - Well location
 - Well type (new, replacement, or modification)
 - Well diameter, depth, and screen intervals
 - Well use
 - Proposed pumping volume, rate, and timing
 - Previous pumping volume, rate, and timing to be replaced, if applicable
- Information on the aquifer underlying the vicinity of the proposed groundwater well
 - Depths and extent of confining layers
 - Parameters including transmissivity and storativity
- Information on nearby wells (parcel boundaries are sometimes used where nearby well information is lacking)
 - Well locations
 - Screen intervals
 - Depth of pump in well

The result of the analysis is typically an estimate of drawdown at nearby wells or at parcel boundaries. The LEA must determine what an acceptable level of drawdown is at the selected compliance point. Ideally, this should be based on the water use and capacity as well as the physical limitations (e.g., depth of the screened intervals, depth of pump intake, and pumping capacity) of nearby production wells. However, the information required to perform an analysis at that level of detail is often unavailable. This results in the evaluator needing to choose a



drawdown threshold they consider to be “too much,” or likely to interfere with the production and functioning of existing nearby wells. Uncertainty related to the construction and pump placement of nearby existing wells often results in the need to select a value based on professional judgment, such as 5, 10, or 15 ft of drawdown at nearby wells. This threshold may vary across the basin depending on local well production characteristics and aquifer system properties. The threshold will also need to account for any ongoing or potential impacts to water wells in and around the area of the proposed and altered well. The DWR Dry Well Reporting System¹⁷ provides an online database of reported dry wells, including usage, reporting period, and spatial attributes. While this information is not comprehensive (it depends on self-reporting of dry wells) it can be useful when assessing the potential impacts from the proposed or altered well. Once the threshold(s) are established, the estimated drawdown value can then be compared to the threshold value to complete the interference assessment.

Statewide Distribution of Dry Wells

(Last updated 12/6/2023 4:01:07 AM) https://tableau.cnra.ca.gov/t/DWR_SGM/views/mydrywatersupply/Map.pdf

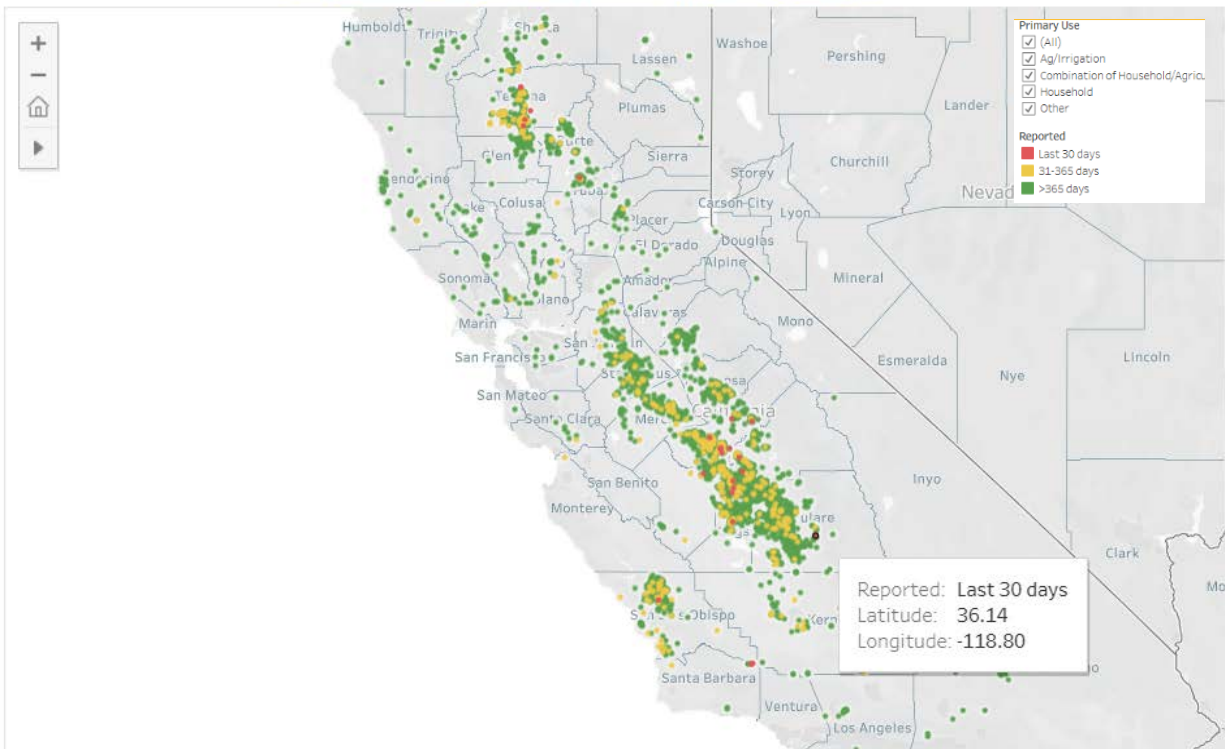


Figure 8: DWR's Online Dry Well Reporting System

Many of the challenges and uncertainties with determining well interference are due to a lack of information. The current system for permitting/registering wells is in need of stricter data requirements to facilitate the collection of key information necessary to evaluate potential impacts from proposed or altered wells. Longstanding well permit application processes typically do not ask for sufficient information to perform an adequate well interference analysis.

¹⁷ <https://mydrywatersupply.water.ca.gov/report/>



From a basic data perspective, databases of existing groundwater wells (e.g., the DWR OSWCR database) can be outdated, erroneous, or incomplete¹⁸, especially related to domestic wells that are often shallower and on which drawdown could have more dramatic impacts. The depth of the pump within the well casing is rarely known. Documentation of geologic materials encountered during drilling or pumping test results is highly dependent on the drilling contractor and may be unusable or missing. Aquifer characteristics and parameters can be determined through localized testing, but often rely on regional assumptions or local tools such as calibrated integrated models. Finally, estimates of projected pumped volumes from well permit applications may not reflect ultimate well usage. These uncertainties due to data limitations must be taken into consideration when performing the analysis and assessing potential interference and associated impacts.

3.4.2 LEAs: Evaluating Subsidence Impacts on Nearby Infrastructure (9B)

EO Section 9B requires the LEA to determine that extraction from the proposed or altered well would not lead to subsidence and associated impacts on nearby infrastructure. Pumping-induced subsidence occurs when pore-water pressure in the subsurface clay layers and lenses (typically under confined or semi-confined conditions) is reduced, causing the clay particles to physically rearrange into a more compact packing structure. This results in a lowering of the land surface and can have significant impacts on nearby infrastructure (bridges, railroads, canals, etc.) and locally increases flood risk.

Evaluation of subsidence can be complicated as some areas have shown delayed response, with subsidence in clay interbeds and aquitards continuing even after water levels in aquifers have recovered from previous historical low. The local and depth specific pumping, water level, and compaction data (e.g., from extensometers) adds to the challenges of monitoring and managing subsidence. The most common method for assessing subsidence in a basin is with the use of InSAR data¹⁹, which uses satellites to measure ground deformation with centimeter-scale accuracy (Figure 8).

¹⁸ The DWR OSWCR database is the best available statewide dataset for well completion reports. Nevertheless, several data gaps, inaccuracies, and duplicated records are present in the database. Of the 852,001 WCRs for new wells in the OSWCR database, 177,638 (20.8%) do not have a reported total or completed depth, 445,558 (52.1%) do not have reported screened intervals, and 847,960 (99.5%) do not have a stated location accuracy within 50 ft. The spatial location accuracy for most of wells in the OSCWR database is approximately 0.5 miles.

¹⁹ <https://sgma.water.ca.gov/webgis/?appid=SGMADataViewer#landsub>

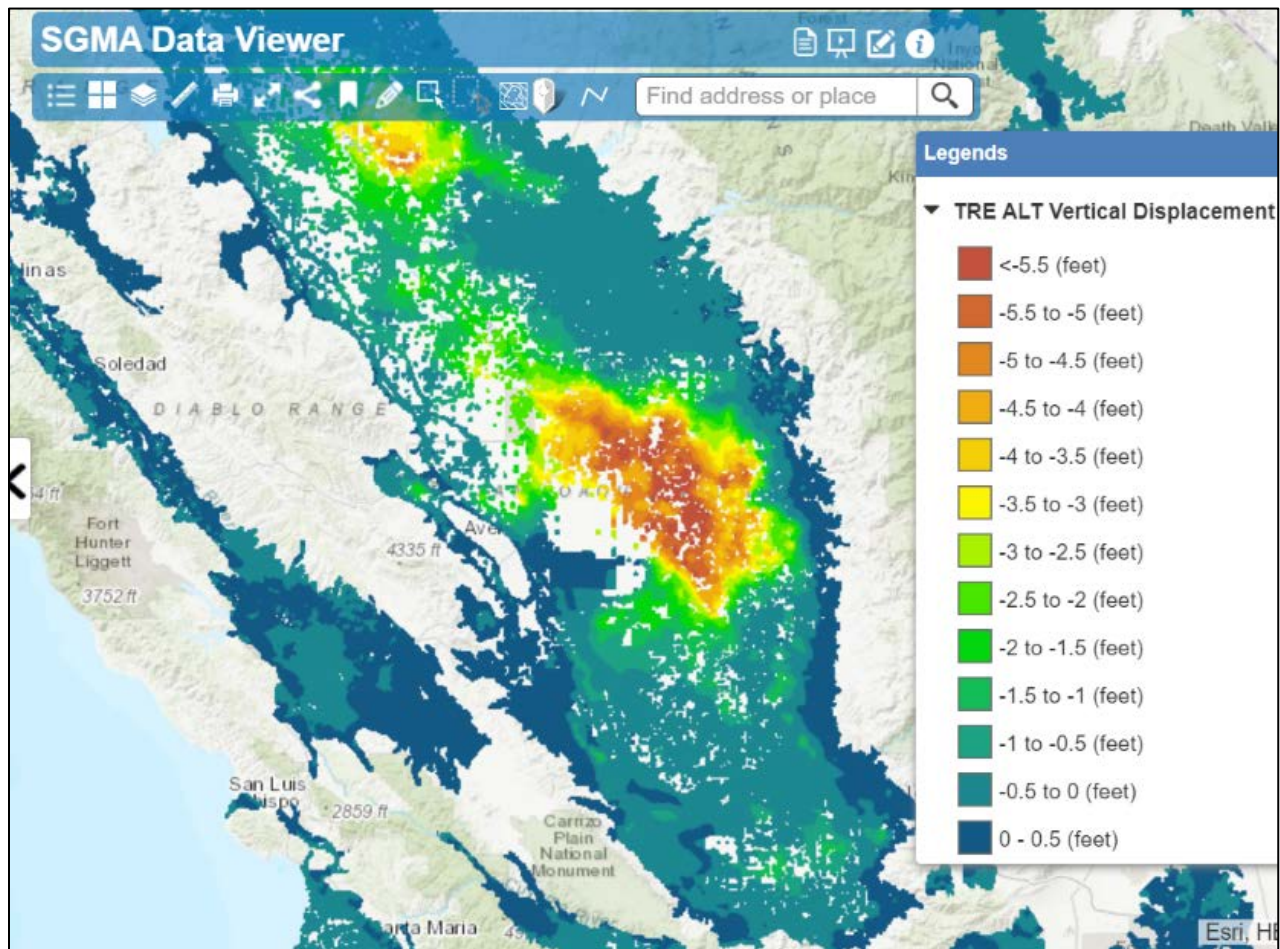


Figure 9: InSAR Subsidence Data on the DWR SGMA Data Viewer Showing Cumulative Subsidence (2015 to 2023)

DWR currently releases subsidence data 3-6 months after it has been collected. Analytical (Lees et al., 2022²⁰) and numerical (MODFLOW-SUB²¹, IWFM²²) models can be used to estimate the impact of future pumping from the permitted well on local subsidence. However, the accuracy and reliability of these models are dependent on the availability of local geologic information (in particular the extent, depth, and characteristics of clay interbeds) as well as sufficient historical water level and subsidence data. In the absence of numerical or analytical subsidence models, groundwater levels may be used as proxy with the goal being to keep future water levels in the clay interbeds at or above preconsolidation levels (lowest historical water levels encountered in the compacting clays) to avoid inelastic subsidence. Lack of water level data in the clay interbeds adds to uncertainty, as preconsolidation levels in the clays may be much higher than observed historical lows in the aquifer (Galloway, 1999²³).

²⁰ <https://agupubs.onlinelibrary.wiley.com/doi/full/10.1029/2021WR031390>

²¹ <https://pubs.usgs.gov/publication/ofr03233>

²² <https://water.ca.gov/Library/Modeling-and-Analysis/Modeling-Platforms/Integrated-Water-Flow-Model>

²³ https://pubs.usgs.gov/circ/circ1182/pdf/circ1182_intro.pdf



3.4.3 GSAs: Evaluating Consistency with GSPs and Sustainability Goals (9A)

The GSAs' charge under the EOs is to ensure that extractions from the proposed or altered well would not be inconsistent with the GSP and not decrease the likelihood of achieving the basins' sustainability goals. As discussed earlier, GSAs have broad authority in monitoring and managing groundwater conditions to avoid undesirable results and move the basin towards sustainability. In basins without significant overdraft or undesirable results in and around the area of the proposed or altered well, the GSA may choose to verify the consistency of the well permit without performing detailed technical evaluations (Figure 5). GSAs in overdrafted basins with ongoing or potential undesirable results will need to evaluate the permit in light of existing pumping rules and restrictions as well as impact on the basin's sustainable management criteria (SMC). These types of evaluations are summarized in the sections below.

3.4.3.1 Consistency with Pumping Rules, Restrictions, or Allocations

For basins in overdraft or ongoing or potential undesirable results, the first check for the GSA is typically to ensure that the proposed or altered well does not infringe upon any pumping rules or restrictions implemented in the basin. For example, if the GSA has identified management zones around critical infrastructure or sensitive habitat with pumping restrictions, then the proposed or altered well would need to abide by these requirements. Similarly, the GSAs would also need to check whether extractions from the proposed or altered well would be consistent with any existing or proposed pumping allocations. For example, the GSA may have established a cap (e.g., volume of pumped water per acre of land) on groundwater pumping in certain areas. If the proposed or altered well owner has already met this cap from existing production wells, then the GSA may find that the proposed or altered well is not consistent with pumping allocations in the basin. Alternatively, if it can be determined that the additional extractions can be accommodated within the basin allocations or caps (through adjustments to existing pumping), then the GSA could make the finding that the pumping would be consistent with the GSP. In general, if extractions from the proposed well are found to be inconsistent with established pumping rules, restrictions, or allocations, then the GSA could request that the well location, depth, or pumping volume may be modified to meet GSA requirements and not verify the consistency of the well permit without such adjustments.

3.4.3.2 Evaluating Impacts on Sustainable Management Criteria and Sustainability Goal

Sustainability is defined as operating the groundwater basin in the absence of undesirable results for each of the six sustainability indicators. GSAs monitor groundwater conditions against minimum thresholds and measurable objectives at representative monitoring points to assess the basin's sustainability. Extractions from the proposed new well or altered well may impact these sustainability indicators, decreasing the likelihood of reaching the basin's sustainability goal set by the GSA.

The GSA's approach to the well permit evaluation would depend on prevailing and anticipated groundwater conditions in the basin (Figure 5). Three scenarios can be anticipated:



- 1) If there are ongoing exceedances of minimum thresholds or documented undesirable results associated with any of the six sustainability indicators (e.g., significant number of domestic wells going dry or excessive rates of observed subsidence), then the GSA has the basis to determine that extractions from the proposed or altered well would likely decrease its ability to achieve its sustainability goal. When making such a determination, the GSA would need to consider if implementation of future projects and management actions could address such impacts, so that the well applicant is not treated any differently from existing well owners in the basin. The GSA may also recommend modifications to the well (location, well depth, screen interval, pumping rate/schedule) to minimize the potential impact of the well on sensitive sustainability indicators, before verifying consistency with the GSP and sustainability goal. Finally, the GSA could defer the decision until prevailing undesirable results are addressed or mitigated.
- 2) If there are no ongoing minimum threshold exceedances or documented undesirable results, but there is a reasonable risk of such impacts from extractions from the proposed or altered well (for example, in sensitive areas where groundwater conditions are getting close to minimum thresholds), then, the GSA may choose to perform predictive analysis to determine the risk of minimum threshold exceedances or future undesirable results due to extractions from the proposed or altered well. Findings of such analysis would inform the GSA's verification of the consistency of extractions from the well with the GSP and its sustainability goal. As for the previous case, the GSAs would need to consider their ability to minimize any future impacts through projects and management actions or well modifications.
- 3) In the absence of ongoing or anticipated minimum threshold exceedances or documented undesirable results, the GSA can move forward to verify the well permit application and continue to monitor groundwater conditions. Note, that the GSAs have the authority to limit pumping from the permitted well in the future if extractions lead to undesirable results.

If the basin is facing challenging groundwater conditions (either 1 or 2, above), then it is advisable for the GSA to either develop area-specific pumping rules/restrictions (discussed under Section 3.4.3.1) or work with the county to pass well ordinances or moratoriums on future wells. Such a basin-wide approach will likely be more practical and effective in managing basin conditions rather than case-by-case well permit evaluations. Utilizing the data, models, and analyses utilized in the GSP development and annual reports will further expedite and streamline the GSA well permit review process.

Finally, if the GSA does undertake analysis to evaluate future impacts from the proposed or altered well, then they need to consider the degree of uncertainty associated with the evaluation, in addition to the feasibility, timing and potential success of planned projects and management actions that may be used to manage any future impacts. This becomes especially



important if the GSA's determination is challenged by the well owner or other interested stakeholders.

The following sections briefly describe key considerations and technical approaches to evaluating potential impacts to relevant sustainability indicators during review by the GSAs.

Chronic Lowering of Groundwater Levels

Prior to analyzing the impact of the proposed or altered well, the GSA should review historical groundwater-level trends near the proposed well to determine the likelihood of contributing to the chronic lowering of groundwater levels. If trends have been declining or close to the minimum threshold, then the GSA may undertake well drawdown analysis similar to the well interference analysis under 9B. Prevalence or risk of dry drinking water wells²⁴ is also an important consideration. Evaluation of a proposed or altered well potential impact on groundwater levels is typically performed using either an analytical (e.g., Theis or Cooper-Jacob) or numerical models (e.g., MODFLOW or IWFEM). The caveats and challenges associated with each of these remain the same as those discussed under the well interference section (Section 3.4.1). Given that the GSA's focus is more on regional and long-term declines in groundwater levels, regional (relatively coarse) numerical models may be more appropriate for this analysis than for local well interference evaluations under 9B (Section 3.4.1).

Under SGMA, GSAs are tasked with managing the basin to avoid significant and unreasonable impacts from chronic lowering of groundwater levels on all beneficial users of groundwater, including shallow domestic wells and GDEs. Evaluating impacts on domestic wells from the proposed or altered well is complicated by data gaps on the location, capacity, and construction information of the domestic wells.

Evaluating potential impacts to nearby GDEs is complex and highly uncertain. The depth to water required to sustain a GDE is very site-specific and depends on local soil types (finer grained soils can move water over greater vertical distances due to capillarity), vegetation, and the intensity and duration of the anticipated drawdown. For example, a proposed or altered well that decreases groundwater levels by 20 ft for a few hours per day in a portion of the basin with fine grained soils may be less impactful than a well that decreases groundwater levels by 2 ft for 12 hours a day where coarser soil material is present.

GSAs need to account for the above complexities, data gaps, and uncertainties when making determinations related to impacts from lowering groundwater levels from the proposed extractions. GSA's will also need to consider if any potential impacts could be addressed through well modifications or future projects and management actions (Figure 5).

Subsidence

Subsidence is an important SMC for GSA consideration and is hence a shared responsibility between the LEA and GSA under EO Sections 9A and 9B (though the EOs designate the LEA with

²⁴ <https://mydrywatersupply.water.ca.gov/report/publicpage>



primary responsibility on this issue). The techniques, models, and datasets along with their respective limitations and uncertainties for subsidence evaluation were discussed under the LEA subsidence section above. While the EO identifies the LEA as the responsible entity to evaluate subsidence risks from the proposed or altered well, in many cases it is the GSA that has the data, models, hydrogeologic understanding, and technical resources to evaluate subsidence, having gone through that process during the GSP development phase. Hence, in this case the GSA may need to take the lead on the subsidence technical analysis or closely coordinate with the LEA on this joint analysis.

Groundwater Quality

Under SGMA, the GSA's primary responsibility is to ensure that groundwater operations (recharge and pumping) do not lead to deterioration of regional groundwater quality (for example, from the migration of contaminant plumes or the leaching of arsenic from clays near production wells). While not explicitly called out in the EO, groundwater quality may be a consideration for the GSA when evaluating well permits if the proposed or altered well is near a known contaminated site or has the potential to impair groundwater quality. The optimal method to assess groundwater quality impacts is a flow and transport model that has been calibrated to local and long-term groundwater level and groundwater quality data and can be used to predict the impact of the proposed or altered well on groundwater quality. However, such models are few and far between across SGMA basins. In the absence of such models, GSAs may analyze trends from regional water quality monitoring (considering any exceedances of minimum thresholds or regulatory standards) to assess the proposed or altered well's impact on basin sustainability with respect to groundwater quality. Several GSPs use groundwater levels as proxy for groundwater quality indicators, correlating groundwater quality and level trends and using these to specify groundwater quality SMCs. In such cases, the GSA may assess projected groundwater levels with extractions from the proposed or altered well and compare it to established minimum thresholds to evaluate the risk of future exceedances. Both of the above approaches have significant uncertainties and tend to be regional in nature, posing challenges to applying them at the well scale (necessary when evaluating well permits), especially without local water quality and water level data.

Seawater intrusion

Seawater intrusion has been documented in several coastal areas of California and is often a driving SMC for groundwater basins in those areas. Coastal areas with prolonged landward groundwater levels gradients that are below sea level are candidates for seawater intrusion. The introduction of seawater into coastal potable aquifers limits the use of those aquifers for some beneficial uses or by some users. These limitations can create financial impacts as alternative sources of water or treatment systems may be needed. In some cases, the seawater intrusion may cause the basin or parts of the basin to be in violation of Regional Water Quality Control Board Basin Plan objectives.



Management Areas are becoming common within GSPs in coastal areas with seawater intrusion. The Management Areas are established to enact specific groundwater production policies that serve to limit the amount of groundwater extracted from impacted areas or nearby areas that contribute to the hydrologic conditions fostering the landward movement of the seawater. In effect, the Management Areas can function as buffers to limit the expansion of groundwater extractions in vulnerable areas. Management policies could also include the identification and implementation of infrastructure to provide alternative sources of water to the Management Area to reduce groundwater extraction in the zone(s) impacted by seawater intrusion.

GSAs may wish to include how a new groundwater extraction well might impact a Management Area (or the coastal basin, at large) ability to manage seawater intrusion. Questions such as “Does the new well exacerbate the landward movement of seawater by lowering the heads in the coastal aquifer?” or “Does the new well potentially alter the flow direction in the seawater-impacted aquifer such that other groundwater producing areas may experience degraded water quality?” are clearly variables that an agency can consider as it evaluates whether a new well will impede the agency’s effort to achieve and maintain sustainable groundwater conditions.

Interconnected Surface Water Depletions

SGMA requires groundwater pumping be managed such that it does not lead to excessive depletions of interconnected surface water leading to significant and unreasonable impacts on all beneficial uses of surface water (including diversions, instream, and riparian habitat). The recent ruling on the Environmental Law Foundation et al. v. State Water Resources Control Board et al., California Court of Appeal, Third District, Case No. C083239 (“ELF”) case, also reaffirmed that primacy of the Public Trust doctrine over groundwater that may adversely impact navigable waterways. If the proposed or altered well is within or near the riparian corridor and screened at depths that have a connectivity with shallow groundwater along interconnected segments of the stream, then the GSAs may choose to evaluate depletions induced by the well and associated impacts on surface water beneficial use. The GSA can use numerical or analytical models to calculate depletions from the well and compare with minimum thresholds in the GSP. GSAs can also establish pumping restrictions and rules around sensitive habitat to minimize the impact of current and future wells on surface water and associated habitat. At the time of writing this White Paper, additional DWR guidance and best management practices (BMPs) on interconnected surface water are forthcoming. GSAs are recommended to incorporate those guidance and recommendations into their GSPs and any future well permit reviews, as needed.

3.4.4 Tools and Techniques

The evaluative process for new well permits can include the use of a variety of technical tools or techniques. The tools and techniques can range from relatively simplified straightforward processes to complicated numerical modeling efforts. Table 1 shows some examples of the tools



and techniques that might be applied to the well permitting process. Each of the tools and techniques have pros and cons to their usage that can include ease of use, cost, data needs, and the need for specialized expertise. In general, the more complex techniques require more time leading to overall greater costs to the well applicant or agency. The more complex techniques also need more data to support the evaluations. Conversely, the simpler approaches require less time and budget, but may not produce as reliable results.

Table 1: Example Technical Tools and Techniques for Well Interference and Subsidence Analysis

	<===== Less Complexity/Cost More =====>		
	Semi-Quantitative Tools	Analytical Tools	Models / Field Techniques
Well Interference	<ul style="list-style-type: none">• Semi-quantitative buffer distances based on pumping quantity/rate/duration from new well.• Distances to neighboring wells – isolated wells do not impact others.	<ul style="list-style-type: none">• Drawdown-distance calculations (e.g., Theis, Cooper-Jacob).	<ul style="list-style-type: none">• Numerical flow models.• Aquifer pumping tests.
Subsidence	<ul style="list-style-type: none">• Presence/Absence of historical subsidence from InSAR data, anecdotal information or observations.• Presence/Absence of critical infrastructure.	<ul style="list-style-type: none">• 1D Compaction analyses.• Geological evaluation – presence/absence of fine-grained layers.	<ul style="list-style-type: none">• Subsidence module in numerical flow models.• Geomechanical compaction analyses.

Not all well permit applications are envisioned to require the use of the most complex evaluative technique. For example, a proposed new well or altered well to be sited in a rural area without nearby groundwater wells may be adequately evaluated using only a semi quantitative tool or may not require further detailed evaluation based on the isolated nature of the well. It is envisioned that a site-specific evaluation would dictate whether the less costly and quicker-to-perform semi-quantitative tool evaluations are sufficient or whether more sophisticated techniques such as numerical flow models or aquifer test are needed to address potential impacts. Decision factors on the complexity of the approach can include such variables as size and depth of proposed well, nearby existing well density, the quantity and rate of proposed groundwater extractions, and/or the presence/absence of land subsidence.

The GSA must evaluate the impact of a proposed well or altered well on its ability to achieve and maintain sustainable groundwater conditions within its basin. As new wells are proposed within a basin, the GSA should consider how their evaluative process aligns with the basin's groundwater conditions, stakeholder preferences, and the agency's risk tolerance. Table 2 presents the cost, data requirement, and uncertainty trade-off for different evaluation methods available to the LEA and GSA. Stakeholders may prefer the lower cost, simpler evaluative processes that often carry higher levels of uncertainty due to the simplifying assumptions used in the analyses. By comparison, the use of numerical models can be a more costly evaluative technique that does not necessarily equate to lesser uncertainty in the evaluation. The



uncertainty associated with numerical approaches varies in each model based on the inherent quality of the calibration of the individual model and the design of the model. In this instance a more expensive evaluative technique may not result in lesser uncertainty than simpler, lower cost methods.

Table 2: Cost, Reliability, and Data Requirements for Different Evaluation Methods

Evaluation Method	Sustainable Management Criteria							Uncertainty
	Lowering GW Levels	Reduction of Storage	Seawater Intrusion	Degraded Water Quality	Land Subsidence	Interconnected Surface Water Depletions	Data Requirements	
Analytical Model	\$	\$	\$	N/A	\$	\$	Low to moderate	High
Numerical Model	\$\$	\$\$	\$\$\$	\$\$\$	\$\$\$	\$\$\$	High	Varies
Aquifer Test	\$\$\$	\$\$\$	N/A	N/A	N/A	\$\$\$	High	Low

A natural tendency may be to bias the evaluation method towards those with lower uncertainty from the perspective of the GSA, but those evaluative techniques often have higher associated data requirements and potentially costs. For example, the use of aquifer tests will require the performance of well-specific field efforts to gather the desired information, with associated costs and substantial time required to perform the test and complete the analysis.

3.5 Additional Considerations when Evaluating Well Permits

3.5.1 California Environmental Quality Act Considerations

Special consideration in the well permitting process is necessary to properly account for the difference between discretionary and ministerial approvals under CEQA. The CEQA process applies to “discretionary” agency decisions: those that involve judgement when deciding whether to approve the project and how to implement it. Ministerial decisions, on the other hand, are exempt from the CEQA process, even if they could impact the environment. According to the CEQA Guidelines (section 15268), “Where a project involves an approval that contains elements of both a ministerial action and a discretionary action, the project will be deemed to be discretionary and will be subject to the requirements of CEQA.” As discussed earlier, the requirements of well permitting and the interpretation of ministerial or discretionary have shifted over time. Ordinances like the Stanislaus County and Merced County ordinances, passage of SGMA, and EO N-7-22 and N-3-23 have all added more discretionary elements to the well permitting process, leading to Counties reconsidering the role of CEQA in their permitting process.



3.5.1.1 CEQA Example - Stanislaus County and the “POWER” Case

The Stanislaus County ordinance and subsequent legal challenges demonstrate this shifting landscape. The question of discretionary or ministerial actions as they relate to well permitting was tested in Stanislaus County with the August 27, 2020 California Supreme Court decision in *Protecting Our Water and Environmental Resources v. County of Stanislaus*, Case No. S251709 (“*Protecting Our Water*”, also referred to as “*POWER*”), arguably the most influential case pertaining to CEQA and groundwater wells. In the final ruling on this case, the California Supreme Court ruled that a County could not classify all groundwater well construction permits as ministerial actions because the Bulletin 74 standards represent minimum requirements, and that discretion must be exercised during their implementation in some instances. The Bulletin 74 standards, the court found, involved discretion in implementation related to water quality, including: location of wells and distance from potential sources of contamination; water quality protection for wells located in floodplains; and minimum annular seal depths. The Supreme Court said the decision as to whether a permit is ministerial or discretionary depends on the specific language of the local ordinance and regulatory controls. Well construction permits can be considered ministerial if they meet Bulletin 74 standards and local ordinance and regulatory controls do not authorize discretion.

Since the ruling in *Protecting Our Water*, each application for a well permit in Stanislaus County is evaluated on a case-by-case basis. The Stanislaus County Board of Supervisors adopted new Groundwater Well Siting and Construction Guidelines and an Addendum to the Discretionary Well Permitting and Management Program EIR on April 5, 2022. The Groundwater Well Siting and Construction Guidelines were developed to clarify which permit applications would be required to undergo discretionary review under the County Groundwater Ordinance (Chapter 9.37 of the Stanislaus County Code). For example, according to the new guidelines, wells that would meet separation distance requirements from potential contamination sources (e.g., septic fields, animal enclosures, leaking underground petroleum storage tanks, and landfills) and would not be located in a contamination risk area, are generally permitted through a ministerial process, not subject to CEQA. Wells that are within a defined setback from a closed contamination site, as reviewed by a qualified professional, generally qualify for a Categorical Exemption under CEQA. Wells that are within contamination risk areas and/or within certain annular seal depth zones (e.g., Corcoran clay, alluvial fan, and/or fractured rock) are generally subject to county discretion when issuing a permit. Wells subject to discretionary permitting would first determine whether they fall within the scope of the county’s Program EIR, then would proceed with the CEQA process before being granted a discretionary permit. Each applicant for a well construction permit starts by completing a pre-application checklist, then proceeds with each applicable step of CEQA review. Since 2022, after Stanislaus County started their new process of assessing well applications on a case-by-case basis, there has been one CEQA document prepared for a new agricultural well project, according to a recent search of the



CEQANet database. A Mitigated Negative Declaration was prepared for the “Supplemental Wells for Pescadero Ranch” Project, which tiered off of the Program EIR.

3.5.1.2 Potential CEQA Approach

As navigating the CEQA process is often infeasible for well applicants due to the cost, timing, and complexity, permitting agencies may choose to craft ordinances and permitting processes to avoid discretion. In addition to the components related to the Protecting Our Water decision, such as distance to contamination sources, the permitting agency should consider the requirements of the executive orders related to well interference and consistency with the Groundwater Sustainability Plan.

Creating a process to avoid discretion may be possible only for some cases. Crafting these processes depends on local conditions and is an area of uncertainty in the court, as exhibited in Protecting Our Water. Considerations are given in this document for illustrative purposes and should not be considered legal advice. A well may be deemed permissible through a ministerial process if it meets certain requirements without the use of judgment, such as:

- Located at least a defined minimum distance from contaminated sites as indicated in a predefined database
- Causing no more than a predefined maximum drawdown at the parcel boundary or at nearby wells (if well locations are known), with drawdown analysis following a prescribed process.
- Not resulting in undesirable results as defined by the GSP, based on a prescribed process. This should include all relevant sustainability indicators.

Wells not meeting these requirements could then potentially require discretionary action or denial.

3.5.2 Public Trust Considerations

The Public Trust Doctrine's foundational principle is that the state has a duty to protect the people's common heritage in navigable waters. Over the years the doctrine has been broadened to include the right to swim, boat, and engage in other forms of water recreation. The 2018 ruling on Environmental Law Foundation (“ELF”) et al. v. State Water Resources Control Board and Siskiyou County (California Court of Appeal, Third District, Case No. C083239) clarified that SGMA did not change the state or counties’ powers under the Public Trust Doctrine to bear on decisions (including issuing permit) related to groundwater extractions that may impact surface waters (in this case the Scott River) held under public trust (submerged lands, tide lands, and navigable waterways beds). As such, public trust considerations can be applicable to groundwater well permits if these pose impacts on such waters. These have come to the fore in recent lawsuits and rulings (e.g., in Sonoma County) where groundwater extractions may lead to



depletions on (interconnected) navigable surface waters. LEA's issuing well permits in areas with interconnected surface water would do well to review the "ELF" ruling and other applicable case-studies to evaluate if these considerations are applicable to the well permit in question.

3.5.3 Administrative Considerations

3.5.3.1 Coordination and Communication

To comply with the EO, LEA and GSA staff would benefit from considering potential inefficiencies in their well permitting process. For example, if a consulting firm is needed to provide the technical expertise to review the well permits for both the GSA and LEA, it may be beneficial for both the GSA and LEA to hire one consultant or firm to evaluate well permit applications to address both 9(a) and 9(b) and to submit the same evaluation to both agencies. This may provide an opportunity to share costs and avoid conflicts in interpretation of the results.

It is also important for the LEA and the GSA to be unified in their approach and messaging to the public on the well permitting process, evaluation criteria, and what is expected from well permittees. In basins where the LEA and GSA do not agree, it may cause distrust among staff, the County Board of Supervisors, and the public which can lead to legal challenges and issues that may only exacerbate the issue

Coordination between the two agencies is partly dependent on four factors: (1) concurrent or systematic review process, (2) use of consultants, (3) how much information is required to be evaluated (i.e., one page well permit form or a hydrogeologic evaluation for the proposed or altered well), and (4) navigating public comments. The LEA and GSA need to develop a collaborative framework that works for both entities and ensures open and efficient communication to share data, expertise, and resolve any differences and discrepancies.

Well permitting can be a sensitive issue for both the reviewing agency, consultant, and the well permittee. Clear communication on what's expected from each party is critical to minimize delays in evaluating well permits. Opportunities for providing clear communication include providing guidance on websites for both the LEA and GSA, providing focused information on the process and analysis to local well drillers, domestic well owners, and local agricultural interest groups. In general, it's advantageous to make the process from start to finish transparent and to provide all parties involved an opportunity to engage with and provide input on well permit determinations.

3.5.3.2 Staffing and Consulting

In groundwater basins that are classified as medium to high priority or critically overdrafted, the EO calls for both the GSA and LEA to work together to review well permit applications that meet the requirements outlined in Section 9. LEA's focus when reviewing and approving well permits



is to protect public health and not evaluating the sustainability of groundwater in the basin. For this reason, LEA staff may not be trained geologists, hydrogeologists, scientists, or engineers that have the knowledge and skills to be fully qualified to evaluate well permits based on the requirements in the EO. Some GSAs are staffed by county staff that fulfill both their county duties and GSA duties. GSAs are also relatively new government entities that, in many cases, do not have an established funding mechanism sufficient to support the hiring of qualified full-time staff. Both LEA and GSA staff are typically understaffed and for this reason, it is not uncommon for GSAs to hire professional consultants²⁵ to fill roles to augment the capacity to meet the needs of the agency.

3.5.3.3 Cost Considerations for Review and Coordination

Because of staffing limitations at both the LEA and GSA, it is common for both entities to hire consultants to assist in the review and evaluation of well permits for compliance with the EO. It's also common for well permittees in basins where additional justification is requested by the LEA or GSA to evaluate the well permit, to prepare a hydrogeologic report to be submitted as part of a well permit application on behalf of the well permittee. Depending on the level of complexity of the well permit application and additional justification documents required or requested by either the LEA or GSA, well permit evaluations may take hours to days and may require several coordination meetings between both agencies, the driller, and consultant, and/or the well permittee. This in turn may significantly impact costs and time required for evaluating well permits for the LEA, GSA, and possibly the well permittee. For example, specific hydrogeologic reports or studies can cost thousands of dollars to well permittees. An additional challenge for GSAs is that, unlike the well permitting agency, most GSAs do not have a mechanism for recovering its costs associated with permit review through permitting fees.

3.5.3.4 Risk and Liability

Given the data gaps, uncertainties, budget limitations, and inherently discretionary nature of the well permit evaluation under the EO, the parties involved expose themselves to potential risk and liability. The LEA and/or GSA (and the registered professionals/consultants involved) may face legal challenges from well owners if they deny a well permit. In such cases, the technical basis for the determinations under 9A and 9B will need to stand up in a court. On the flip side, LEAs and GSAs that approve permits may be challenged if beneficial use (e.g., domestic wells) or infrastructure is impacted near the permitted well. Such legal challenges add to the cost and effort for evaluating well permits. LEAs and GSAs should discuss these risks and potential liability with their legal counsel and ensure that the approach followed to review and decide on the permit is transparent, well documented, and utilizes the best available data and science.

²⁵ Any well installations, modifications, or hydrogeology reports need to be prepared under the supervision of a California registered professional geologic or certified hydrogeologic, as required under California Business and Professions Code, Chapter 12.5, Article 3.



3.5.4 Legal and Policy Considerations

Changes to established well permitting practices can lead to legal and policy challenges. Section 3.5.1 discussed the POWER ruling and its implications on CEQA applicability to well permits. Section 3.4.3.2. briefly touched on the primacy of the Public Trust over groundwater that may impact navigable waterways. Well permitting under the EO can also run into issues with the State's existing groundwater water rights framework. Two important points to remember are that a) California groundwater rights are correlative in nature, and b) SGMA does not give GSAs the authority to alter existing water rights. As such, any determination that the GSA or LEA makes need to consider the groundwater rights of well owner in relation to existing pumpers in the basin. GSAs and LEAs that reject well permit applications may be challenged if existing well owners are allowed to pump in similar areas and at similar rates as the rejected well. Such challenges are already emerging as seen in the recent *Double Vee Properties, LLC et al v. County of Napa et al* lawsuit where the claimants are challenging the County's well permitting restrictions as violating their property and water rights.



4 Challenges and Recommendations for Well Permitting in California

This section summarizes the remaining challenges for well permitting in California in response to the EO and provides recommendations for each identified challenge.

Challenge 1. Uncertainty related to how long the EO will be in place due to changes in drought conditions.

The EO was issued in March of 2022 to mitigate further stress on groundwater basins that were experiencing lowering of groundwater levels amidst a prolonged drought and to further leverage authorities that were established under SGMA. In response to the EO, LEAs and GSAs throughout the state have been working to implement policies that will adequately address the EO. In the most recent water year that concluded at the end of September 2023, California received sufficient snowpack and rainfall that has brought the majority of the state's watersheds out of drought conditions. Despite the change in hydrologic conditions from the most recent water year, there is interest by several lawmakers to make the EO a requirement going forward. In particular, it is known that groundwater aquifers do not recover as quickly as surface water reservoirs, and some aquifers have still not fully recovered from drought conditions, with domestic wells still going dry in some areas. Moreover, with climate change impacts exacerbating, the frequency, duration, and intensity of extreme events (droughts and floods) is only expected to increase in the future.

Several looming questions remain to be addressed:

- Will the EO be lifted due to the change in statewide hydrologic conditions?
- If the EO is lifted, what impact will that have on LEAs and GSAs that intend to continue or not continue implementing the EO?
- What will the result be from either outcome for the well permits that were either put on hold, approved, or denied?

Recommendation 1: *The EO should not be lifted based on change in ongoing hydrologic conditions alone, but rather through a process that carefully weighs the benefits and risks (from lifting the EO) to LEAs and GSAs throughout the state in the light of adverse impacts from recurrence of extreme drought conditions in the future. Even if the EO is lifted, lessons learned from this EO's implementation period should be incorporated into statewide guidance and future EOs on well permitting. Finally, GSAs that have successfully developed ordinances prior to or in response to the EO, may, at their discretion, continue operating their basins and well permits accordingly, even if the EO were to be lifted.*



Challenge 2. Need for a statewide coordinated policy that provides clarity on well permitting processes and technical standards.

The EO has spurred greater collaboration amongst LEAs and GSAs, but it also has left LEAs and GSAs to define the appropriate process to comply with the EOs given limited overall guidance, staff availability, expertise, funds, and time to complete in a reasonable time frame; and this is in addition to other mandates and obligations these agencies already are under stress to deliver to comply with SGMA and support their area's water supply concerns (i.e., dry well mitigation etc.). Currently, California well standards²⁶ set minimum standards for groundwater wells with the primary goal being to protect groundwater quality for public health. However, well permitting processes can vary from county to county or agency leading to challenges in applying consistent processes and standards when evaluating well permits. Overall, there is a need for statewide policy that creates clarity and consistency in well permit evaluations, especially under the current EO or future legislations under considerations (AB 2201, AB 1563, AB 429).

Recommendation 2: Professional industry organizations (e.g., GRA) can provide valuable feedback on standard processes and technical considerations for future EOs and well permitting legislation. For example, technical practitioners can help assess what is the most practical and defensible approach, and what is most likely to be reasonable in the eyes of LEAs and GSAs and their communities to make progress to improve California well permitting standards to support groundwater sustainability. As such, a technical working group with experts from relevant professional organizations (e.g., GRA, Association of California Water Agencies [ACWA], National Groundwater Association [NGWA], and others) may be formed to provide feedback on future EOs or legislative measures in a coordinated, effective manner.

Challenge 3. Small, underfunded, primarily disadvantaged community (DAC) LEAs and GSAs may not have sufficient resources to track DWR and state legislative actions and adapt to (frequent) changes in legislation in a timely manner.

For many of the LEAs and GSAs that are small, underfunded, and located in DACs, it is particularly challenging to track and to adapt to changes in legislation in a timely manner in the midst of more pressing matters to be addressed than coordinating and updating well permitting processes to address the EO. Considering that most GSAs throughout the state have some level of DACs that exist within their basins, an unfunded mandate like the EO has placed more regulatory burden on communities throughout California that do not have the technical staff and financial resources to comply with the EO in a timely manner.

Recommendation 3: Future legislation for the EO should be accompanied by funding or other in-kind assistance for LEAs and GSAs that have a high percentage of DACs identified within their

²⁶ California Well Standards are currently being updated by DWR, with final standards expected in Fall 2025 (<https://water.ca.gov/well-standards>).



basin to provide them the resources to (1) hire or outsource the technical staff needed to comply with the EO or legislation and (2) comply with the EO or legislation in a timely manner. DWR or other state agencies could also support these types of mandates with additional guidance, technical assistance, and relevant data (as has been done with other legislations and EOs in the past).

Challenge 4. Lack of sufficient quality well data to make reasonable scientific evaluations.

The availability and quality of information required to accurately and objectively evaluate potential well impacts or interference varies widely across the state. The location and screened interval(s) of nearby wells are minimum requirements to evaluate potential interferences from a proposed well, and often those data are not available. Prior to 2015, well completion reports (WCRs), or “well logs,” in California were considered proprietary information. Well locations were obfuscated by reporting them as the centroid of the Public Land Survey System (PLSS), which means the majority of well coordinates in the publicly accessible OSWCR database are only accurate to within about a half mile of their true location (see footnote 18 in Section 3.4.1). With the passage of Senate Bill 83 in 2015, DWR is required to make these well logs publicly available provided private owner information is redacted.

Making well logs publicly available helped fill an important data gap. However, remaining challenges exist, due to often inadequate well completion reports that may omit sections such as location, lithology encountered, well construction, and pumping test information. LEAs and DWR have historically failed to require drillers to adequately complete these reports and submit them within a reasonable amount of time. While some well construction information can be obtained later at additional expense (e.g., total depth, casing diameter, screened intervals), some data are very difficult if not impossible to collect if the well has a metal casing (e.g., lithology).

Recommendation 4: *LEAs and DWR should actively enforce existing well permitting requirements, including requiring all sections of WCRs be adequately filled out as appropriate. Well locations should be provided as GPS coordinates with sufficient accuracy (<50 ft) and coordinate reference system specified. Minimum standards for reporting encountered lithologies should be developed. Finally, many GSAs are embarking on well inventory and registration efforts which will help collect data about existing wells and aid with permitting assessments in the future.*

Challenge 5. No requirements or system for confirming actual well operation is consistent with permitted operation.

The proposed pumping rate and schedule of a new well factor heavily into the evaluations required by the EOs. It is important to note that wells can operate under a range of production rates depending on construction and equipment installed. A majority of high and medium



priority basins in the state do not require well metering. As such, there is no enforcement mechanism for the GSA or the LEA to ensure that the permitted well is operating under conditions specified in the well permit that passed the initial subsidence, well interference, and GSP consistency evaluations.

Recommendation 5: *Verification that operation of a new well is consistent with what was permitted. Since flow meters equipped to wells that measure groundwater extractions would be the easiest solution but are often the exception rather than the rule in California groundwater basins, this recommendation comes with its own challenges. Estimates of groundwater pumping can be calculated using cropped acreage, but that can become complicated when multiple wells are tied into a single system and irrigate multiple fields. It also requires many assumptions to be made that may or may not be accurate for a given grower. At a minimum some type of periodic evaluation should be performed to verify the actual operation of the well is consistent with what was permitted. The LEA could require the well permittee to submit annual pumping volumes. Finally, the LEA or GSA may recommend adjustments to the well depth and casing dimension to limit pumping volumes and depths.*

Challenge 6. Need for well permit enforcement through monitoring of potential impacts during operations.

Once the well permit is approved and the well has been constructed, additional monitoring may be needed to assess if any impacts are occurring due to the well's operations. Only through monitoring of water levels near the well would it be possible to verify that impacts to nearby wells are not occurring.

Recommendation 6: *Adding requirements for well monitoring during operations could help better assess potential impacts, ways to remedy, and generally help local agencies collect additional data to help with sustainable groundwater management. Any future EO or legislation on well permitting should consider incorporating monitoring in and around the permitted well, especially in areas with critical infrastructure and sensitive habitat. This could be done through existing monitoring networks or additional monitoring. The state should provide funding and technical support for such additional monitoring during future extreme events.*

Challenge 7. Current well permitting framework under EOs can be subjective, expensive, and prone to conflicts and liability.

The EOs are a step in the right direction as a well permitting framework is needed in many groundwater basins across California. However, the lack of clarity in the EOs results in a subjective permitting environment that can be inefficient and costly. No definitions or minimum standards are provided as to how much well interference or subsidence impacts to nearby infrastructure is “too much.” As a result, these definitions are largely left to the LEAs and GSAs to define. It is entirely possible that LEAs and/or GSAs may establish differing limits as to what is



permissible within the same basin, or that definitions change over time depending on who is performing the evaluation. We acknowledge that local control is essential to groundwater management; however, some level of coordination and consistency across multiple LEAs and GSAs as well as statewide guidance and best practices on well permitting would make the process more streamlined. Moreover, data gaps and lack of information (Challenge 4) lead to inherent uncertainties and potential discrepancies in the assessment by the respective agencies.

Recommendation 7: *As discussed in Recommendation 2 above, there should be greater coordination between legislators and professional organizations to define future legislation that will be technically sound and practically implemented. At a minimum, some streamlining of permitting should be implemented to help reduce costs. One approach might be developing a framework for well ordinances at the local level that utilize input from the GSA and GSPs to frame local criteria with the intention to have the LEA well permitting still be ministerial. After the POWER ruling (Section 3.5.1.), the applicability of CEQA to new well permits remains unclear. If the legislature agrees, a categorical or statutory CEQA exemption could be also developed for all or a portion of well permits. Further, DWR is currently in the process of updating the Bulletin 74 California Well Standards. Permitting agencies have the opportunity to provide input to DWR to craft the language in Bulletin 74 in such a way that allows a ministerial approval path, at least for certain, specific wells, such as those that are not within a water quality contamination area. DWR and legislative representatives are encouraged to review well permitting approaches in other States (examples included in **Attachment 4**) to understand what may work and what may not under California's existing water rights and regulatory framework.*



5 Acknowledgements

This white paper was authored by numerous passionate GRA members who felt that preparing a document that outlines the technical approaches available to comply with the EO would be a useful reference document for well permitting agencies and GSAs in California as well as DWR staff and legislators.

Special thanks to the hard work and dedication preparing this white paper goes to: Abhishek Singh (GRA Technical Committee Chair; INTERA), Erik Cadaret (GRA EEA Committee Chair; West Yost), Lisa Porta (GRA Technical Committee Member; Montgomery & Associates), Marcus Trota (GRA Technical Committee Member; Sonoma Water), Tony Morgan (GRA Technical Committee Member; Daniel B. Stephens & Associates), Trey Driscoll (GRA Technical Committee Member; INTERA), Jim Blanke (GRA Member; Woodard & Curran), Gus Tolley (GRA Technical Committee Member; Daniel B. Stephens & Associates), and Tyler Hatch (GRA Technical Committee Member; INTERA). We also appreciate the input and contributions from Brownstein Hyatt Farber Schreck LLP and the Association of California Water Agencies (ACWA). Finally, our sincere thanks to DWR for sharing information and guidance on the EOs and the well permitting process in California.



Attachment 1

Executive Order N-7-22

EXECUTIVE DEPARTMENT
STATE OF CALIFORNIA

EXECUTIVE ORDER N-7-22

WHEREAS on April 12, 2021, May 10, 2021, July 8, 2021, and October 19, 2021, I proclaimed states of emergency that continue today and exist across all the counties of California, due to extreme and expanding drought conditions; and

WHEREAS climate change continues to intensify the impacts of droughts on our communities, environment, and economy, and California is in a third consecutive year of dry conditions, resulting in continuing drought in all parts of the State; and

WHEREAS the 21st century to date has been characterized by record warmth and predominantly dry conditions, and the 2021 meteorological summer in California and the rest of the western United States was the hottest on record; and

WHEREAS since my October 19, 2021 Proclamation, early rains in October and December 2021 gave way to the driest January and February in recorded history for the watersheds that provide much of California's water supply; and

WHEREAS the ongoing drought will have significant, immediate impacts on communities with vulnerable water supplies, farms that rely on irrigation to grow food and fiber, and fish and wildlife that rely on stream flows and cool water; and

WHEREAS the two largest reservoirs of the Central Valley Project, which supplies water to farms and communities in the Central Valley and the Santa Clara Valley and provides critical cold-water habitat for salmon and other anadromous fish, have water storage levels that are approximately 1.1 million acre-feet below last year's low levels on this date; and

WHEREAS the record-breaking dry period in January and February and the absence of significant rains in March have required the Department of Water Resources to reduce anticipated deliveries from the State Water Project to 5 percent of requested supplies; and

WHEREAS delivery of water by bottle or truck is necessary to protect human safety and public health in those places where water supplies are disrupted; and

WHEREAS groundwater use accounts for 41 percent of the State's total water supply on an average annual basis but as much as 58 percent in a critically dry year, and approximately 85 percent of public water systems rely on groundwater as their primary supply; and

WHEREAS coordination between local entities that approve permits for new groundwater wells and local groundwater sustainability agencies is important to achieving sustainable levels of groundwater in critically overdrafted basins; and

WHEREAS the duration of the drought, especially following a multiyear drought that abated only five years ago, underscores the need for California to redouble near-, medium-, and long-term efforts to adapt its water management and delivery systems to a changing climate, shifting precipitation patterns, and water scarcity; and

WHEREAS the most consequential, immediate action Californians can take to extend available supplies is to voluntarily reduce their water use by 15 percent from their 2020 levels by implementing the commonsense measures identified in operative paragraph 1 of Executive Order N-10-21 (July 8, 2021); and

WHEREAS to protect public health and safety, it is critical the State take certain immediate actions without undue delay to prepare for and mitigate the effects of the drought conditions, and under Government Code section 8571, I find that strict compliance with various statutes and regulations specified in this Proclamation would prevent, hinder, or delay the mitigation of the effects of the drought conditions.

NOW, THEREFORE, I, GAVIN NEWSOM, Governor of the State of California, in accordance with the authority vested in me by the State Constitution and statutes, including the California Emergency Services Act, and in particular, Government Code sections 8567, 8571, and 8627, do hereby issue the following Order to become effective immediately:

IT IS HEREBY ORDERED THAT:

1. The orders and provisions contained in my April 21, 2021, May 10, 2021, July 8, 2021, and October 19, 2021 Proclamations remain in full force and effect, except as modified by those Proclamations and herein. State agencies shall continue to implement all directions from those Proclamations and accelerate implementation where feasible.
2. To help the State achieve its conservation goals and ensure sufficient water for essential indoor and outdoor use, I call on all Californians to strive to limit summertime water use and to use water more efficiently indoors and out. The statewide Save Our Water conservation campaign at [SaveOurWater.com](https://www.SaveOurWater.com) provides simple ways for Californians to reduce water use in their everyday lives. Furthermore, I encourage Californians to understand and track the amount of water they use and measure their progress toward their conservation goals.
3. By May 25, 2022, the State Water Resources Control Board (Water Board) shall consider adopting emergency regulations that include all of the following:
 - a. A requirement that each urban water supplier, as defined in section 10617 of the Water Code, shall submit to the Department of Water Resources a preliminary annual water supply and demand assessment consistent with section 10632.1 of the Water Code no later than June 1, 2022, and submit a final annual water

supply and demand assessment to the Department of Water Resources no later than the deadline set by section 10632.1 of the Water Code;

- b. A requirement that each urban water supplier that has submitted a water shortage contingency plan to the Department of Water Resources implement, at a minimum, the shortage response actions adopted under section 10632 of the Water Code for a shortage level of up to twenty percent (Level 2), by a date to be set by the Water Board; and
- c. A requirement that each urban water supplier that has not submitted a water shortage contingency plan to the Department of Water Resources implement, at a minimum, shortage response actions established by the Water Board, which shall take into consideration model actions that the Department of Water Resources shall develop for urban water supplier water shortage contingency planning for Level 2, by a date to be set by the Water Board.

To further conserve water and improve drought resiliency if the drought lasts beyond this year, I encourage urban water suppliers to conserve more than required by the emergency regulations described in this paragraph and to voluntarily activate more stringent local requirements based on a shortage level of up to thirty percent (Level 3).

- 4. To promote water conservation, the Department of Water Resources shall consult with leaders in the commercial, industrial, and institutional sectors to develop strategies for improving water conservation, including direct technical assistance, financial assistance, and other approaches. By May 25, 2022, the Water Board shall consider adopting emergency regulations defining “non-functional turf” (that is, a definition of turf that is ornamental and not otherwise used for human recreation purposes such as school fields, sports fields, and parks) and banning irrigation of non-functional turf in the commercial, industrial, and institutional sectors except as it may be required to ensure the health of trees and other perennial non-turf plantings.
- 5. In order to maximize the efficient use of water and to preserve water supplies critical to human health and safety and the environment, Public Resources Code, Division 13 (commencing with section 21000) and regulations adopted pursuant to that Division are hereby suspended, with respect to the directives in paragraphs 3 and 4 of this Order and any other projects and activities for the purpose of water conservation to the extent necessary to address the impacts of the drought, and any permits necessary to carry out such projects or activities. Entities that desire to conduct activities under this suspension, other than the directives in paragraphs 3 and 4 of this Order, shall first request that the Secretary of the Natural Resources Agency make a determination that the proposed activities are eligible to be conducted under this suspension. The Secretary shall use sound discretion in applying this Executive Order to ensure that the suspension serves the purpose of accelerating conservation projects that are necessary to address impacts of the drought, while at the same time

protecting public health and the environment. The entities implementing these directives or conducting activities under this suspension shall maintain on their websites a list of all activities or approvals for which these provisions are suspended.

6. To support voluntary approaches to improve fish habitat that would require change petitions under Water Code section 1707 and either Water Code sections 1425 through 1432 or Water Code sections 1725 through 1732, and where the primary purpose is to improve conditions for fish, the Water Board shall expeditiously consider petitions that add a fish and wildlife beneficial use or point of diversion and place of storage to improve conditions for anadromous fish. California Code of Regulations, title 23, section 1064, subdivisions (a)(1)(A)(i)-(ii) are suspended with respect to any petition that is subject to this paragraph.
7. To facilitate the hauling of water for domestic use by local communities and domestic water users threatened with the loss of water supply or degraded water quality resulting from drought, any ordinance, regulation, prohibition, policy, or requirement of any kind adopted by a public agency that prohibits the hauling of water out of the water's basin of origin or a public agency's jurisdiction is hereby suspended. The suspension authorized pursuant to this paragraph shall be limited to the hauling of water by truck or bottle to be used for human consumption, cooking, or sanitation in communities or residences threatened with the loss of affordable safe drinking water. Nothing in this paragraph limits any public health or safety requirement to ensure the safety of hauled water.
8. The Water Board shall expand inspections to determine whether illegal diversions or wasteful or unreasonable use of water are occurring and bring enforcement actions against illegal diverters and those engaging in the wasteful and unreasonable use of water. When access is not granted by a property owner, the Water Board may obtain an inspection warrant pursuant to the procedures set forth in Title 13 (commencing with section 1822.50) of Part 3 of the Code of Civil Procedure for the purposes of conducting an inspection pursuant to this directive.
9. To protect health, safety, and the environment during this drought emergency, a county, city, or other public agency shall not:
 - a. Approve a permit for a new groundwater well or for alteration of an existing well in a basin subject to the Sustainable Groundwater Management Act and classified as medium- or high-priority without first obtaining written verification from a Groundwater Sustainability Agency managing the basin or area of the basin where the well is proposed to be located that groundwater extraction by the proposed well would not be inconsistent with any sustainable groundwater management program established in any applicable Groundwater Sustainability Plan adopted by that Groundwater Sustainability

Agency and would not decrease the likelihood of achieving a sustainability goal for the basin covered by such a plan; or

- b. Issue a permit for a new groundwater well or for alteration of an existing well without first determining that extraction of groundwater from the proposed well is (1) not likely to interfere with the production and functioning of existing nearby wells, and (2) not likely to cause subsidence that would adversely impact or damage nearby infrastructure.

This paragraph shall not apply to permits for wells that will provide less than two acre-feet per year of groundwater for individual domestic users, or that will exclusively provide groundwater to public water supply systems as defined in section 116275 of the Health and Safety Code.

10. To address household or small community drinking water shortages dependent upon groundwater wells that have failed due to drought conditions, the Department of Water Resources shall work with other state agencies to investigate expedited regulatory pathways to modify, repair, or reconstruct failed household or small community or public supply wells, while recognizing the need to ensure the sustainability of such wells as provided for in paragraph 9.
11. State agencies shall collaborate with tribes and federal, regional, and local agencies on actions related to promoting groundwater recharge and increasing storage.
12. To help advance groundwater recharge projects, and to demonstrate the feasibility of projects that can use available high water flows to recharge local groundwater while minimizing flood risks, the Water Board and Regional Water Quality Control Boards shall prioritize water right permits, water quality certifications, waste discharge requirements, and conditional waivers of waste discharge requirements to accelerate approvals for projects that enhance the ability of a local or state agency to capture high precipitation events for local storage or recharge, consistent with water right priorities and protections for fish and wildlife. For the purposes of carrying out this paragraph, Division 13 (commencing with section 21000) of the Public Resources Code and regulations adopted pursuant to that Division, and Chapter 3 (commencing with section 85225) of Part 3 of Division 35 of the Water Code and regulations adopted pursuant thereto are hereby suspended to the extent necessary to address the impacts of the drought. This suspension applies to (a) any actions taken by state agencies, (b) any actions taken by local agencies where the state agency with primary responsibility for the implementation of the directives concurs that local action is required, and (c) permits necessary to carry out actions under (a) or (b). The entities implementing these directives shall maintain on their websites a list of all activities or approvals for which these provisions are suspended.
13. With respect to recharge projects under either Flood-Managed Aquifer Recharge or the Department of Water Resources Sustainable

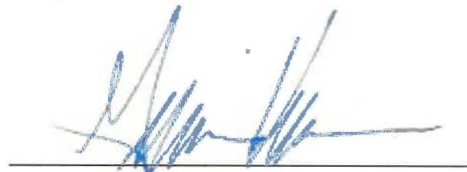
Groundwater Management Grant Program occurring on open and working lands to replenish and store water in groundwater basins that will help mitigate groundwater conditions impacted by drought, for any (a) actions taken by state agencies, (b) actions taken by a local agency where the Department of Water Resources concurs that local action is required, and (c) permits necessary to carry out actions under (a) or (b), Public Resources Code, Division 13 (commencing with section 21000) and regulations adopted pursuant to that Division are hereby suspended to the extent necessary to address the impacts of the drought. The entities implementing these directives shall maintain on their websites a list of all activities or approvals for which these provisions are suspended.

14. To increase resilience of state water supplies during prolonged drought conditions, the Department of Water Resources shall prepare for the potential creation and implementation of a multi-year transfer program pilot project for the purpose of acquiring water from willing partners and storing and conveying water to areas of need.
15. By April 15, 2022, state agencies shall submit to the Department of Finance for my consideration proposals to mitigate the worsening effects of severe drought, including emergency assistance to communities and households and others facing water shortages as a result of the drought, facilitation of groundwater recharge and wastewater recycling, improvements in water use efficiency, protection of fish and wildlife, mitigation of drought-related economic or water-supply disruption, and other potential investments to support short- and long-term drought response.

IT IS FURTHER ORDERED that as soon as hereafter possible, this Order be filed in the Office of the Secretary of State and that widespread publicity and notice be given of this Order.

This Order is not intended to, and does not, create any rights or benefits, substantive or procedural, enforceable at law or in equity, against the State of California, its agencies, departments, entities, officers, employees, or any other person.

IN WITNESS WHEREOF I have hereunto set my hand and caused the Great Seal of the State of California to be affixed this 28th day of March 2022.



GAVIN NEWSOM
Governor of California

ATTEST:

SHIRLEY N. WEBER, PH.D.
Secretary of State



Attachment 2

Executive Order N-3-23

EXECUTIVE DEPARTMENT
STATE OF CALIFORNIA

EXECUTIVE ORDER N-3-23

WHEREAS on April 21, 2021, May 10, 2021, July 8, 2021, and October 19, 2021, I proclaimed States of Emergency due to drought conditions that continue today and exist across California; and

WHEREAS climate change continues to intensify the impacts of droughts on our communities, environment, and economy, and these impacts continue to affect groundwater basins, local water supplies, and ecosystems, resulting in continuing drought in the State; and

WHEREAS the ongoing drought continues to have significant, immediate impacts on communities with vulnerable water supplies, farms that rely on irrigation to grow food and fiber, and fish and wildlife that rely on stream flows and cool water; and

WHEREAS early, substantial rains in October and December 2021 gave way to the driest January-February-March period in over 100 years in California, leading the October 2021 to September 2022 water year to end with statewide precipitation at 76 percent of average, with statewide reservoir storage at 69 percent of average, and with Lake Oroville—the State Water Project's largest reservoir—at 64 percent of average; and

WHEREAS in January 2023, the State experienced one of the wettest three-week periods on record, yielding a snowpack that was at 205 percent of average on February 1, 2023, yet to date February has been drier than average; and

WHEREAS the current snowpack has not reduced stresses upon the State's water resources, including low storage levels, depleted aquifers, and diminished local water supplies; and

WHEREAS the State can expect continued swings between extreme wet and extreme dry periods that can present risks of severe flooding and extreme drought in the same year; and

WHEREAS California must adapt to a hotter, drier future in which a greater share of rain and snowfall during the wetter months will be absorbed by dry soils, consumed by plants, and evaporated into the air, leaving less water for communities, species, and agriculture; and

WHEREAS the frequency of hydrologic extremes experienced in the State is indicative of an overarching need to continually reexamine policies to promote resiliency in a changing climate; and

WHEREAS Californians continue to make progress conserving water, with urban water users conserving 17.1 percent statewide in December 2022 compared to December 2020 and agricultural producers continuing to invest in more efficient irrigation; and

WHEREAS despite this progress, the uncertainty of precipitation during the remainder of the winter and spring, and the potential of dry conditions next

winter and of drought conditions extending to a fifth year, make it necessary for the State to continue water-conservation measures and drought-resilience actions to extend available supplies, protect water reserves, and maintain critical flows for fish and wildlife; and

WHEREAS as directed in "California's Water Supply Strategy: Adapting to a Hotter, Drier Future," the State plans to stretch water supplies by storing, recycling, de-salting, and conserving the water it will need to keep up with the increasing pace of climate change; and

WHEREAS multiple regions of the State, such as the Klamath Basin and the Colorado River system, face severe water shortage conditions, and groundwater basins in the Central Valley continue to be depleted from years of drought and overdraft; and

WHEREAS groundwater use accounts for 41 percent of the State's total water supply on an average annual basis but as much as 58 percent in a critically dry year, and approximately 85 percent of public water systems rely on groundwater as their primary supply; and

WHEREAS capturing and storing storm and snowpack runoff underground to recharge aquifers is an important strategy to help regions stabilize water supplies in the face of hydrologic extremes; and

WHEREAS state agencies have created streamlined permitting pathways to enable groundwater recharge that augments natural aquifer recharge, while protecting the environment and other water users, but more opportunities exist to facilitate groundwater recharge; and

WHEREAS coordination between local entities that approve permits for new groundwater wells and local groundwater sustainability agencies is important to achieving sustainable levels of groundwater in critically overdrafted basins; and

WHEREAS to protect public health and safety, it is critical the State take certain immediate actions without undue delay to prepare for and mitigate the effects of the drought conditions, and under Government Code section 8571, I find that strict compliance with various statutes and regulations specified in this Order would prevent, hinder, or delay the mitigation of the effects of the drought conditions.

NOW, THEREFORE, I, GAVIN NEWSOM, Governor of the State of California, in accordance with the authority vested in me by the State Constitution and statutes, including the California Emergency Services Act, and in particular, Government Code sections 8567, 8571, and 8627, do hereby issue the following Order to become effective immediately:

IT IS HEREBY ORDERED THAT:

1. The orders and provisions contained in my State of Emergency Proclamations dated April 21, 2021, May 10, 2021, July 8, 2021, and October 19, 2021, and Executive Orders N-10-21 (July 8, 2021) and N-7-22 (March 28, 2022), remain in full force and effect, except as modified by those proclamations and orders and herein. State agencies shall

continue to implement all directions from those proclamations and orders and accelerate implementation where feasible.

2. To maximize the extent to which winter precipitation recharges underground aquifers, the Department of Water Resources, the State Water Resources Control Board (Water Board), and the Department of Fish and Wildlife shall continue to collaborate on expediting permitting of recharge projects and shall work with local water districts to facilitate recharge projects.
3. Paragraph 4 of my State of Emergency Proclamation dated May 10, 2021 and Paragraph 4 of my State of Emergency Proclamation dated July 8, 2021 are withdrawn, and each is replaced with the following text:

To ensure adequate water supplies for purposes of health, safety, the environment, or drought resilient water supplies, the Water Board shall consider modifying requirements for reservoir releases or diversion limitations in Central Valley Project or State Water Project facilities to: (i) conserve water upstream later in the year in order to protect cold water pools for salmon and steelhead, (ii) enhance instream conditions for fish and wildlife, (iii) improve water quality, (iv) protect carry-over storage, (v) ensure minimum health and safety water supplies, or (vi) provide opportunities to maintain or to expand water supplies north and south of the Delta. The Water Board shall require monitoring and evaluation of any such changes to inform future actions. For any actions taken pursuant to this paragraph and any approvals granted in furtherance of this paragraph, Water Code Section 13247 and Public Resources Code, Division 13 (commencing with Section 21000) and regulations adopted pursuant to that Division are suspended. Nothing in this Paragraph affects or limits the validity of actions already taken or ongoing under Paragraph 4 of my May 10, 2021 Proclamation or Paragraph 4 of my July 8, 2021 Proclamation.

4. Paragraph 9 of Executive Order N-7-22 is withdrawn and replaced with the following text:

To protect health, safety, and the environment during this drought emergency, a county, city, or other public agency shall not:

- a. Approve a permit for a new groundwater well or for alteration of an existing well in a basin subject to the Sustainable Groundwater Management Act and classified as medium- or high-priority without first obtaining written verification from a Groundwater Sustainability Agency managing the basin or area of the basin where the well is proposed to be located that groundwater extraction by the proposed well would not be inconsistent with any sustainable groundwater management program established in any applicable Groundwater Sustainability Plan adopted by that Groundwater Sustainability Agency and would not decrease the likelihood of achieving a sustainability goal for the basin covered by such a plan; or

- b. Issue a permit for a new groundwater well or for alteration of an existing well without first determining that extraction of groundwater from the proposed well is (1) not likely to interfere with the production and functioning of existing nearby wells, and (2) not likely to cause subsidence that would adversely impact or damage nearby infrastructure.

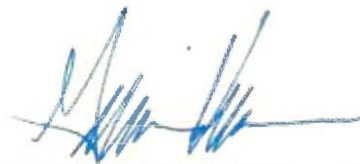
This Paragraph shall not apply to permits for wells (i) that will provide less than two acre-feet per year of groundwater for individual domestic users, (ii) that will exclusively provide groundwater to public water supply systems as defined in section 116275 of the Health and Safety Code, or (iii) that are replacing existing, currently permitted wells with new wells that will produce an equivalent quantity of water as the well being replaced when the existing well is being replaced because it has been acquired by eminent domain or acquired while under threat of condemnation.

5. No later than April 28, 2023, state agencies shall send me their recommendations for what further actions, if any, are necessary for on-going emergency drought response, and their views on whether any existing provisions in my proclamations and executive orders related to the drought emergency are no longer needed to prepare for and mitigate the effects of the drought conditions.

IT IS FURTHER ORDERED that as soon as hereafter possible, this Order be filed in the Office of the Secretary of State and that widespread publicity and notice be given of this Order.

This Order is not intended to, and does not, create any rights or benefits, substantive or procedural, enforceable at law or in equity, against the State of California, its agencies, departments, entities, officers, employees, or any other person.

IN WITNESS WHEREOF I have
hereunto set my hand and caused
the Great Seal of the State of
California to be affixed this 13th day
of February 2023.



GAVIN NEWSOM
Governor of California

ATTEST:

SHIRLEY N. WEBER, PH.D.
Secretary of State



Attachment 3

GSA Roles and Responsibilities under California Water Code

Code: Section: **WATER CODE - WAT****DIVISION 6. CONSERVATION, DEVELOPMENT, AND UTILIZATION OF STATE WATER RESOURCES [10000 - 12999] (***Heading of Division 6 amended by Stats. 1957, Ch. 1932.)***PART 2.74. Sustainable Groundwater Management [10720 - 10738] (Part 2.74 added by Stats. 2014, Ch. 346, Sec. 3.)****CHAPTER 5. Powers and Authorities [10725 - 10726.9] (Chapter 5 added by Stats. 2014, Ch. 346, Sec. 3.)**

10725. (a) A groundwater sustainability agency may exercise any of the powers described in this chapter in implementing this part, in addition to, and not as a limitation on, any existing authority, if the groundwater sustainability agency adopts and submits to the department a groundwater sustainability plan or prescribed alternative documentation in accordance with Section 10733.6.

(b) A groundwater sustainability agency has and may use the powers in this chapter to provide the maximum degree of local control and flexibility consistent with the sustainability goals of this part.

(Added by Stats. 2014, Ch. 346, Sec. 3. (SB 1168) Effective January 1, 2015.)

10725.2. (a) A groundwater sustainability agency may perform any act necessary or proper to carry out the purposes of this part.

(b) A groundwater sustainability agency may adopt rules, regulations, ordinances, and resolutions for the purpose of this part, in compliance with any procedural requirements applicable to the adoption of a rule, regulation, ordinance, or resolution by the groundwater sustainability agency.

(c) In addition to any other applicable procedural requirements, the groundwater sustainability agency shall provide notice of the proposed adoption of the groundwater sustainability plan on its Internet Web site and provide for electronic notice to any person who requests electronic notification.

(Added by Stats. 2014, Ch. 346, Sec. 3. (SB 1168) Effective January 1, 2015.)

10725.4. (a) A groundwater sustainability agency may conduct an investigation for the purposes of this part, including, but not limited to, investigations for the following:

(1) To determine the need for groundwater management.

(2) To prepare and adopt a groundwater sustainability plan and implementing rules and regulations.

(3) To propose and update fees.

(4) To monitor compliance and enforcement.

(b) An investigation may include surface waters and surface water rights as well as groundwater and groundwater rights.

(c) In connection with an investigation, a groundwater sustainability agency may inspect the property or facilities of a person or entity to ascertain whether the purposes of this part are being met and compliance with this part. The local agency may conduct an inspection pursuant to this section upon obtaining any necessary consent or obtaining an inspection warrant pursuant to the procedure set forth in Title 13 (commencing with Section 1822.50) of Part 3 of the Code of Civil Procedure.

(Added by Stats. 2014, Ch. 346, Sec. 3. (SB 1168) Effective January 1, 2015.)

10725.6. A groundwater sustainability agency may require registration of a groundwater extraction facility within the management area of the groundwater sustainability agency.

(Added by Stats. 2014, Ch. 346, Sec. 3. (SB 1168) Effective January 1, 2015.)

10725.8. (a) A groundwater sustainability agency may require through its groundwater sustainability plan that the use of every groundwater extraction facility within the management area of the groundwater sustainability agency be measured by a water-measuring device satisfactory to the groundwater sustainability agency.

(b) All costs associated with the purchase and installation of the water-measuring device shall be borne by the owner or operator of each groundwater extraction facility. The water-measuring devices shall be installed by the groundwater sustainability agency or, at the groundwater sustainability agency's option, by the owner or operator of the groundwater extraction facility. Water-measuring devices shall be calibrated on a reasonable schedule as may be determined by the groundwater sustainability agency.

(c) A groundwater sustainability agency may require, through its groundwater sustainability plan, that the owner or operator of a groundwater extraction facility within the groundwater sustainability agency file an annual statement with the groundwater sustainability agency setting forth the total extraction in acre-feet of groundwater from the facility during the previous water year.

(d) In addition to the measurement of groundwater extractions pursuant to subdivision (a), a groundwater sustainability agency may use any other reasonable method to determine groundwater extraction.

(e) This section does not apply to de minimis extractors.

(Amended by Stats. 2015, Ch. 303, Sec. 551. (AB 731) Effective January 1, 2016.)

10726. An entity within the area of a groundwater sustainability plan shall report the diversion of surface water to underground storage to the groundwater sustainability agency for the relevant portion of the basin.

(Added by Stats. 2014, Ch. 346, Sec. 3. (SB 1168) Effective January 1, 2015.)

10726.2. A groundwater sustainability agency may do the following:

(a) Acquire by grant, purchase, lease, gift, devise, contract, construction, or otherwise, and hold, use, enjoy, sell, let, and dispose of, real and personal property of every kind, including lands, water rights, structures, buildings, rights-of-way, easements, and privileges, and construct, maintain, alter, and operate any and all works or improvements, within or outside the agency, necessary or proper to carry out any of the purposes of this part.

(b) Appropriate and acquire surface water or groundwater and surface water or groundwater rights, import surface water or groundwater into the agency, and conserve and store within or outside the agency that water for any purpose necessary or proper to carry out the provisions of this part, including, but not limited to, the spreading, storing, retaining, or percolating into the soil of the waters for subsequent use or in a manner consistent with the provisions of Section 10727.2. As part of this authority, the agency shall not alter another person's or agency's existing groundwater conjunctive use or storage program except upon a finding that the conjunctive use or storage program interferes with implementation of the agency's groundwater sustainability plan.

(c) Provide for a program of voluntary fallowing of agricultural lands or validate an existing program.

(d) Perform any acts necessary or proper to enable the agency to purchase, transfer, deliver, or exchange water or water rights of any type with any person that may be necessary or proper to carry out any of the purposes of this part, including, but not limited to, providing surface water in exchange for a groundwater extractor's agreement to reduce or cease groundwater extractions. The agency shall not deliver retail water supplies within the service area of a public water system without either the consent of that system or authority under the agency's existing authorities.

(e) Transport, reclaim, purify, desalinate, treat, or otherwise manage and control polluted water, wastewater, or other waters for subsequent use in a manner that is necessary or proper to carry out the purposes of this part.

(f) Commence, maintain, intervene in, defend, compromise, and assume the cost and expenses of any and all actions and proceedings.

(Added by Stats. 2014, Ch. 346, Sec. 3. (SB 1168) Effective January 1, 2015.)

10726.4. (a) A groundwater sustainability agency shall have the following additional authority and may regulate groundwater extraction using that authority:

(1) To impose spacing requirements on new groundwater well construction to minimize well interference and impose reasonable operating regulations on existing groundwater wells to minimize well interference, including

requiring extractors to operate on a rotation basis.

(2) To control groundwater extractions by regulating, limiting, or suspending extractions from individual groundwater wells or extractions from groundwater wells in the aggregate, construction of new groundwater wells, enlargement of existing groundwater wells, or reactivation of abandoned groundwater wells, or otherwise establishing groundwater extraction allocations. Those actions shall be consistent with the applicable elements of the city or county general plan, unless there is insufficient sustainable yield in the basin to serve a land use designated in the city or county general plan. A limitation on extractions by a groundwater sustainability agency shall not be construed to be a final determination of rights to extract groundwater from the basin or any portion of the basin.

(3) To authorize temporary and permanent transfers of groundwater extraction allocations within the agency's boundaries, if the total quantity of groundwater extracted in any water year is consistent with the provisions of the groundwater sustainability plan. The transfer is subject to applicable city and county ordinances.

(4) To establish accounting rules to allow unused groundwater extraction allocations issued by the agency to be carried over from one year to another and voluntarily transferred, if the total quantity of groundwater extracted in any five-year period is consistent with the provisions of the groundwater sustainability plan.

(b) This section does not authorize a groundwater sustainability agency to issue permits for the construction, modification, or abandonment of groundwater wells, except as authorized by a county with authority to issue those permits. A groundwater sustainability agency may request of the county, and the county shall consider, that the county forward permit requests for the construction of new groundwater wells, the enlarging of existing groundwater wells, and the reactivation of abandoned groundwater wells to the groundwater sustainability agency before permit approval.

(Amended (as added by Stats. 2014, Ch. 346) by Stats. 2014, Ch. 347, Sec. 12. (AB 1739) Effective January 1, 2015.)

10726.5. In addition to any other authority granted to a groundwater sustainability agency by this part or other law, a groundwater sustainability agency may enter into written agreements and funding with a private party to assist in, or facilitate the implementation of, a groundwater sustainability plan or any elements of the plan.

(Added by Stats. 2015, Ch. 666, Sec. 3. (AB 617) Effective January 1, 2016.)

10726.6. (a) A groundwater sustainability agency that adopts a groundwater sustainability plan may file an action to determine the validity of the plan pursuant to Chapter 9 (commencing with Section 860) of Title 10 of Part 2 of the Code of Civil Procedure no sooner than 180 days following the adoption of the plan.

(b) Subject to Sections 394 and 397 of the Code of Civil Procedure, the venue for an action pursuant to this section shall be the county in which the principal office of the groundwater management agency is located.

(c) Any judicial action or proceeding to attack, review, set aside, void, or annul the ordinance or resolution imposing a new, or increasing an existing, fee imposed pursuant to Section 10730, 10730.2, or 10730.4 shall be commenced within 180 days following the adoption of the ordinance or resolution.

(d) Any person may pay a fee imposed pursuant to Section 10730, 10730.2, or 10730.4 under protest and bring an action against the governing body in the superior court to recover any money that the governing body refuses to refund. Payments made and actions brought under this section shall be made and brought in the manner provided for the payment of taxes under protest and actions for refund of that payment in Article 2 (commencing with Section 5140) of Chapter 5 of Part 9 of Division 1 of the Revenue and Taxation Code, as applicable.

(e) Except as otherwise provided in this section, actions by a groundwater sustainability agency are subject to judicial review pursuant to Section 1085 of the Code of Civil Procedure.

(Added by Stats. 2014, Ch. 346, Sec. 3. (SB 1168) Effective January 1, 2015.)

10726.8. (a) This part is in addition to, and not a limitation on, the authority granted to a local agency under any other law. The local agency may use the local agency's authority under any other law to apply and enforce any requirements of this part, including, but not limited to, the collection of fees.

(b) Nothing in this part shall be construed as authorizing a local agency to make a binding determination of the water rights of any person or entity, or to impose fees or regulatory requirements on activities outside the boundaries of the local agency.

(c) Nothing in this part is a limitation on the authority of the board, the department, or the State Department of Public Health.

(d) Notwithstanding Section 6103 of the Government Code, a state or local agency that extracts groundwater shall be subject to a fee imposed under this part to the same extent as any nongovernmental entity.

(e) Except as provided in subdivision (d), this part does not authorize a local agency to impose any requirement on the state or any agency, department, or officer of the state. State agencies and departments shall work cooperatively with a local agency on a voluntary basis.

(f) Nothing in this chapter or a groundwater sustainability plan shall be interpreted as superseding the land use authority of cities and counties, including the city or county general plan, within the overlying basin.

(Amended by Stats. 2015, Ch. 255, Sec. 10. (SB 13) Effective January 1, 2016.)

10726.9. A groundwater sustainability plan shall take into account the most recent planning assumptions stated in local general plans of jurisdictions overlying the basin.

(Added by Stats. 2014, Ch. 347, Sec. 14. (AB 1739) Effective January 1, 2015.)



Attachment 4

Well Permitting Processes in Other States

Despite the numerous challenges and recommendations described in this section above, we have reviewed well permitting regulations and standards from Arizona, Colorado, and Texas. The review indicates that it is possible to address many of these challenges and find practical solutions that will improve how well permitting can be updated in a way that improves the safety, sustainability, and resiliency of groundwater resources in California.

ARIZONA Example

The Arizona Department of Water Resources (ADWR) regulates all groundwater wells in Arizona (<https://www.azwater.gov/permitting-wells>).

Within Active Management Areas (AMA), specific groundwater rights and permits are required for new wells. There are restrictions on drilling new large (agricultural) wells within each of the AMAs, including well-spacing rules, non-expansion of irrigation, and the need to prove an “assured water supply” (demonstrate that a 100-year water supply is available to support new municipal development and growth) (<https://wrrc.arizona.edu/sites/wrrc.arizona.edu/files/azgroundwater-management.pdf>).

COLORADO Example

In Colorado, all new or replacement wells that divert groundwater must have a well permit issued by the Division of Water Resources (<https://dwr.colorado.gov/services/well-permitting>). Colorado uses a water allocation system known as the prior appropriation doctrine, administered by the Division of Water Resources. Under this doctrine, the first appropriator of water has a senior right to that water, and that right must be satisfied before any subsequent rights junior to that right can receive water. In Colorado one can apply for two categories of wells – exempt and non-exempt. Exempt wells include small-capacity wells (typically limited to 15 gallons per minute) that are used for domestic, stock-watering, and low-intensity commercial uses. Exempt wells are not administered under the “first in time, first in right” priority system used to allocate water in Colorado. All other wells are classified as non-exempt and are governed by the priority system. In over-appropriated areas of the state, new non-exempt wells must replace any out-of-priority stream depletions in time, place, amount, and quality by having augmentation water available. A plan for augmentation must be approved by the water court to prevent injury to senior water right holders by replacing the amount of water consumed by the non-exempt uses. Development of plans for augmentation usually require the services of a water resource consulting engineer and water attorney.



TEXAS Example

Groundwater in Texas is governed by the legal doctrine known as the Rule of Capture. The Rule of Capture essentially provides that because a landowner also owns the water beneath his property, the landowner has the right to pump that water even at the expense of his neighbor. Under the Rule of Capture, a landowner needs no permit to drill a well and pump groundwater, and he may pump as much water as he may beneficially use even if that causes his neighbor's well to go dry. However, there are some exceptions to the rule of capture. Although a landowner owns the water beneath his or her property, this does not give the landowner the right to capture a specific amount of groundwater, nor does it allow the landowner to commit acts that result in waste, groundwater contamination, or subsidence. These are imposed through "Common Law exceptions". In addition, wells that fall within a Groundwater Conservation District (GCD) need to follow rules and regulations established by the GCD, including requiring permits, metering, and limitations on the amount of water that may be withdrawn in their area. Much of the groundwater in Texas falls under the authority of a GCD. As in most States, wells can only be drilled and installed by licensed water well drillers and water well pump installers.