

Groundwater Well Permitting

Observations and Analysis of Executive Orders N-7-22 and N-3-23



MARCH 2024

Groundwater Well Permitting: Observations and Analysis of Executive Orders N-7-22 and N-3-23

Preamble

The following report, developed by the Sustainable Groundwater Management Office at the California Department of Water Resources (Department, DWR), summarizes the local actions taken by well permitting agencies and groundwater sustainability agencies to comply with the March 28, 2022 [Executive Order N-7-22](#) (Executive Order or EO), paragraph 9 (superseded by [Executive Order N-3-23](#), paragraph 4 on February 13, 2023), which included new well permitting requirements for local agencies to prepare for and lessen the effects of several years of intense drought conditions. While much of the focus of this report is on EO N-7-22 paragraph 9, the provisions in EO N-3-23 paragraph 4 are still in effect as of the release of this report. The Executive Orders specified additional considerations for local agencies to make when considering permitting wells to improve the understanding of the potential the effects of new or modified wells, such as potential interference with nearby, existing wells and adverse land subsidence impacts. This report includes a summary of various approaches taken by local agencies to comply with the Executive Orders, observations of groundwater conditions that occurred while these actions were taken, and policy recommendations that can be used to develop future solutions to align land use planning, well permitting, and groundwater management and use.

In December 2021, in response to paragraph 11 of the [April 2021 Drought Proclamation](#), the Department of Water Resources in coordination with the State Water Resources Control Board, released the State's [Groundwater Management and Drinking Water Wells Principles and Strategies](#). This document presents a framework of principles and strategies for State agencies to continue or implement to monitor, minimize, and analyze drought impacts on drinking water well users. The Principles and Strategies framework was developed with input from a robust public engagement process and specifically identified and recognized the importance of improving well permitting as it relates to the effects on groundwater extraction on shallow drinking water wells. The observations and analyses in this report, which were also informed by public input discussed further below, support the intent of Strategy 3.4 – Informed Well Permitting, by further defining the challenges related to well permitting and providing recommended solutions to improve these processes across the state of California.

Acknowledgements

DWR would like to recognize and acknowledge the engagement and contributions of the following organizations during the implementation of the Executive Order and the development of this report:

- The California State Association of Counties
- Rural County Representatives of California
- The Groundwater Resources Association
- Community Water Center
- Leadership Counsel for Justice and Accountability
- Self-Help Enterprises
- Clean Water Action
- Northern California Water Association

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DEFINITIONS OF KEY TERMS USED THROUGHOUT THIS DOCUMENT

EO – Executive Order

GSA – groundwater sustainability agency

LEA – local enforcing agency

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I. Problem Statement

Over the last decade, California has experienced a significant shift in its climate, including increased temperatures and aridification, as well as steep swings between drought and flood. While experts stated in 2022 that California was facing a megadrought – the most intense drought conditions in over 1,200 years – the winter of 2023 then brought 31 atmospheric river systems that resulted in record snowpack conditions along portions of the Sierra Mountain Range in just several months. The variability in weather patterns, surrounded by unprecedented and prolonged drought conditions, has highlighted the importance of California’s groundwater basins as the buffer for water supplies when snowpack and surface water supplies are volatile and less plentiful. A wide variety of users, including industries, businesses, communities, and individual households, rely on and increase groundwater use during drought and dry periods – increasing from 40 to 60 percent of the state’s overall water use during average to drought years. Many groundwater basins have chronic lowering of groundwater levels and significant overdraft, which can lead to significant impacts. Increased groundwater demand during droughts can cause episodic impacts and in overdrafted basins those impacts can be significantly exacerbated. Impacts such as dry wells and infrastructure damage from land subsidence are known to have major consequences to communities or domestic well owners that rely on groundwater for drinking water purposes and critical infrastructure has major damage effects from sinking lands below. The intent of Executive Order N-7-22 paragraph 9 was to evaluate the permitting of wells that could impact domestic wells or increase subsidence during the drought emergency.

Executive Orders N-7-22 paragraph 9 and N-3-23 paragraph 4 applied to well permitting requirements within identified groundwater basins, therefore this report does not include analysis or recommendations for well permitting decisions in areas of fractured bedrock. Executive Order N-7-22 set the framework for coordination requirements between local well permit and groundwater management agencies, and Executive Order N-3-23 added a exemption on restrictions on permits for wells acquired by eminent domain or while under threat of condemnation. Land use planning and coordination is fundamental. With mounting demands for a reliable water supply, California’s groundwater supplies are continuing to be tapped. Consistent coordination of land use planning, well permitting, and groundwater use is essential to mitigate negative impacts. New and increased well permitting and construction, particularly in areas experiencing the impacts of dry wells and land subsidence, require careful planning to ensure that groundwater extraction does not exacerbate these issues.

Currently, most groundwater well permits are issued ministerially and done so in compliance with well construction standards (Bulletin 74) that primarily address protections for groundwater quality. Analyzing the availability of groundwater supply and the potential effects of increasing groundwater extraction when issuing well permits is usually not a consideration. There also is a lack of consistent and, in some areas of California, effective coordination between local well permitting entities and local groundwater sustainability agencies (GSAs), who are tasked with long-term groundwater planning and management. Lastly, there are no statewide standards, oversight, or centralization of local decisions made by well permitting entities to help advance and bring awareness to the variety of standards and practices related to well permitting.

To address current affects and proactively reduce future impacts like more dry wells and greater land subsidence, concerted actions are needed to improve the understanding of local effects on groundwater

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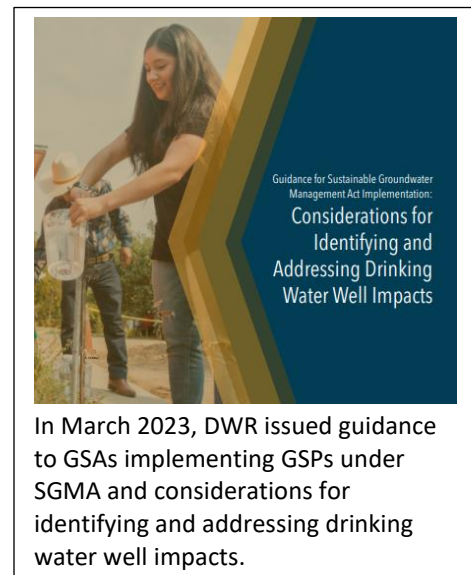
basin conditions. Information such as the location, construction, and pumping capacity of proposed wells increase analytical quality and better inform local decision-making, including the issuance of well permits, land use planning, and the management of groundwater resources. By taking wholistic consideration of the effects of these decisions, coupled with improved coordination, Californians can help mitigate worsening groundwater conditions and reduce the risk of negative and potentially irreversible impacts to California’s well users. This report includes policy recommendations and actions to help address identified challenges with the implementation of well permitting under the Executive Orders and foster continued collaboration.

II. Background

In California, multiple local government authorities typically oversee well permitting, land use planning, and groundwater management. Regulatory authority over well construction, alteration, and destruction activities can reside with any local agency (cities, counties, or water agencies) who has the authority to adopt a local well ordinance. Enforcement of the well ordinances, including issuing well permits, are administered by these local agencies and are also often referred to as local enforcing agencies (LEAs) because they can overlap multiple jurisdictions. Most frequently, the county departments of environmental health are the LEA. DWR maintains a [list of statewide LEAs](#) by county and encourages local agencies to help keep this list up to date.

State law requires that all California counties and cities adopt a General Plan, including a set of goals, objectives, policies, implementation measures, and maps. The General Plan is a blueprint for physical development, addressing needs such as new population growth, housing needs, and environmental protection. Seven elements (chapters) are mandatory in General Plans, including land use, circulation (mobility), housing, conservation, open space, noise and safety. General Plans can include optional elements such as a water resource element.

With the enactment of the Sustainable Groundwater Management Act (SGMA) in 2014, new local public agencies – called groundwater sustainability agencies or GSAs – formed in the state’s 94 high- and medium-priority basins to provide specific oversight and management of groundwater resources, and to achieve sustainable groundwater management within 20 years through the development and implementation of groundwater sustainability plans (GSPs) and associated projects and management actions. GSAs are required to include in their GSPs a discussion of how they will coordinate their groundwater management efforts with local land use authorities, including LEAs, and must consider all beneficial uses and users in their planning and implementation efforts, including drinking water well users among a variety of other industries and environmental needs. GSAs have a broad set of authorities including pumping limitations and well spacing. However, GSAs do not have authority over well permitting or land use. With the implementation of SGMA, the effects of groundwater extraction have begun to be quantified and analyzed for the capacity to cause undesirable results related to sustainability indicators like the chronic lowering of groundwater levels and land subsidence. As the first



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GSPs were only recently developed in 2020 and 2022, and with land use planning and well permitting processes under the authorities of other local agencies, GSAs are working to develop a comprehensive understanding of such effects. GSPs are now in the implementation phase for basins providing 98 percent of the total groundwater pumped in the state.

While GSAs are managing for groundwater sustainability over the long-term, more recent state law, [Senate Bill 552 \(2021\)](#), requires counties to establish a standing drought task force and develop drought resilience plans for rural communities, including domestic well owners and state small water systems (typically a system of 5 to 14 connections). While the drought resilience plans are a relatively new requirement that are currently being developed by county planning or utility staff, these plans must include a domestic well drinking water mitigation program, provisions for emergency and interim drinking water solutions, consolidations for existing water systems and domestic wells, an analysis of steps necessary to implement the plan, and an analysis of local, state, and federal funding sources available to implement the plan. While dry wells can occur at any time of the year, they typically increase during drought or seasons of below average rainfall when groundwater extractions increase. Senate Bill 552 set forth a framework for counties to consider the actions, solutions, and, more specifically, domestic well mitigation programs to help plan for a reliable water supply for the shallow-most wells in a groundwater basin during times of drought. With the new drought resilience plans currently under development, great opportunities lie ahead for coordination and alignment between counties, GSAs, and LEAs, particularly in understanding the nexus of well permitting and groundwater use in their area.



In March 2023, DWR issued guidance to GSAs implementing GSPs under SGMA and counties developing drought resilience plans under Senate Bill 552 on how to improve coordination and alignment.

III. The Drought Executive Orders

On March 28, 2022 Governor Newsom issued [Executive Order N-7-22 \(EO\)](#) that included new well permitting requirements for local agencies to prepare for and lessen the effects of drought conditions (paragraph 9). Then on February 13, 2023 the Governor issued [EO N-3-23](#), which included paragraph 4 to add the exemption on restrictions on permits for equivalent replacement wells because the currently permitted well is acquired by eminent domain or acquired while under threat of condemnation.

Given the record drought conditions the state faced in prior years, the EOs required additional actions be taken by LEAs prior to issuing a new or modified well permit. Local LEAs retained existing well permitting authorities, including reviewing and administering well permits. However, under the EOs, LEAs are required to make the following considerations during the well permitting process for new or modified wells:

If the proposed well is located in one of the 94 high- or medium-priority groundwater basins, according to the Department's [basin prioritization](#), the well permitting agency or LEA needs to consult with the GSA and receive written verification from the GSA that the proposed well location is generally consistent (not inconsistent) with the applicable GSP and will not decrease the likelihood of achieving the sustainability goals that the GSAs have developed under SGMA.

For all well permit applications, including areas of the state that do not have a designated high- and medium-priority groundwater basin, the local well permitting agency or LEA needs to determine before issuing a well permit that the extraction of groundwater from the proposed well is not likely to interfere with the production and functionality of existing nearby wells and is not likely to cause subsidence that would adversely impact or damage nearby infrastructure. As seen in the last paragraph of the excerpt to the right, domestic and public supply wells, and those being replaced because the currently permitted well is acquired by eminent domain or acquired while under threat of condemnation, are exempt from paragraph 4.

Excerpt of Paragraph 4 from Drought Executive Order N-3-23:

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.

IV. Local Approaches Taken to Comply with the Executive Orders

The EOs uniquely protect existing authorities of LEAs and GSAs and other facets of local planning and water management; therefore, approaches to comply with the EOs varied by region and local entity. In April of 2022, DWR hosted a webinar for LEA and GSA representatives to understand the various local directives in EO N-7-22 and reinforced that there was no state oversight or enforcement included in the EO. The [presentation](#), [recording](#), [Fact Sheet](#), and [Frequently Asked Questions](#) document from the webinar session are available on [DWR's Drought webpage](#), under Drought Well Permitting Requirements.

After one year of the EO provisions being implemented by local agencies, DWR conducted a feedback survey during the spring of 2023 for local well permitting entities and GSAs representatives to share the actions they took to comply with EO N-7-22 paragraph 9. A full synthesis of DWR's survey results can be found in Appendix A of this report. Of all 58 counties and the 94 high- and medium-priority groundwater basins required to comply with the EO, DWR received a 50 percent survey response rate from well permitting staff and a 45 percent survey response rate from the GSAs. All respondents identified the region of the state they are located in, which is available in Appendix A, with the exception of one LEA and two GSAs who did not specify which county or basin they represented.

On-the-ground perspectives were shared by community members during a listening session that took place in September 2023 (included in Appendix B), and was facilitated by local non-governmental and community-based groups. Many of the community members have been affected by conditions due to the installation of nearby high-capacity wells during the implementation of the EOs. Appendix B also includes local agency case examples taken from the survey results, which identifies a variety of approaches taken to comply with EO N-7-22 paragraph 9, including developing procedural, technical, and informational assistance for permit applicants.

V. Observed Conditions Summary

While conducting the local agency feedback survey, DWR also analyzed groundwater conditions statewide to understand the effects of EO N-7-22. The EO specified analyzing impacts from proposed new wells on neighboring wells (dry wells) and land subsidence. Updated maps and figures of these and more recent observed conditions can be found in Appendix C of this report.

Dry Wells and Subsidence Conditions

Since enactment of EO N-7-22, observed state-wide groundwater conditions data indicated 1,911 wells were voluntarily reported dry to DWR's Dry Well Reporting System through August 28, 2023. The top ten counties with the greatest number of wells reported to the Dry Well Reporting System since the EO include: Fresno, Tulare, Madera, Tehama, Merced, San Joaquin, Stanislaus, San Luis Obispo, Kings, and Shasta; a large concentration of these reports were from the San Joaquin and Tulare Basins (see Figure C-1 in Appendix C). Land subsidence was also observed in various regions of the state since April 2022 (see Figure C-5 in Appendix C), with vertical ground surface displacements ranging as follows:

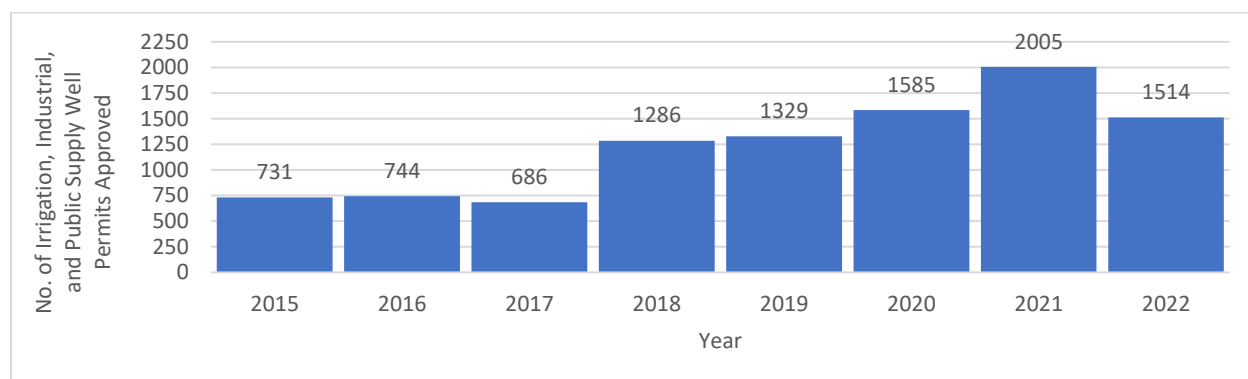
- Sacramento Valley: approximately -0.1 up to -1.0 feet with two primary areas exceeding -0.5 feet in Glenn and Colusa Counties.
- San Joaquin Valley: approximately -0.1 feet to -0.8 feet in Madera and Merced Counties, up to -1.0 feet or more within the Tulare Basin located mainly in Tulare and Kings Counties.

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Statewide groundwater elevation data, elevation trends, subsidence data, well infrastructure updates, and a discussion of current concerns such as drought conditions can be found in DWR's [California's Groundwater Conditions Semi-Annual Update](#). These reports are published in March and October.

Reported Well Permitting

Of the 2,012 industrial, irrigation, and public supply wells installed statewide between March 28, 2022 and September 7, 2023, 541 of those wells were permitted on or before March 28, 2022, meaning that those wells were approved for permitting before EO N-7-22 was enacted and that permit was potentially not re-evaluated due to the EO. As such, 1,471 industrial, irrigation, and public supply wells were permitted between March 28, 2022 and September 7, 2023. For context, the graph below shows the number of industrial, irrigation, and public supply well permits approved statewide for completed wells each calendar year since SGMA went into effect (January 1, 2015). Compared to 2021, the number of well permits issued statewide decreased by 24 percent in 2022, which contrasts with the increasing trend observed each year since 2018.



As reported to DWR, the top ten counties with the greatest total number of well permits approved for industrial, irrigation, and public supply wells since the EOs include: Tulare, Fresno, Kern, Kings, Merced, Stanislaus, Madera, Sonoma, San Luis Obispo, and Glenn (see Figure C-2 in Appendix C). Seven of these ten counties overlie an extensive clay layer in the San Joaquin Valley, known as the Corcoran Clay (see Figure C-6 in Appendix C). Areas overlying the Corcoran Clay have historically exhibited the greatest extent and rate of land subsidence in the state. Reported well permitting data indicated 408 irrigation, industrial, and public supply wells were permitted for completion at depths below the top of the Corcoran Clay in all counties. Wells completed at those depths suggest deep aquifer and potentially higher capacity pumping with greater potential to exacerbate land subsidence in those areas than lower pumping capacity wells completed at shallower depths above the Corcoran Clay.

VI. Conclusion

The analyses and observations summarized in this report demonstrate that the EOs caused some changes in well permitting considerations, by increasing coordination among local agencies responsible for differing aspects of protecting groundwater for all users. The EOs accomplished a shift in the well permitting process from the primary concern of protecting groundwater quality to a broader concern that includes SGMA regulations and the goal of sustainable groundwater management. Managing groundwater sustainably in a basin or subbasin beckons the need to fully consider the effects of new or modified well construction. During the most severe drought emergency, the EOs provided critical direction and understanding to local agencies of how SGMA requirements should be considered and

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how those considerations could be included in the well permitting process. However, as indicated in the results of the well permitting survey (Attachment A), the EOs as written do not fully address the complexities of well permitting and more structure is needed to align the process with SGMA goals.

There also is no mechanism in the EOs to ensure compliance. The observed conditions of continued subsidence and well permitting in vulnerable areas indicate that in many respects, the EOs failed to achieve its goal. Further, well interference and increase subsidence from new wells can occur in non-drought years. Therefore, enactment of well permitting standards to address well interference and subsidence should apply to all water year types and in all basins. There are a variety of efforts (e.g., policies, assistance, rules) that could be employed to fulfill the intent of the EOs and minimize impacts from new well extractions, not just during droughts, but in all years.

The following Department recommendation is informed by local input, to support improvements to the well permitting process, groundwater management, land use planning, and drought management, each of which have a particular facet of the challenges that the EO was intending to address. These recommendations are presented to foster constructive dialogue in the hopes of reaching consensus on a solution.

Department Recommendation

The Department recommends enactment of the following statutory concepts to replace the provisions of EO N-3-23 paragraph 4 and to ensure continued advancement toward a reliable groundwater supply for the future. The statutory language consists of four components:

1. Require Disclosures

One of the key facets of the EOs are the provision for improved coordination between LEAs and GSAs. This report identified that improved communication and disclosure to the public about pending well permit applications will improve transparency. Statutory provisions should be enacted that provides public disclosure of well permit applications and collaboration between LEAs and GSAs.

2. Set Minimum Standards

Statutorily set well spacing and well depth standards to reduce future impacts to community supplies and domestic wells. The prohibition of new well permits in areas where subsidence impacts are occurring will minimize or eliminate subsidence and impacts to critical infrastructure.

3. Exempt Certain Discrete Types of Wells and Procedures

Exempt certain domestic wells based on size and volume as well as small, public supply wells.

4. Establish Applicability of Requirements

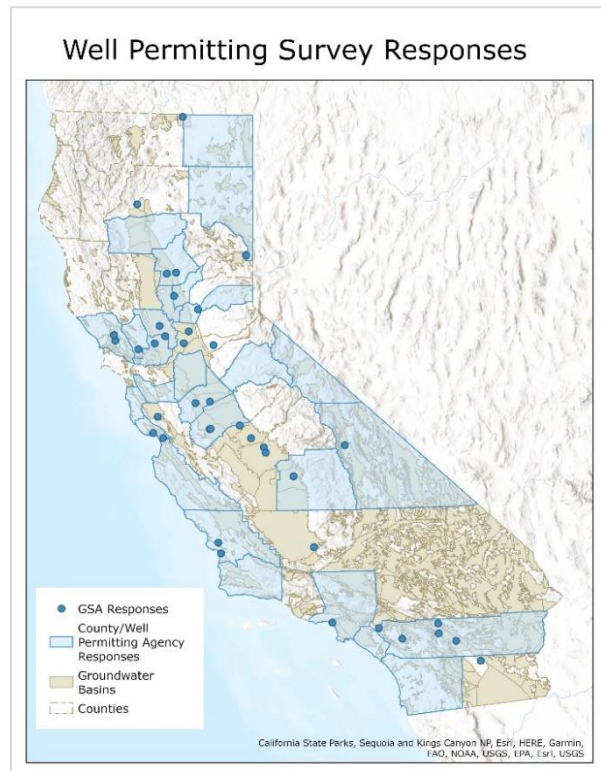
The previous provisions are applicable within all groundwater basins, as defined in the Department's *California's Groundwater* (Bulletin 118). There should be standards of applicability or exemption set for basins with low- and very low-priority designations (those with optional GSAs and GSPs) or in non-alluvial areas.

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Appendix A: Summary of State Survey Conducted: Local Approaches Taken

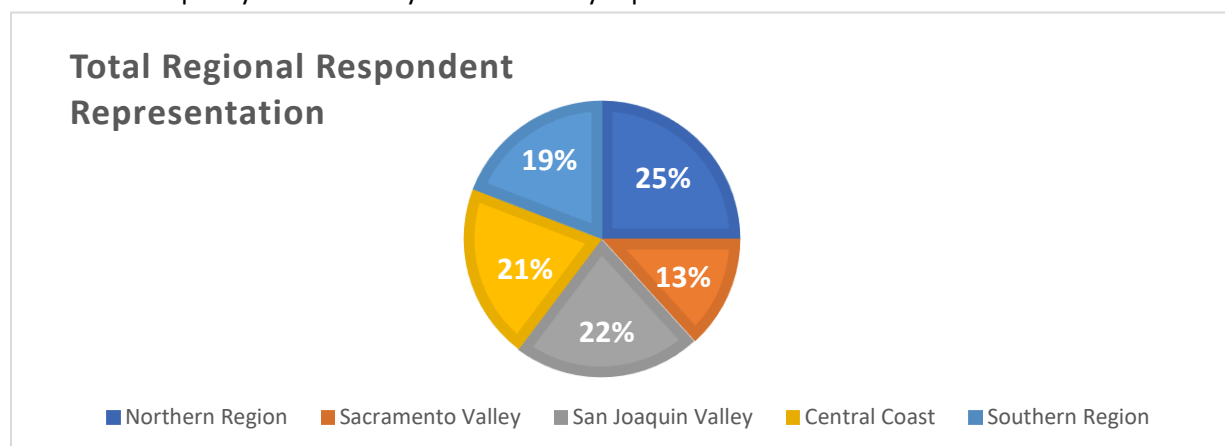
Survey Solicitation and Participation

On April 7, 2023, DWR sent solicitations to county well permitting entities and representatives of GSAs to participate in an informational survey regarding actions taken to comply with the EO N-7-22, paragraph 9. The survey was open for approximately six weeks and closed on May 23, 2023. Survey questions were tailored to both local well permitting agencies, LEAs, and GSAs to better understand the approaches these agencies deployed when implementing the EO. The goal of the survey was to hear from local entities as to what approaches were or were not successful and to centralize suggestions for improved long-term coordination of well permitting and groundwater management beyond the EO expiration. The survey information has also served as a basis for DWR to develop the observations and analysis contained in this report, which discusses how the EO was implemented and offers policy recommendations. Note: the survey did not address the additional language from EO N-3-23 paragraph 4. Survey responses are summarized below.



Regional Representation of Respondents

Survey respondents were located throughout the state (shown in the figure above) and regional representation of respondents is shown in the chart below. Generally, both GSA and County responses were limited in less populated areas, such as the northwestern and southeastern parts of the state. GSA responses came from 42 groundwater basins, out of the 94 medium- or high-priority basins required to form GSAs and develop GSPs as part of SGMA. Responses from 11 GSAs came from the state's 21 critically overdrafted groundwater basins. LEA responses came from 29 out of the 58 counties in California, overlapping 15 critically overdrafted groundwater basins. Responses from one LEA and two GSAs did not specify which county and basin they represented.



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Executive Order Exemptions

As stated above, the EO specified that its requirements did not apply to wells that pump less than 2 acre-feet per year (de minimus users) and wells that exclusively provide groundwater to public water supply systems. GSAs and LEAs processed these exemptions in several ways. Some local agencies required the verification of domestic and public supply wells through the use of data and tools, relying on expertise from GSA and county staff, and implementing certain processes or requirements, such as:

- Requiring applicants to submit a “declaration of use” or self-certification form.
- Allowing individual wells used for drinking water consumption to be categorically exempt and therefore processing the well permit applications ministerially.
- Requiring information for review and concurrence pursuant to Senate Bill 1263 of 2016 (where public supply well must submit a preliminary technical report to the Regional or State Water Resources Control Board on their water supply).
- Requiring water quality and quantity testing to be performed after the well is drilled for the exempt wells.

In ten county respondents to the survey, no additional requirements were set in place due to the EO for the exempt wells. In at least one county, the exemptions under the EO were not upheld for public supply wells, but instead a California Environmental Quality Act (CEQA) review of the proposed well was required, placing additional burdens to what should have been a well exempt from the EO requirements.

Required Consultation Between GSAs and LEAs

In complying with EO N-7-22 paragraph 9(a), consultation and coordination were required between the GSAs and LEAs. Half of respondents indicate that paragraph 9 helped build the working relationships between the LEAs and GSAs, while almost a quarter of respondents feel they either already had a working relationship or were working to establish that prior to the EO. The most commonly reported form of communication and coordination between the LEAs and GSAs from the survey was regular communication and specific procedures that were either in place or established due to the EO. Additional feedback from survey reported that there was some confusion in roles and responsibilities between the GSAs and the LEAs as well as both parties looking to have the legal liability of “making findings” on the other local entity, which led to local challenges.

When asked about the types of well permit application practices that were in place prior to the EO, respondents indicated the following were in place in various regions of the state:

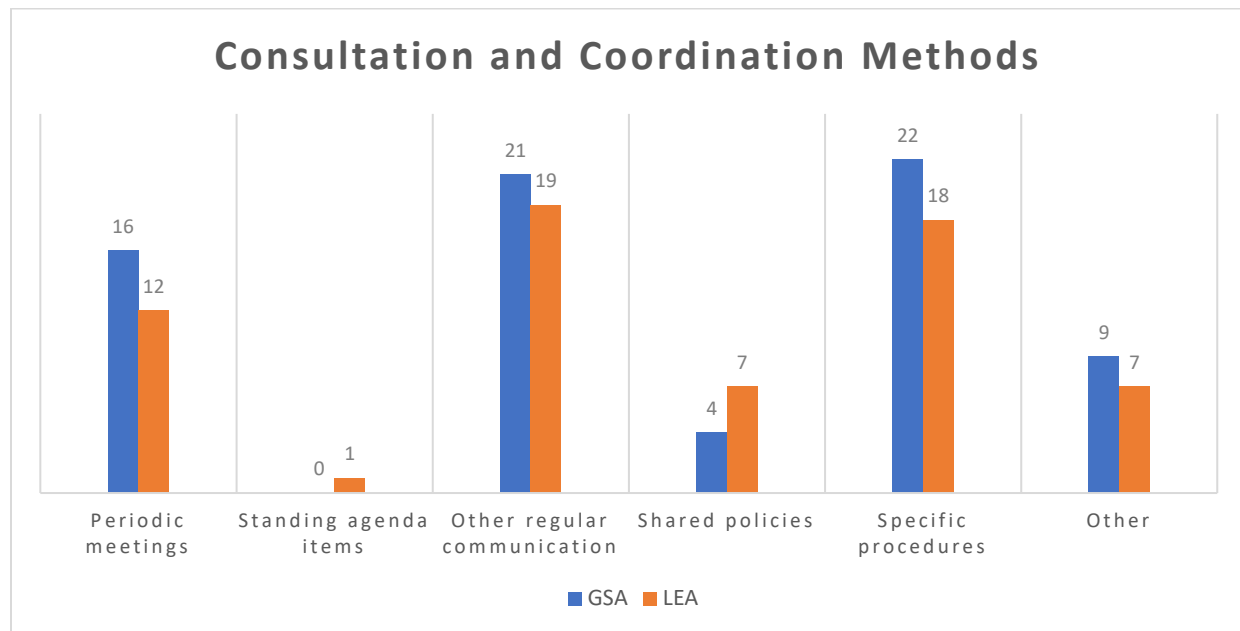
- Local ordinances or regulations related to well permitting.
- General Plan provisions related to groundwater use and land use.
- Coordination with the local GSAs and local water agencies.
- Setback requirements and referencing DWR Bulletins 74-81 and 74-90 and the California Water Well Standards.

Local ordinances that were referenced in the survey included a variety of well permitting considerations, such as: well design, well drilling, well spacing (up to a 1/4 of a mile), well capacity limits, and other well permitting restrictions, including moratoriums (i.e., suspensions or freezes), limits on the number of permits issued in a given time period, and stricter requirements during declared drought emergencies.

Consultation and coordination between GSAs and LEAs to comply with the EO was conducted in the following additional ways: periodic meetings, standing agenda items, other regular communication,

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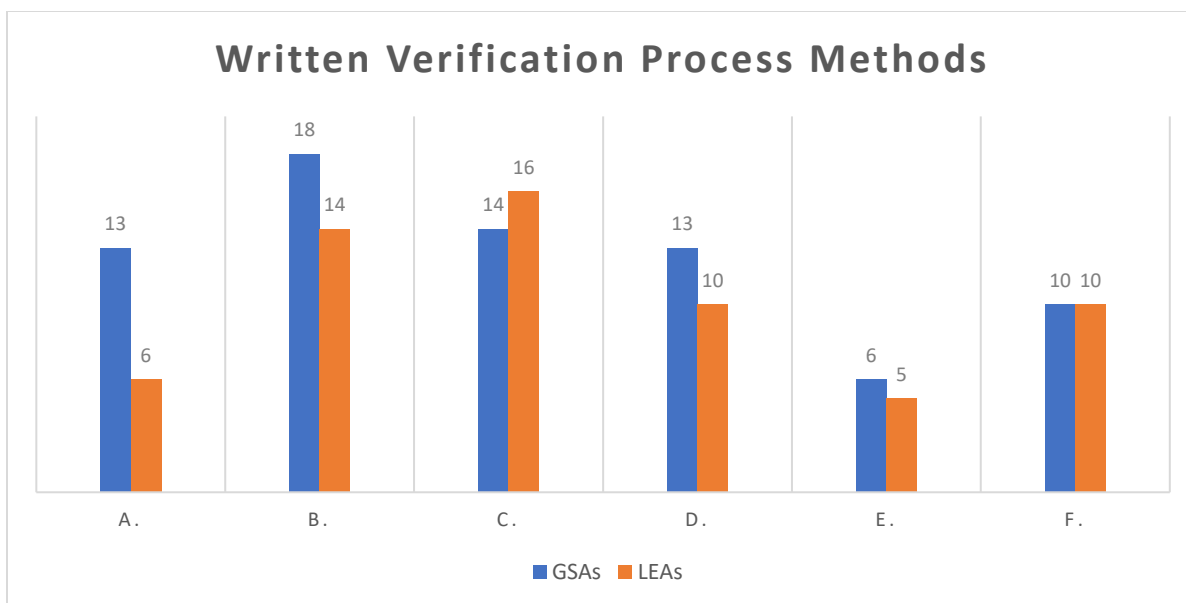
shared policies, and ‘other’. Some of the ‘other’ responses included feedback such as that the GSAs and LEAs were not working well together, some held initial meetings and then did not need to meet again, some hosted joint public workshops together, others passed local resolutions claiming any new well proposed would not be inconsistent with the GSP and therefore coordination was not needed and well permitting could continue during the drought, per status quo. Some respondents shared in feedback that compliance with EO paragraph 9 was focused on “on paper” coordination only (see written verification responses below) and others stated that coordination was not needed since no wells were permitted since EO paragraph 9 took effect.



Required Written Verification Process and Methods Between GSAs and LEAs

Under the EO, LEAs were required to obtain written verification from the GSA managing the area of the proposed new or modified well within groundwater basins. Respondents could select from the general methods for meeting the written verification requirement from the options below, shown in the following chart:

- A. The GSA performs general consultation with the local well permitting agency.
- B. The GSA performs an evaluation on new well permit applications prior to issuance by the local well permitting agency, including evaluation of the potential for interference with nearby wells and the location with respect to areas of land subsidence.
- C. The GSA makes findings from reviewing new well permit applications and provides recommendations to approve or not approve well permits.
- D. The GSA and local well permitting agency developed and use a shared form, tool, or process to route well permit applications.
- E. Either the GSA or County contracts with a professional (e.g., Hydrogeologist, Engineer, etc.) to certify well permitting applications.
- F. Other (write-in answer)



In the survey feedback, GSA respondents ranked the highest that their written verification steps were consistent with the approach identified by the EO. LEA respondents ranked the highest that the GSA written verification process was done in a way that the GSA made findings from reviewing new well permit applications and provided recommendations to approve or deny well permits. The remaining responses in option F, ‘other’ included:

- Individual consultation on a permit-by-permit basis.
- GSAs only provided information to the LEA or applicant based on request.
- The LEA had existing setback requirements that were considered sufficient.
- The LEA and GSA were the same entity and therefore a process was not needed.
- GSAs did not provide verification, so LEA prepared a technical report.
- LEA or GSA contracted with either a Certified Hydrogeologist and/or a Professional Engineer to certify the well permit applications.
- GSAs and LEAs were both not willing to perform verification process.

Data and Information Gathering Approaches to Complying with the Executive Order

GSAs and LEAs took many approaches to gather relevant information on whether the issuance of a well permit could potentially interfere with nearby wells or contribute to land subsidence in areas where it may or is known to be occurring. These approaches include the use of various local and state agency data and tools, and relying on the expertise from hired consultants, existing county and GSA staff, and other professionals such as drillers and hydrogeologists with local and historical knowledge. Many entities relied on information that was provided by well permit applicants, including maps of all wells in the area (with specific capacities/sizes, setbacks, and analyses), and reports and certifications from hired professionals (at the applicant’s expense). In one case, well permit applicants were to provide a report to the local permitting agency, signed by a hydrogeologist, certifying that no interference would occur with nearby wells and there were no issues with subsidence. In another case, the GSAs determined that there were generally no significant impacts to the local groundwater basin and therefore well permit applicants submitted a pre-populated acknowledgement form attesting they understood the implications and possible future impacts of their well.

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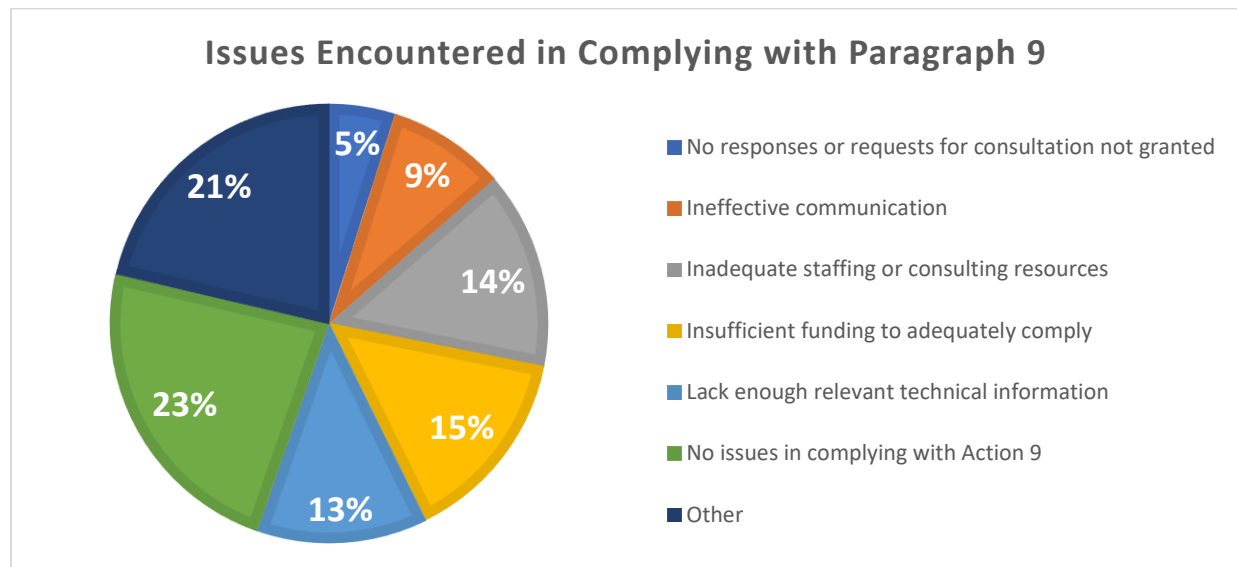
Cost and Time Feedback to Implement the Executive Order

In the majority of responses from LEAs, no additional costs were incurred by the well permitting agencies for a variety of reasons, including the applicant and/or property owner had to pay the fee (or newly increased fees), the requirements of the EO were previously required by a county ordinance, costs were absorbed by another local department within the county, and in several examples very few well permits were processed due to an ongoing well permit moratorium. With regard to requiring costs be covered by the well permit applicant, one LEA stated that applicants paid for a \$5,000 report to include in their application to comply with the EO. Some LEAs did not know what the costs to them were since the EO processes were still being established, but others estimate that due to a significant increase in staff time, costs could be as much as an additional \$50,000 per year for local agencies to implement.

In the survey responses, ten counties reported no effect in the processing time of permit applications for all well types (domestic, agriculture, and “other”). Processing times for domestic well permit applications remained the same for approximately 60 percent of LEA respondents, approximately 31 percent of agriculture wells, and approximately 47 percent of “other” well types while carrying out the EO. Processing times were reported to range from as little as a 1 to 2 hours to as long as 3 to 6 months, depending on the completeness of applications, information to consider, and whether a CEQA review was necessary. The average survey response regarding the amount of time to process a well permit application was 2 weeks. With regard to time delays, one survey respondent stated that the GSA’s unwillingness to comply with the EO for a new “non-exempt” well adversely impacted their business and profitability of a small agricultural producer in an economically disadvantaged area (compared to larger producers).

Issues in Complying with the Executive Order

While 23 percent of entities indicated they did not encounter issues in complying with the EO, the remaining LEAs and GSAs encountered some form of issue or challenge.



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The remaining respondents primarily indicated other issues, including:

- Difficulty explaining the requirements to applicants and GSAs.
- The inability of GSAs “to provide written verifications” which delayed the well permitting process.
- Confusion over who is in charge of the well permitting process and questioning the distinction between the roles and responsibilities of the GSAs and LEAs (legally, who is responsible for the end decision of approving or denying a well permit application based on the EO requirements).
- A sense of ‘overreach’ by certified professionals urging certain analyses that local agencies were unsure were needed (providing a certain level of legal basis for decisions under the EO).
- Adding another process to perform while GSAs are in the process of implementing groundwater pumping allocations to control use.
- Local agencies shared opinions about not have autonomy over their existing authorities.
- Some local entities shared they felt the EO was a punitive, restrictive, and unfair process.

Local Recommendations for Improvements Related to the Executive Order

Approximately half of respondents had no recommendations to improve their efforts to meet EO requirements. While many respondents shared they would like to see the EO discontinued since these actions are already covered through SGMA implementation, another respondent believes that the EO is a good policy, and it should continue as a requirement beyond the drought. Some respondents reported their negative experiences in implementing the EO and working with other agencies in their areas.

Some respondents indicated that **more data and tools** are needed to support their written verification, such as a spreadsheet or online calculator to support the evaluation of well interference, a well permitting agency database or portal where information such as well completion reports and groundwater information can more easily be obtained by the local agencies, and a central clearinghouse for local agencies to leverage other approaches to implement the EO. Many respondents stated that **state funding and technical assistance** are needed to support local agencies, including hydrogeologists or technical experts, general funding and staffing to local jurisdictions to implement these efforts, additional support from DWR for GSAs and the “review certainty” of their GSPs to complete the written verification process, and additional local staffing and time to implement metering to better understand groundwater extraction and use. Some survey respondents called the EO an “unfunded mandate.”

Additional or standardized guidance on how to implement the EO was another area that local agencies needed assistance, including clearer language for terms such as “likely to impact”, standard (or specific when necessary) procedures for reviewing well permits developed by the State Office of Planning and Research (OPR), checklists to better facilitate permit reviews, and better educational information for interested parties regarding the well permitting review process and groundwater management. Respondents indicated that **improved communication was needed from the state** on the expectations of the EO between the GSAs and well permitting agencies. One respondent suggested that there should be a delineated appeals process with the GSA if the homeowner or property owner wants to contest the GSA's written verification and recommendation for a well permit denial. As previously stated, legal challenges were raised over who is responsible for the well permit approval or denial. What has been an established ministerial process became a discretionary, complicated, and data-specific process, which has been challenging for some. For example, creating general guidelines on where agriculture wells should be screened to avoid interaction with neighboring wells.

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Respondents had *other recommendations*, including allowing GSAs to incorporate activities required in EO in their next GSP update, requiring GSAs to work with their counties and cities on a permitting process, not exempting domestic and public wells (as this was stated to be a “bad policy” that could lead to wells being drilled without any considerations, thus creating issues in those areas of increased extraction), and clarifying the LEA's responsibilities under the EO and ensuring compliance with those obligations.

Appendix B: On-the-Ground Perspectives & Local Agency Case Examples

On-the-Ground Perspectives

The following perspectives were shared by individuals who experienced effects such as dry wells during the drought in the following communities or County Service Areas:

- Cantua Creek, El Porvenir, and Lanare in Fresno County that are unincorporated and severely disadvantaged.
- Fairmead in Madera County, where community members have had to deepen their well to deal with nitrate concentrations up to three times California maximum contaminant levels for drinking water and otherwise insufficient well capacity.
- Orosi/East Orosi, West Goshen and other small communities in Tulare County that rely on small capacity community wells or individual private wells.

With respect to conditions experienced during drought, the shared perspectives included:

- Their areas and neighboring areas have generally experienced disproportionately challenging water supply conditions compared to many other parts of the state.
- Descriptions of unresolved dry well outages dating as far back as 2011.
- Continued reliance on bottled and tanked (hailed) water to meet basic household needs.
- Receiving a quote for \$30,000 to deepen a 190-foot-deep domestic well to keep up with the lowering groundwater table, but that the driller could not guarantee the well would produce enough water to sustain the needs of the home.
- One person's account of their neighbor receiving a local assistance in the form of a tank on their property to be regularly filled by water haul trucks; however, for reasons unknown to them, their own property was not deemed eligible for a tank.

Shared perspectives about local well impacts included:

- Accounts of an increase of new irrigation wells surrounding their communities being the cause of wells going dry in many homes reliant on groundwater for domestic water needs.
- Suffering of residents because agricultural wells operate with such large capacities and cause such great drawdown of groundwater levels.
- Unreliable and often contaminated residential water supplies due to excessive groundwater level drawdowns have caused many residents to be afraid each morning due to uncertainty of whether or not water will come from the tap and if it will be drinkable.
- Concerns that their community was being surrounded by irrigation wells so that residents would be "run out of town," or that "a new phenomenon" of high-capacity wells being installed adjacent to residents has become a standard practice that residents should expect.
- A report of an irrigation well being installed within approximately 75 yards of their residence.
- Concerns from residents whose community can install a new drinking water well, but are fearful the new well will quickly become obsolete if nearby irrigation wells are allowed to run unregulated.
- That irrigation wells can run 24-hours a day, sometimes five to six days at a time, have an unfair effect on their right to pump groundwater.

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In conclusion, community members that spoke with DWR collectively feel the number of irrigation well installations have increased and irrigation pumping has been prioritized over domestic well users in their areas. More assistance is needed in these communities and local agencies should be aware of the challenges residents are facing when competing with high-capacity wells.

Local Agency Case Examples

As identified in Appendix A, local agencies took a variety of approaches to implement EO N-7-22. Different local agency examples are identified below to highlight procedural, technical, and informational assistance to prospective well permittees.

Local Ordinances in Place Prior to EO N-7-22

Some local agencies shared that they have been evaluating well permit applications using similar methods to what the EO required, prior to its adoption. Three such examples are:

The Sierra Valley Groundwater Management District (SVGMD), one of the GSAs for the Sierra Valley Groundwater Subbasin (No. 5-012.01), adopted [Ordinance No. 18-01](#) in April 2018. Section 8 of Ordinance 18-01 discusses the required coordination between the Counties (Plumas and Sierra) and the SVGMD, upon receipt of an application for a new or modified high-capacity well. Ordinance 18-01 also includes a map (Exhibit A), which shows areas where high-capacity wells are prohibited from being installed, as specified by the SVGMD's appointed hydrogeologist; a new map with a larger high-capacity well restriction area was adopted in May 2021.

Merced County adopted [Ordinance No. 1930](#) in March 2015. Domestic well permits are exempt from the Ordinance and are processed and issued by the County; however, public supply wells are not exempt. Chapter 27, Section 050 of Ordinance 1930 requires entities claiming an exemption to pump groundwater in excess of established extraction patterns, to work with the County (who is a member agency of the Merced Subbasin GSA) directly to obtain the determination that their application is consistent with groundwater management plans prior to permit issuance. One criterion required for a claimant to meet the burden of establishing that the exemption applies includes that "replacement of existing wells... do not produce further decline of groundwater levels, land subsidence, or other significant environmental damage."

In November 2014, Stanislaus County adopted their [Well Permit Application Review Process](#), which discusses the process of County review (Section 2) to determine whether an application is subject to, or exempt from, the prohibitions in the Groundwater Ordinance against unsustainable groundwater extraction and the export of water. Based on this review, if the application is found to be exempt, it is processed and a permit is issued. The Process document goes on to state that "[a]fter adoption of a Groundwater Sustainability Plan (GSP), the prohibition against unsustainable groundwater extraction will be applicable to any well for which the County reasonably concludes that the extraction of groundwater constitutes unsustainable extraction of groundwater. This would include applications for wells that are found not to be in compliance with a GSP." The Process document also includes a 'Discretionary Well Permitting Framework under the Stanislaus County Groundwater Ordinance', which discusses county management thresholds and actions and potential well permit conditions related to undesirable results for applicable SGMA sustainability indicators.

Well Permit Moratoriums

Some local agencies shared that they have placed temporary prohibitions or moratoriums on approving well permits since adoption of the EO. One such example is:

In October 2022, the Sonoma County Board of Supervisors adopted a [temporary moratorium on well permits](#), which directed the permitting agency to convene a working group to discuss policy options for consideration of impacts on public trust resources. The resulting recommendations were considered, and an amended well ordinance was brought to the Board of Supervisors and final approval was granted in April 2023. Additionally, a [Well Ordinance Map](#) viewer tool was developed for the public to view which areas of the County are within the “Public Trust Review Area”; if a proposed well site is within this area, additional review related to impacts to public trust resources may be required by the well permitting agency.

LEA Use of Well Setback Requirements

The use of “separation”, also known as “setbacks” is a common way that LEAs provide guidance to well permit applicants to locate their well an adequate horizontal distance, or separation from, sites of known or potential sources of pollution and contamination. Setbacks can be an effective presumption for attempting to reduce land subsidence and impacts to neighboring wells. Some local agencies shared how they have encouraged or required the use of setbacks. Six such examples are:

- Mono County stated they use setback requirements per the County Code, consistent with DWR’s Bulletin 74-81, Water Well Standards (December 1981) and 74-90, California Well Standards (June 1991).
- Yolo County explained they hired a local engineering firm to develop a setback table, based on local conditions, to ensure the impact of the proposed new well to the nearby wells is unlikely.
- San Mateo County indicated their Wells Ordinance has adequate setback requirements to deal with almost all of the setback issues encountered, which mitigate potential well-to-well interference. Further evaluation is built into the San Mateo County Local Coastal Program.
- Butte County stated that applicants must use a local GIS map, which shows nearby groundwater monitoring wells, to include all nearby wells if well pump capacity is large enough to warrant nearby well setbacks. Setbacks are required for large diameter wells that are greater than 8 inches in diameter with a minimum pump capacity of 1,000 gallons per minute or greater.

**Bulletin 74-81/74-90, Part II.,
Section 8. Well Location With
Respect to Pollutants and
Contaminants, and Structures:**

A. Separation. All water wells shall be located an adequate horizontal distance from known or potential sources of pollution and contamination. Such sources include, but are not limited to:

- *sanitary, industrial, and storm sewers;*
- *septic tanks and leachfields;*
- *sewage and industrial waste ponds;*
- *barnyard and stable areas;*
- *feedlots;*
- *solid waste disposal sites;*
- *above and below ground tanks and pipelines for storage and conveyance of petroleum products or other chemicals;*
- *storage and preparation areas for pesticides, fertilizers, and other chemicals.*

Consideration should also be given to adequate separation from sites or areas with known or suspected soil or water pollution or contamination.

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- Stanislaus County explained they hired a qualified professional to develop a Technical Memorandum, which includes the use of lookup nomographs to determine compliance with the Executive Order, on behalf of the permit applicant. Information provided by the applicant allows the County to determine if any minimum setback screening distance is required to prevent well interference, or subsidence that may likely adversely impact or damage critical infrastructure.
- Solano County stated they require applicants to provide a map of existing water wells within 1,500 feet of the proposed well. Wells within that setback may require additional testing to ensure no negative impacts will occur to nearby wells.

Well Permitting Information, Processes, Tools, and Additional EO Requirements

Many local agencies shared that they developed guidance and information, and web tools and maps to inform well permit applicants about requirements of the EO and their permitting process. Three such examples are:

Yolo County's [Water Well Program website](#) has a 'News & Updates' Section, which includes information about the EO N-7-22 paragraph 9, declaration forms for exempt well applicants, and temporary well permitting procedures to ensure compliance with paragraph 9, including additional handouts and a supplemental questionnaire.

Riverside County's ["Map My County" interactive mapping tool](#) has, among many others, layers that identify General Plan land uses (within 'Planning Layers') and subsidence (within 'Geographic Layers'). The map can be used to gather relevant information on whether the issuance of a well permit could potentially interfere with nearby wells or contribute to land subsidence in areas where it may be or is known to occur.

Glenn County amended Chapter 20.08 of [Ordinance 1323](#) in May 2023 to include, among other additions, Section 20.08.090: Consultant Review Required for Non-Exempt Wells. This Section describes the process and requirements that all non-exempt well permit applications shall include, the proposed well construction design, and the maximum pump size and specifications, which shall be reviewed against categories identified in the GSP. A technical review required is to determine the likelihood that extractions from the proposed well will cause any of the following: interference with the production and function of existing nearby wells; subsidence that would adversely impact or damage nearby infrastructure or cause exceedance of GSP minimum thresholds for land subsidence; groundwater level declines that will cause exceedance of GSP minimum thresholds for groundwater levels; exceedance of GSP minimum thresholds for water quality; or, exacerbate a substantial adverse impact on public trust resources of navigable waters.

Appendix C: Observed Conditions Maps and Figures

This report, and specifically this appendix, discusses various types of wells and utilizes publicly available datasets to show observed conditions since the adoption of the EO. The well types discussed in this document and shown in this appendix are primarily defined in the Bulletin 74-81/74-90 [California Well Standards, Combined](#), as:

- **Well or Water Wells.** As defined in Section 13710 of the Water Code, well or water well:
 - "...means any artificial excavation constructed by any method for the purpose of extracting water from, or injecting water into, the underground. This definition shall not include: (a) oil and gas wells, or geothermal wells constructed under the jurisdiction of the California Department of Conservation, except those wells converted to use as water wells; or (b) wells used for the purpose of (1) dewatering excavations during construction, or (2) stabilizing hillsides or earth embankments."
- **Community Water Supply Well.** A water well used to supply water for domestic purposes in systems subject to Chapter 7, Part 1, Division 5 of the California Health and Safety Code. Included are wells supplying public water systems classified by the Department of Health Services as "Noncommunity water systems" and "State small water systems" (California Waterworks Standards, Title 22, California Administrative Code). Such wells are variously referred to as "Municipal Wells", "City Wells", or "Public Water Supply Wells".
 - **Public Water System**, as mentioned in the EO, is defined in the [California Health & Safety Code Section 116275\(h\)](#). The Department's datasets refer to these as "Public Supply Wells".
- **Individual Domestic Well.** A water well used to supply water for the domestic needs of an individual residence or systems of four or less service connections (or "hook-ups" as they are often called).
- **Industrial Wells.** Water wells used to supply industry on an individual basis (in contrast to supplies provided through community systems).
- **Agricultural Wells.** Water wells used to supply water only for irrigation or other agricultural purposes, including so-called "stock wells". The Department's datasets refer to these as "Irrigation Wells".

Some of the Department's [curated set of data, interactive mapping tools, and reports](#), which are important resources to inform sustainable groundwater management decision-making, include the following. You can use these interactive tools to further explore data shown in Appendix C maps and other information.

- [California's Groundwater Live Online](#) – A user-friendly interactive website that allows users to explore, analyze, and visualize the latest groundwater data and information for California.
- [Dry Well Reporting System](#) – Californians experiencing problems with their private wells can report a dry well in a few steps and find available resources.
- [Online System for Well Completion Reports \(OSWCR\)](#) and [Well Completion Report Map Application](#) – Drillers must submit a well completion report to OSWCR when a well is constructed, altered, or destroyed within 60 days of the completion of the work. DWR stores those well reports and have also created an interactive map for searching them.
- [SGMA Data Viewer](#) – Provides access to groundwater related datasets that are organized by the requirements of SGMA and the GSP Regulations for the purpose of supporting GSP development and implementation.

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- [GSA Map Viewer](#) – Find your local groundwater sustainability agency and engage in their long-term groundwater planning efforts (simply type in your address).

Department datasets can be found on the California Natural Resources Agency Open Data Portal:

- [Dry Well Reporting System Data](#)
- [Well Completion Reports \(WCRs\)](#)
- [InSAR Remote Sensing Subsidence Data](#)

Data Methods and Assumptions Made in Preparing Appendix C

Below are general methods and assumptions that were taken to prepare this appendix. Specific approaches taken for the figures in the following pages are included in the text preceding that figure. Unless otherwise specified, only WCR Record Types of “New” or “Modified/Repaired” are included in these analyses.

Dates Used for Analysis: Data are presented, unless otherwise noted, as the period of “after 3/28/2022” (the day the EO was enacted) through 9/7/2023. Note that the WCR data used in the analyses or observed conditions represent wells that were completed and had a WCR submitted to the Department's Online System of Well Completion Reports (OSWCR) after 3/28/2022. Because the WCR dataset is so large and is not able to be saved outside of Excel “.csv” format, Department staff suggest users add filters in the ‘Preview’ mode of the data in the Open Data Portal, rather than downloading the full dataset. For example, to find the number of wells permitted since SGMA was enacted (see the graph in the [Observed Conditions Summary](#) section), a filter was applied to show only “Modification or Repair” and “New” Production or Monitoring Wells, which made the dataset smaller and therefore, easier to sort and filter.

WCR ‘Date Work Ended’ Data: Of the 9,440 WCRs analyzed for this report, 582 WCRs were submitted to the Department after 3/28/2022, but had a ‘DateWorkEnded’ (i.e., well installation completion date) after 9/7/2023. These dates are assumed by Department staff to be errors since WCRs submitted by 9/7/2023 would indicate that the well was installed prior to that date. These incorrect dates are associated with WCRs submitted prior to the implementation of a required permit and end date in completing a WCR. As such, these 582 WCRs are included in this analysis.

Well Types Analyzed: The well types used in the analyses below vary and are described for each figure. Although public supply wells are exempt from consideration in the EOs, they were included in many of the analyses with non-exempt well types due to their high pumping capacity. Of the 9,440 total wells with Well Completion Reports after 3/28/2022 (shown in the table to the right), 719 well types were left blank (i.e., unspecified) and 1,622 were monitoring wells.

Neither of these well types are included in this observed data. For informational purposes, the top ten counties that installed monitoring wells during this time period were: Los Angeles (293), Alameda (213), Orange (143), Santa Clara (108), San Diego (58), Contra Costa (57), Kern (53), San Mateo (52), Santa Cruz (47), and Sacramento (44). Note: if a well is permitted, that may not guarantee that a WCR was submitted to OSWCR; also, DWR is not informed of wells that are permitted but never drilled, and therefore, DWR does not know how many installed wells do not have WCRs submitted to OSWCR.

	Well Type	No. of WCRs
Exempt	Domestic	5,042
	Public Supply	146
Non-Exempt	Industrial	31
	Irrigation	1,880
Misc.	Monitoring	1,622
	Unknown	719
Total		9,440

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Figure C-1 shows the locations of voluntarily reported dry wells statewide with a report date after 3/28/2022. Key terms shown on this figure are defined as 1) Outage: A dry well report that has been submitted to the Dry Well Reporting System with no reported resolution and 2) Resolved: A dry well condition that has been addressed by either repair, replacement, or groundwater level recovery. As of 8/31/2023, approximately 48 percent of the dry wells reported have been flagged as resolved based on follow-up efforts, though the Department notes that not all initial reports of outages are verified with followed up efforts.

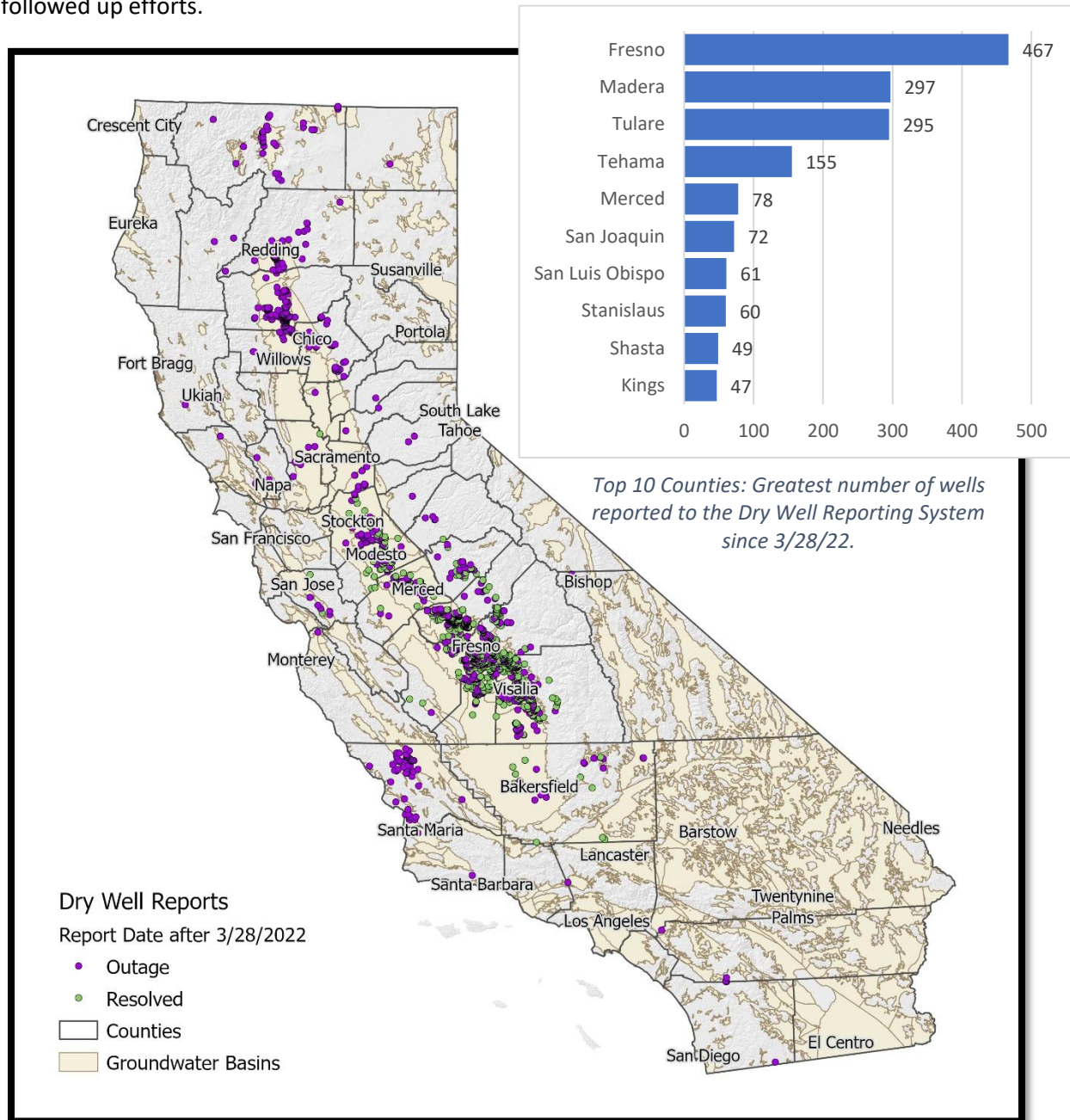


Figure C-1 – Statewide Voluntarily Reported Dry Well Locations – Outages and Resolved.

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Figure C-2 shows the locations of new or modified irrigation, public supply (PS), or industrial wells permitted and completed statewide since 3/28/2022. Overlaid on the mapped well locations is a graph of the top 10 counties by total number of these three well types permitted and a table showing the total number of wells permitted for all well types since 3/28/2022. As noted above, blank (unspecified), monitoring, and domestic well types are not included in this observed data.

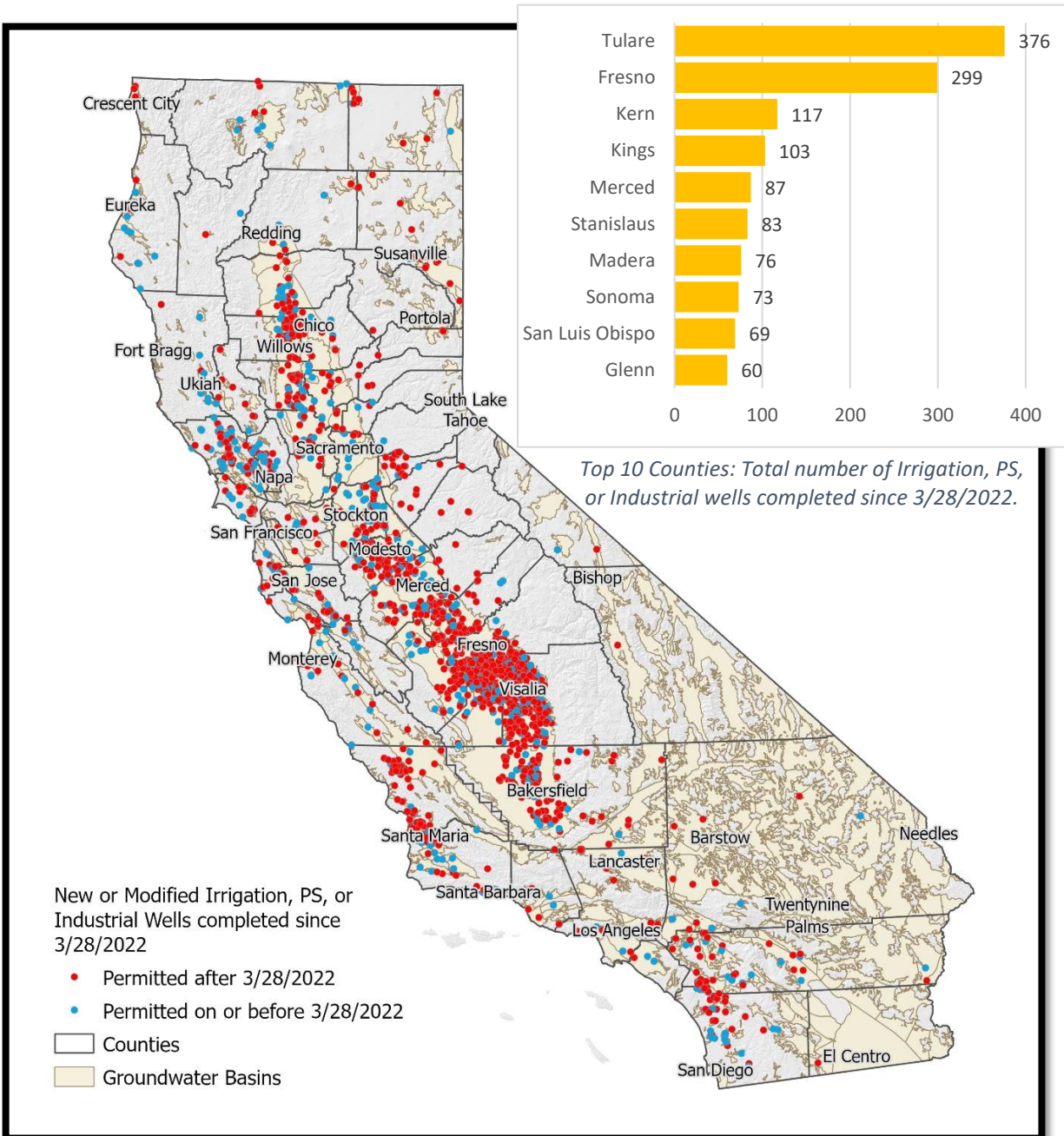


Figure C-2 - New or Modified Irrigation, Public Supply (PS), and Industrial Wells Permitted and Completed After 3/28/2022.

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Figure C-3 is a graph of the top 10 counties by total number of irrigation and industrial combined (i.e., non-exempt well types) permitted and completed since 3/28/2022. Note for non-exempt wells: 1% of WCRs were for modification or repair and 99% were for new wells.

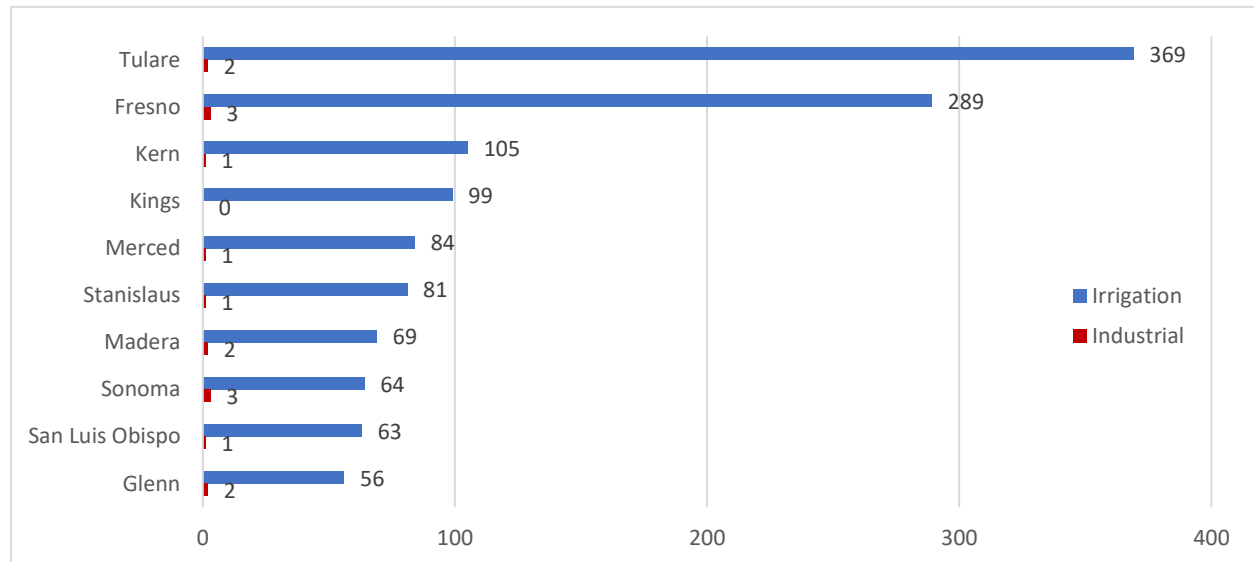


Figure C-3 - Top 10 Counties: Total Number of Non-Exempt Wells Permitted and Completed After 3/28/2022.

Figure C-4 is a graph of the top 10 counties by total number of domestic and public supply combined (i.e., exempt well types) permitted and completed since 3/28/2022. Note for exempt wells: 4% of WCRs were for modification or repair and 96% were for new wells.

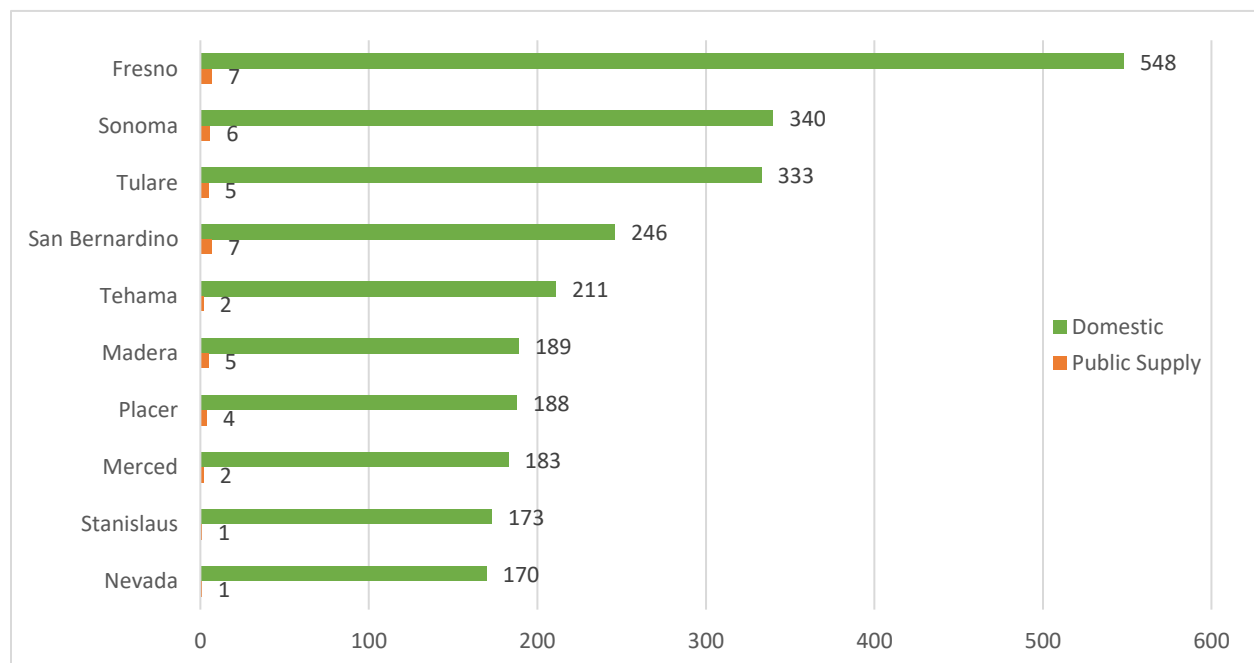


Figure C-4 - Top 10 Counties: Total Number of Exempt Wells Permitted and Completed After 3/28/2022.

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Figure C-5 shows land subsidence conditions, primarily in California's Central Valley, that have occurred since the adoption of the Executive Order. Subsidence is represented as vertical ground surface displacement. Estimates of this displacement are derived from Interferometric Synthetic Aperture Radar (InSAR) data, a dataset DWR has maintained and reported on annually for areas of California since June of 2015 and began reporting quarterly in the Summer of 2022. Note: data are shown for 4/1/2022 to 7/1/2023.

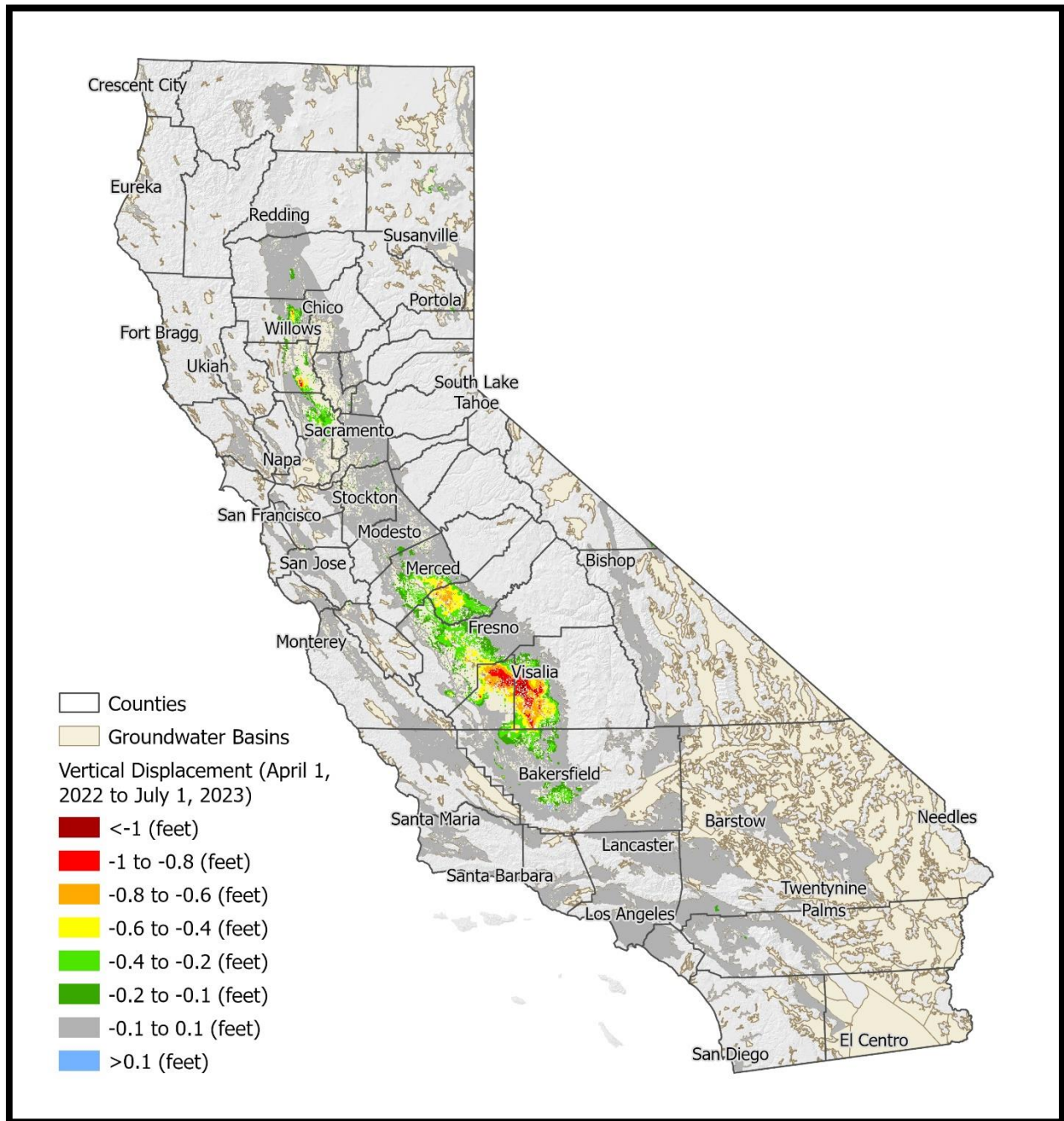


Figure C-5 - Land Subsidence Conditions – 4/1/2022 to 7/1/2023.

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Figure C-6 shows wells that are 'Above' the Corcoran Clay, meaning they have a completion (bottom) depth above the top of the Corcoran Clay. Wells installed outside of the Corcoran Clay boundary or extent are also shown. Vertical ground surface displacements are also included that show subsidence conditions experienced since 3/28/2022 related to wells installed in that time.

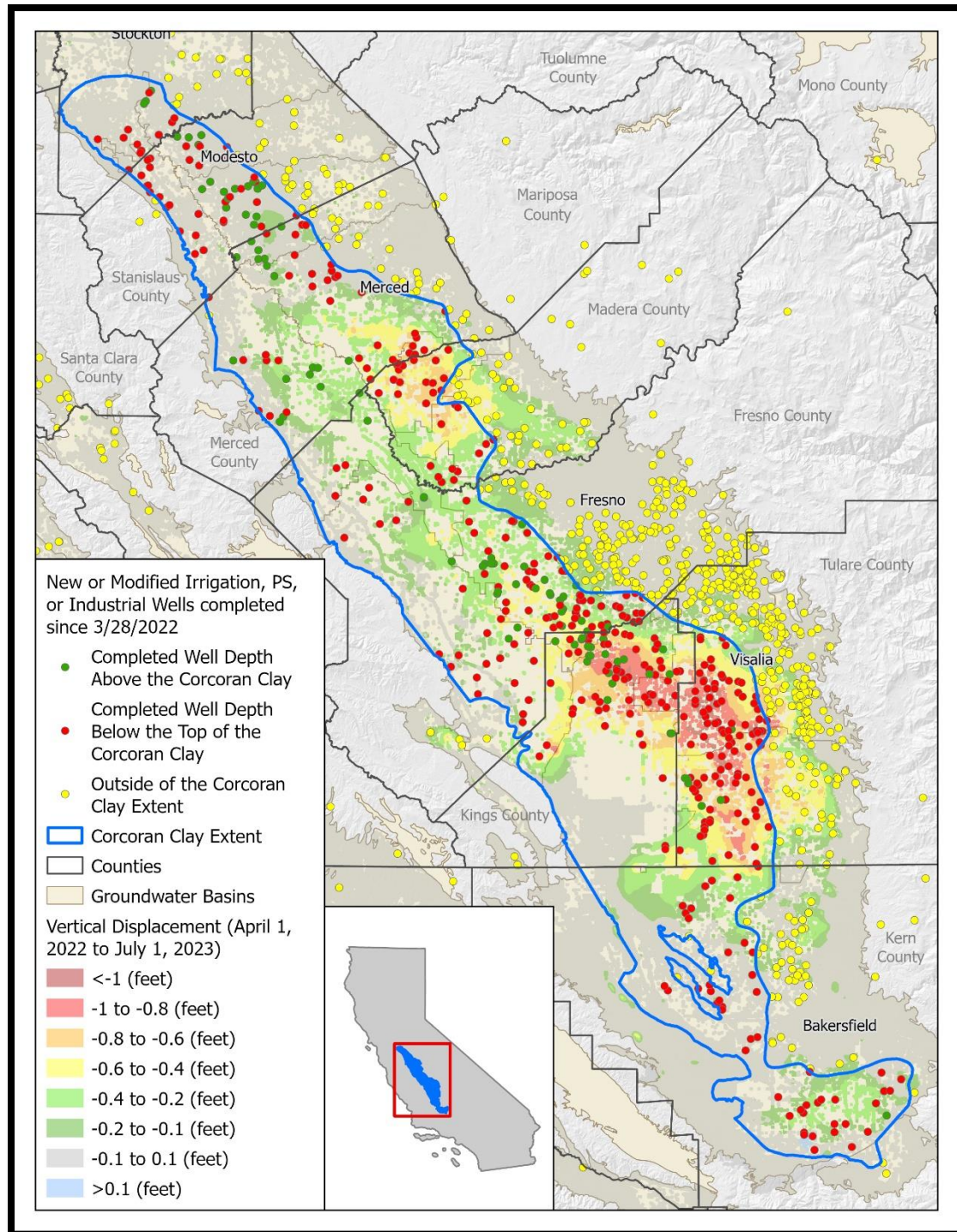


Figure C-6 - New or Modified Wells Completed Within and Outside the Extent of the Corcoran Clay and Land Subsidence Conditions Since Implementation of the Executive Order on 3/28/2022.

