

# DOMESTIC WELL MITIGATION PROGRAM - RULES & REGULATIONS

## KINGS SUBBASIN

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**PREPARED BY:**  
Kings Subbasin Groundwater Sustainability Agencies

**Report Prepared by:**

North Kings GSA: c/o Fresno Irrigation District, 2907 South Maple Avenue, Fresno, CA 93725

McMullin Area GSA: 275 South Madera Avenue, Suite 301, Kerman, CA 93630

Kings River East GSA: 289 North L Street, Dinuba, CA 93618

Central Kings GSA: 2255 Chandler Street, Selma, CA 93662

James GSA: 8749 9<sup>th</sup> Street/P.O. Box 757, San Joaquin, CA 93660

North Fork Kings GSA: PO Box 158, Riverdale, CA 93656

South Kings GSA: 862 Pollasky Ave, Clovis, CA 93612



**North Fork Kings**  
Groundwater Sustainability Agency

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## ACRONYMS AND ABBREVIATIONS

American Society for Testing and Materials .....	ASTM
American Water Works Association .....	AWWA
California Department of Water Resources .....	DWR
Groundwater Sustainability Agency .....	GSA
Groundwater Sustainability Program .....	GSP
Irrigated Lands Regulatory Program.....	ILRP
Kings Groundwater Subbasin .....	Kings Subbasin
Polyvinyl chloride .....	PVC
Safe Drinking Water Act .....	SDWA
Sustainable Groundwater Management Act .....	SGMA
Technical Advisory Committee .....	TAC
Well Mitigation Program .....	Program

# 1 INTRODUCTION

This document outlines the rules and regulations for the Kings Subbasin Domestic Well Mitigation Program (**Program**). The Program is intended to mitigate the impacts on domestic and State Small Water System wells that go dry due to groundwater level declines during the implementation of the Sustainable Groundwater Management Act (SGMA) in the Kings Subbasin. For purposes of this Program, the term “well” refers to domestic and State Small Water System wells, unless stated otherwise. This document outlines the entire process for mitigating groundwater level declines on wells including: assessing eligibility of applicants, registering wells, the steps for filing a claim and investigating the existing well, interim measures to provide temporary water supply, options for mitigating a well, required well design standards, payment options for the well owner, and well owner responsibilities. Major Program topics listed by report section are illustrated in **Figure 1**.



Figure 1: Program Topics by Report Sections

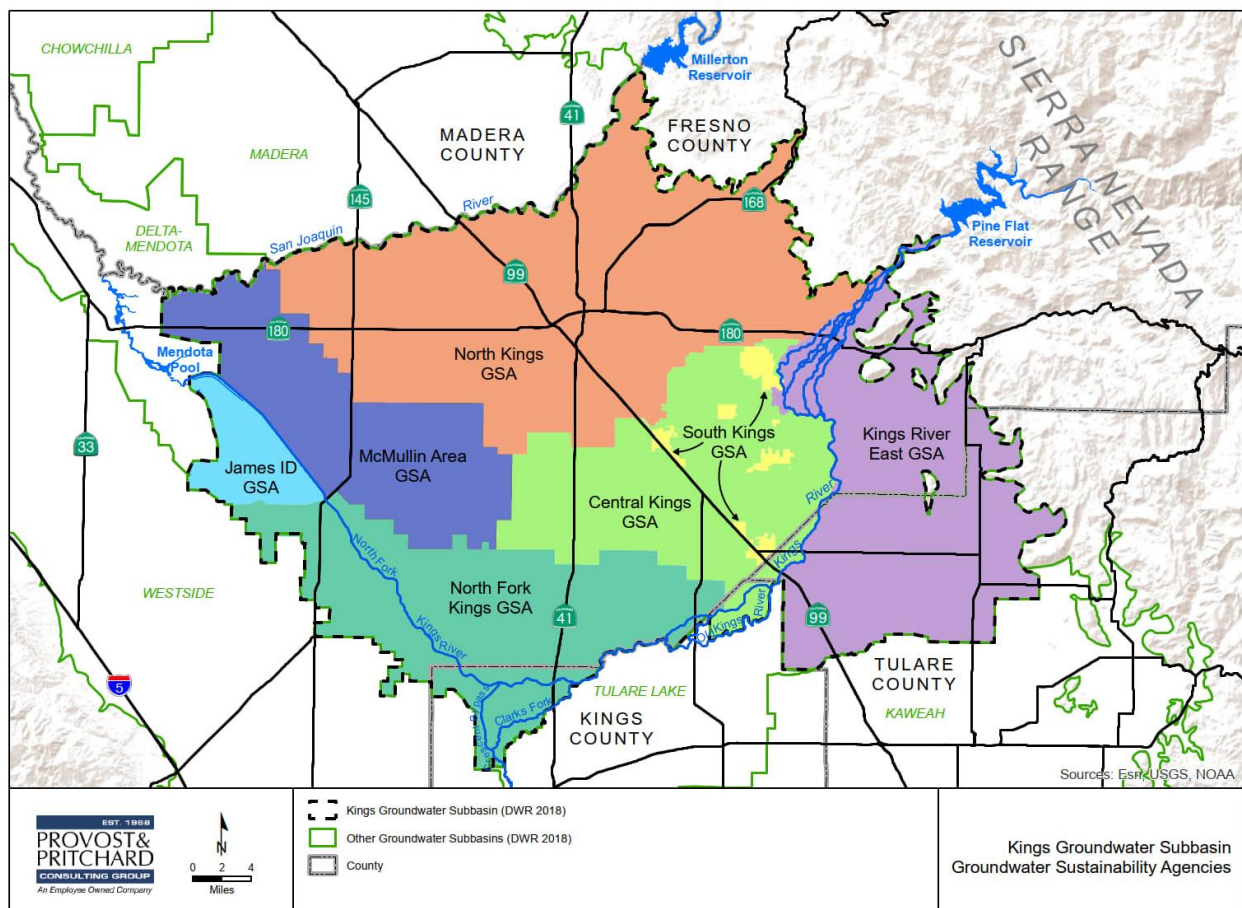
# 2 BACKGROUND INFORMATION

This Guidance Document was developed by the seven Groundwater Sustainability Agencies (**GSA**s) in the Kings Subbasin as part of their implementation of the Sustainable Groundwater Management Act (**SGMA**), and in an effort to reduce the effects of undesirable results on domestic well owners. Collectively, the program is known as the Kings Subbasin Domestic Well Mitigation Program (**Program**).

The Kings Subbasin is in the San Joaquin Valley Groundwater Basin in Central California. Under SGMA, the Kings Subbasin is divided into seven GSAs, which include:

- North Kings Groundwater Sustainability Agency
- McMullin Area Groundwater Sustainability Agency
- Kings River East Groundwater Sustainability Agency
- Central Kings Groundwater Sustainability Agency
- James Groundwater Sustainability Agency
- North Fork Kings Groundwater Sustainability Agency
- South Kings Groundwater Sustainability Agency.

The Kings Subbasin is located primarily in Fresno County, but parts extend into Kings and Tulare Counties. A map showing the extent of the Kings Subbasin and each GSA is presented in **Figure 2**. The Kings Subbasin boundary is defined in the California Department of Water Resources (DWR) Bulletin 118 as DWR Subbasin No. 5-22.08 (DWR, 2006).



**Figure 2: Groundwater Sustainability Agencies in the Kings Subbasin**

The Kings Subbasin is an alluvial basin bounded north and south by the San Joaquin and Kings Rivers respectively, the Sierra Nevada mountains on the northeast, and the Westside and Delta-Mendota Subbasins to the west-southwest. The aquifer system is comprised of unconfined and confined groundwater, with the confined aquifer located in the western parts of the Subbasin where lacustrine clay beds exist.

The Kings Subbasin includes the large Fresno-Clovis metropolitan area (population about 670,000) as well as several other smaller cities. However, the majority of the Subbasin is rural and dominated by agriculture with some rangeland areas. Without established municipal water systems, residents in these rural areas rely primarily on individual domestic wells. Domestic wells are found in rural residential areas, farmsteads, and many rural housing clusters. The number of domestic wells in each GSA varies substantially, with some GSAs having thousands of domestic wells while others have very few. Hence, the impacts on domestic wells will also vary significantly by GSA.

The Kings Subbasin has been in overdraft for many years resulting in a significant lowering of regional and local groundwater elevations, and a significant reduction in the amount of useable groundwater in storage.

Although water levels are planned to be stabilized by 2040 at the Measurable Objective level, they could reach lower levels during dry years. The maximum anticipated lower water level is called the Minimum Threshold. As a result of the continued decline of water levels until they are stabilized, some wells are likely to go dry during the SGMA implementation period (2020-2040). This is generally limited to shallow domestic wells and some State Small Water System wells. Irrigation wells and agency-owned wells are typically deeper and have often been designed to account for declining water levels.

As groundwater levels decline, pumps may need to be lowered, wells deepened or wells replaced. While a pump can be lowered in some situations, for this Program, a well is considered dry when there is less than 10 feet of water above the bottom of the well perforations, or the bottom of the well when perforation levels are not known. The Program will assist eligible well owners in lowering well pumps and replacing or deepening wells that have become dry. The Well Mitigation Program discussed herein was prepared through a Kings Subbasin-wide effort to ensure each GSA was implementing the Program consistently while recognizing each GSA will be charged with performing public outreach, developing funding, and implementing the Program for their respective GSAs.

### **3 ELIGIBILITY**

This section outlines the eligibility criteria for qualifying to receive well mitigation services from the Kings Subbasin Well Mitigation Program. Only domestic wells and State Small Water System Wells are eligible for the Program. Several other specific criteria apply and are described below.

Other publicly funded programs are currently offering services to mitigate well impacts and providing interim measures to well owners in the Kings Subbasin. Some of these have eligibility criteria that differ from the criteria established herein for the Kings Subbasin Well Mitigation Program. Well owners with non-eligible wells under this Program may be referred to other currently existing funding programs.

#### **3.1 SUMMARY OF ELIGIBILITY REQUIREMENTS**

General eligibility requirements are summarized in Table 1 below and discussed in additional detail in the following subsections.



**Table 1: General Eligibility Requirements**

Description	Eligible	Not Eligible
<b>Type of Wells</b>	Domestic State Small Water System	Agricultural Combination agricultural-domestic Commercial Industrial Livestock Municipal (except State Small Water System) Monitoring Wells
<b>Aquifer Materials</b>	Alluvial	Hard Rock
<b>Cause of Well Failure</b>	Declining regional groundwater levels due to groundwater pumping	Plugged well screen Collapsed well casing Pump or electrical failures Tree roots/ foreign objects in well Biofouling / biofilm Sedimentation in well Water quality problems Well construction defects Water level decline caused by other on-site wells Any other reason not related to groundwater level declines
<b>Well Age</b>	Equal to or less than 50 years old at time of application	Greater than 50 years old at time of application
<b>Income</b>	Annual household income equal to or less than 80% of State median household income	Income greater than 80% of State median household income
<b>Well Permit</b>	Legally permitted wells	Unpermitted wells constructed in the previous ten years (i.e. clear evidence of no well permit)
<b>Status with GSA</b>	Good standing with GSA	Delinquent with GSA on fees, taxes or other required payments
<b>Landownership</b>	Landowner	Renter or lessee Bank-owned homes
<b>Other</b>	Wells that are part of a trust or living trust	Private wells used for business or commercial purposes New home construction New water system construction New wells not constructed to Well Mitigation Program standards Properties verified to be causing groundwater overdraft

## 3.2 ELIGIBLE WELL TYPES

Eligibility for the Program will generally be limited to wells used solely for domestic purposes that have failed or are in danger of imminent failure as a result of declining groundwater levels due to pumping occurring in the area. This includes private domestic wells and State Small Water System wells. Wells for new home construction or new small water system constructions are not eligible.

### Domestic Wells

Domestic wells are those constructed for private use at households and generally located outside urban areas. The State Water Resources Control Board defines domestic wells as *'water wells used to supply water for the domestic needs of an individual residence or systems of four or less service connections'*. It has been estimated that as many as 2 million rural California residents rely on private domestic well water to drink, cook, bathe and flush toilets. Within the Kings Subbasin there are an estimated 9,700 households that rely on private domestic wells.

Domestic wells and State Small Water System Wells will generally be similar in design, and it is expected that administration of the program for the two well types will be similar. As a result, the rules and regulations discussed throughout this document will apply to both types of wells.

### State Small Water System Wells

As defined in Health & Safety Code Section 116275(n), State Small Water Systems are those *'for the provision of piped water to the public for human consumption that serves at least five, but not more than 14, service connections and does not regularly serve drinking water to more than an average of 25 individuals daily for more than 60 days out of the year'*.

### Aquifer Materials

Wells drilled into hard rock are not eligible for mitigation, since they would be located outside of a DWR-designated alluvial groundwater basin, and therefore not subject to SGMA. Composite wells that obtain water from both an alluvial and hard rock aquifer will be evaluated on a case-by-case basis. Wells drilled on the Valley floor are expected to be eligible for mitigation through the Program.

### Other Well Types

The following types of well are not eligible for mitigation:

- Agricultural
- Combination agricultural-domestic
- Commercial
- Industrial
- Livestock
- Municipal (except for State Small Water System)
- Monitoring

In addition, any well using a vertical turbine pump would not be eligible, since vertical turbine pumps would provide much higher capacity than would ever be needed for domestic or small water system demands.

### 3.3 CAUSE OF WELL FAILURE

To be eligible for the Program, well failure must be a direct result of groundwater level declines caused by groundwater pumping in the general area. For example, when water levels fall below the depth of the installed pump or below a level in the well casing such that the well is rendered incapable of reliable production. If feasible, pumps may be lowered in such failed wells. In addition, wells will be considered dry if there is less than 10 feet of water above the bottom of the perforations, or less than 10 feet of water from the bottom of the well if the perforations depths are not known or it is an open-bottomed well. Wells deemed to be dry may be replaced or deepened. Following the application and well evaluation process a Technical Advisory Committee (TAC), or the GSA's authorized approval body, will select the most appropriate mitigation alternative for the impacted well. For purposes of this Program, "TAC" will refer to the GSAs designated approval body, which may be under a different name for the various GSAs in the Kings Subbasin.

Examples of well failures that would not be eligible for the Program include but are not limited to:

- Plugged wells screens
- Collapsed well casings
- Pump or electrical failures
- Tree roots or other foreign objects in wells
- Biofouling / biofilm
- Sedimentation in the well
- Water quality problems
- Well construction defects
- Any other reason not related to groundwater level declines

The Program will not provide retroactive funding assistance for already-failed wells. Wells that went dry and were replaced prior to the Program will not be eligible for reimbursement. Wells that are already in the queue for replacement under other programs and/or are receiving interim water supplies through other programs will not be considered for the Kings Subbasin Program.

### 3.4 WELL AGE

Under the Program, dry domestic wells up to 50 years old at the time of application submission may be eligible for well mitigation assistance (i.e., replacement or deepening) with a cost-sharing agreement between the well owner and the GSA. In addition, wells that turn 50 years old after a claim is filed will still remain eligible. The GSA's portion of the cost of well replacement decreases proportionally with the age of the well at 2% per year, to account for depreciation of the well asset. For example, the GSA's portion of the shared cost for a 25-year-old well would be 50%. The basis for 50 years was several references that state domestic wells have typical life expectancies of 30 to 50 years.<sup>1</sup>

The GSA may offer zero or low interest loans to fill gaps in funding for wells less than 50 years old.

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<sup>1</sup> Minnesota Department of Environmental Health (MDH, 2022). *Finding Lost Wells, Searching for Wells on a Property*. Jasechko, S., Perrone, D. (2020, February 27). *California's Central Valley Groundwater Wells Run Dry During Recent Drought*. Earth's Future Volume 8, Issue 4  
Harding et al. (1947), *Useful Life of Water Wells*. Journal of the American Water Works Association, 39. 32-40.

The age of wells will be determined by well completion reports, well permits or other well construction information. Wells with an undetermined age will be handled on a case-by-case basis, using the best available information including aerial photographs and building construction information.

### 3.5 INCOME REQUIREMENTS

To be eligible for the Program, the applicant must have an income that qualifies equal to or less than 80% of the statewide median household income in the State of California. This falls within the definition of an income for a Disadvantaged Community<sup>2</sup> according to the California Department of Water Resources. However, only the applicant needs to meet this criterion, and not their community at large.

### 3.6 ADDITIONAL ELIGIBILITY CRITERIA

Additional eligibility criteria are listed below.

- **Land Ownership.** The Program applicant must be the owner of the well and surrounding land. Lands placed in a living trust are also eligible. Renters and lessees will not be eligible to apply but may contact their landowner and coordinate to receive assistance. Bank-owned properties will not be eligible. Domestic wells used for commercial purposes will also not be eligible.
- **Good Standing with GSA.** The landowner/well owner must be in good standing with the GSA (i.e., no late taxes, fees, assessments, or other charges due to the GSA).
- **Future Eligibility.** New wells, constructed either through private funding or GSA funding or a combination of both, will not be eligible for future mitigation under the Program if not in compliance with individual GSA policies (e.g. minimum depth requirements).
- **Impacts from other Onsite Wells.** A well may not be eligible if it is determined that it was dewatered primarily due to other well(s) located on the property. For example, if the landowner has a large nearby irrigation well, and the GSA determines that the irrigation well is causing the domestic well to go dry, then the landowner will not be eligible for the Program.
- **Illegal Wells.** Wells must be legally constructed (i.e., permitted by the County or other applicable government agency) to be eligible for the Program. Exceptions may be granted for wells aged approximately 10 years or more from the time of Program implementation to account for historic lapses in agency records.
- **Denial of Funding for Causing Overdraft.** The GSAs reserve the right to deny funding for wells that are causing overdraft. This will be evaluated and enforced on a case-by-case basis. For example, if the landowner has large areas of turf, landscaping or pasture on their residential property, and their groundwater use far exceeds the groundwater sustainable yield, then they may not be eligible for the Program.

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<sup>2</sup> California Department of Water Resources, *Disadvantaged Communities Nomenclature within the State of California: Findings and Conclusions*, July 2022.

## 4 WELL REGISTRATION

Well registration will be required prior to submitting an application, or at the time the application is submitted for mitigation assistance. Well information to be collected for registration may include, but not be limited to, the following:

- Well location
- Construction information
- Well maintenance history
- Type of Well (domestic, small water system, etc.)
- Age of Well (if known)
- Well Completion Report (if available)

The individual GSAs in the Kings Subbasin will develop databases or other tools to track well registration and well mitigation claims.

The GSAs will adhere to appropriate confidentiality practices, since confidentiality issues may discourage some well owners from participating. Well data will generally not be shared with the general public or public agencies unless there is a compelling reason. Data on wells will generally be aggregated and reported in clusters rather than by individual well.

## 5 WELL CLAIMS PROCESS

The Well Claims Process will consist of a claimant submitting a single page claims application, a pre-screening for basic eligibility, a review of the well contractor's assessment submitted by the claimants, then followed by a more detailed eligibility assessment and mitigation determination by the GSA's TAC. Well mitigation will not occur until approved by the TAC. A simplified flow chart illustrating the well claims and evaluation process is included below as **Figure 3**.

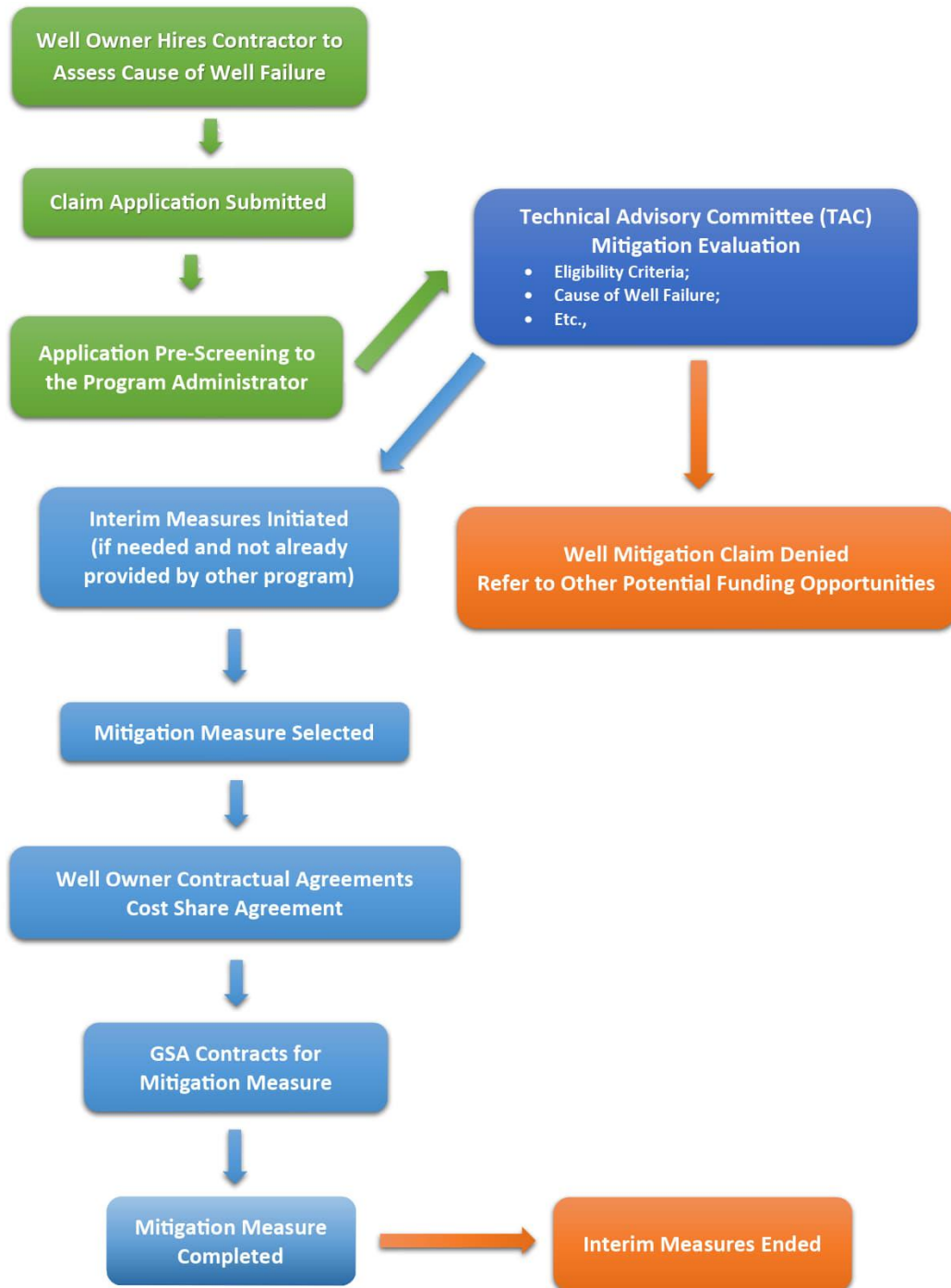


Figure 3: Flow Chart of Claims and Well Evaluation Process

## 5.1 CLAIM APPLICATION

Prior to application submission, the well owner should contact a well services contract to investigate the cause of their well failure, and verify it is due to groundwater level decline. The well claims application will be a relatively simple form to collect basic property and well information and will be available for free

on the GSA's website in digital form and in the GSA's offices in paper form. The claims process will be initiated promptly after a completed well claims application is received by the GSA.

## 5.2 APPLICATION PRE-SCREENING

Applications will be pre-screened before a more detailed evaluation is performed. This will include determining whether they live within the GSA boundaries, own a domestic well or State Water System Well, the well age (if readily available), and if any other information on the application form would preclude them from receiving funding.

## 5.3 EVALUATION OF APPLICATION

The report from the well service contractor will be reviewed to determine if the well failed due to falling groundwater levels. If needed, the well service contractor will be contacted for more information and may be asked to fill out a GSA form documenting their investigation. More investigations may be needed by GSA staff, which are discussed in the following section.

At this stage the well would also be prioritized into one of the following categories:

- *Priority 1: Well is non-operational due to groundwater level decline*
- *Priority 2: Well is operational at reduced capacity. Only partial household demands can be met.*
- *Priority 3: Well is non-operational but household has alternate water supply (e.g. connected to neighbor's well)*
- *Priority 4: Well operating at full capacity but has low groundwater levels and may fail in the near future*

This prioritization system above identifies which wells should be addressed first, especially if funding is limited, or applications become backlogged due to drought, staffing limitations, etc. The Technical Advisory Committee (TAC) can prioritize wells differently if needed, especially wells that present special or unique circumstances.

Well mitigation will not occur until approved by the TAC or the GSA's identified evaluation and approval process. The TAC or its equivalent may perform additional evaluation if the well service contractor's report does not provide sufficient information for a decision. GSA staff may evaluate the well's age based on available documentation (well completion report, well permit, etc.) or through additional measures such as aerial photographs if well age cannot be determined from the available documents. The GSA may also evaluate if impacts to the well are a result of the allowable groundwater level declines under SGMA and may look beyond the well in question to review current groundwater conditions in the area as well as anticipated future conditions. Additional components to the evaluation may include the following information based on availability:

- Is the claimant in good standings with the GSA, its Groundwater Sustainability Plan (GSP), and any required GSA fees, assessments or other charges?
- Was the well permitted by the County?
- Is the well in question for private domestic use?
- Well age and construction information
- Available well maintenance records
- Soil/lithology that the well was installed in

- Depth of alluvial aquifer in area
- Current water levels in the area
- GSA's established Sustainable Management Criteria for groundwater levels in the area
- Property land use and County required setbacks
- Neighboring well information and land use
- Information from the Claims Application
- Periods of well inactivity during the previous 12 months
- Previous Program mitigation measures conducted for the well, if any
- Ability to consolidate well into with adjacent community system
- Other eligibility criteria from Section 2 not listed above

## 5.4 TECHNICAL ADVISORY COMMITTEE EVALUATION

The GSA's TAC, or equivalent, will review all of the data collected and determine if mitigation is warranted, and which mitigation measure will be performed. It is anticipated that most of the applications will be determined using the established eligibility criteria and evaluation methodology established herein. The TAC will also address unique circumstances and respond to claimant appeals, which are discussed below.

TAC evaluations will be completed as soon as practicable but generally not longer than about 10 business days following submittal of the application, which will need to include the well service contractor's assessment. Once the evaluation is completed, the TAC will decide if well mitigation is approved. If approved, the TAC will determine the appropriate well mitigation measure and if full or partial well mitigation will be granted. Well mitigation measures are discussed in **Section 7** of this plan.

One option may include connecting to an existing water system if the property is adjacent to or within an existing water system boundary. The GSA will decide if this is the best option and may require the landowner to connect to the water system to be eligible for funding. This would provide a more reliable, longer-term solution than a domestic well. The GSA would pay up to the same amount they would provide for the installation of a new well, or prorated portion of the well replacement cost.

## 5.5 APPEALS

Claimants can appeal any decisions or claims denied by the TAC directly to the TAC, and if declined at the TAC level, file a subsequent appeal to the GSA Board of Directors. Appeals should be filed with a formal letter of appeal or Appeal Form (if available and provided by the GSA), and, if requested by the GSA, at an in-person meeting. Claimants will be provided with advance written notice if their appeal will be discussed by the TAC or GSA Board of Directors at an open and public meeting pursuant to the Ralph M. Brown Act.

## 5.6 MITIGATION AGREEMENT

Claimants with wells approved for mitigation will be required to sign the GSA's mitigation agreement prior to implementation of any mitigation measure.



## 5.7 CLAIMS PROCESS TIMELINE

A timeline for processing applications is provided below. This represents a preferred timeline, but staffing, funding and demand for new wells may impact the schedule, especially during droughts when new wells could be in high demand.

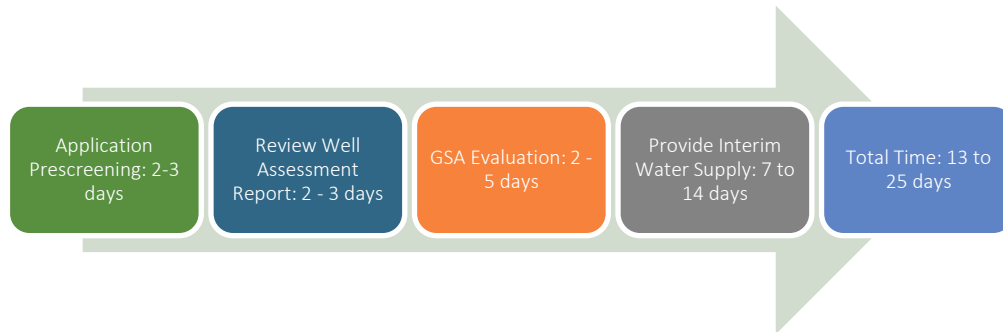


Figure 4: Well Claims Process Timeline

## 5.8 MITIGATION IMPLEMENTATION

The selected well mitigation measure will be arranged by the GSA in coordination with the well owner and selected contractor once the mitigation agreement has been executed. The GSAs may develop a list of pre-qualified well drillers and well assessment companies. Well mitigation measures are discussed in **Section 7** of this plan. The time to complete mitigation measures can vary significantly based on the unique circumstances of each case and contractor availability. All reasonable efforts will be made to complete mitigation measures in a time frame of approximately one to three months after the mitigation agreement has been signed. However, funding limitations, contractor availability (especially during droughts), and applicant backlogs may push the time frame to a year or more in certain circumstances. Interim domestic water supply measures may be provided until the mitigation measures are completed.



## 6 INTERIM MEASURES

Interim measures include provision of bottled water, as well as a water storage tank and hauled water deliveries for other indoor usage, while permanent measures are being implemented. For households whose well has gone dry due to declining water levels, interim measures may be implemented until a permanent solution has been put in place. If the well assessment finds that the well is not functioning due to reasons other than declining water levels, then interim measures will not be provided. Any water provided to applicants in the interim is for individual household and drinking purposes. Water for outdoor use, or any water-use external to the house, will be the responsibility of the landowner.

Timing for installing water tanks and water bottle delivery can take up to a week or more following the confirmation of eligibility, although the GSAs will delivery bottled water as soon as possible, which may occur within 24 hours. Landowners are encouraged to pursue other measures that ensure they obtain clean drinking water while application review is in process. The cost of interim measures would be paid fully by the GSA until a permanent water supply solution is provided.

The interim measures are described in **Table 2** below.

**Table 2: Interim Measures**

Interim Measure	Description
 <p><b><i>Bottled Water</i></b></p>	<p>Bottled water can be provided to households that do not have access to drinking water due to well failure from falling water levels. Bottled water can be scheduled for deliveries bi-weekly or monthly. The volume of water delivered will vary depending on household size. On average it can be assumed that approximately one gallon/person/day of potable water will be needed for drinking and cooking.</p> <p>Water kiosk stations operated and maintained by Irrigated Lands Regulatory Program (ILRP) agencies such as Kings Water Alliance may be used as alternate sources of temporary drinking water where convenient. Under such circumstances, the GSA may provide 5-gallon jugs for claimants to use at fill stations. Kiosks operate 24 hours a day, 7 days per week and are free to use.</p>
 <p><b><i>Bulk Water Storage Tanks</i></b></p>	<p>Bulk 1,000 to 2,600-gallon tanks and water deliveries may be made to claimants for interim sanitation and other household purposes, excluding outdoor usage. Tank maintenance and refills would need to be conducted routinely, on the order of once every 1 to 2 weeks depending on the number of people in the household. Indoor usage goals would be 50 gallons/person/day based on State indoor water conservation goals. A suitable water delivery provider would need to be contracted by the GSA to install and connect water tanks to the claimants' houses. In addition, a certified water hauler (per the California Department of Public Health) will make the required deliveries.</p>

## 7 WELL MITIGATION MEASURES

In general, well mitigation alternatives under the Program will be evaluated and applied in order of the following priorities: lowering the pump in the well, deepening the existing well, or drilling and installing a new deeper replacement well. It is also recognized that on a case-by-case basis special circumstances may exist where other alternatives may be pursued. The four main well mitigation options are shown in **Figure 5** and described below, in order of the GSA's prioritization analysis.



**Figure 5: Well Mitigation Options**

Wells with groundwater quality issues but which otherwise have adequate groundwater flow are not covered under the Program. This includes wells with water quality concerns related to natural contamination, contamination caused by owner septic systems, animal enclosures, legacy contamination caused by other responsible parties, or instances where water treatment, including point of use systems, is required.

Failed or failing domestic wells may be eligible for one of the mitigation alternatives only if declining groundwater levels are the cause of the problem. Well casings with less than 20 feet of groundwater may be placed on a “watch list” maintained by the TAC. Well casings with less than 10 feet of groundwater may be considered dry. Following the well evaluation process the TAC will select the most appropriate mitigation alternative for the impacted well based on the priorities outlined above. Instances where a pump may be lowered or a well may be replaced as the determined mitigation measure are graphically illustrated in **Figure 6**.

### 7.1 LOWER PUMP

If the well is sufficiently deep, mitigation may consist of lowering the pump to a level such that the intake of the pump is 20 feet below the Sustainable Management Criteria Minimum Threshold in the well area, or to the maximum possible depth, whichever is deeper. After the pump has been lowered, the well may be added to a watch list maintained by the TAC as a proactive measure to expedite well deepening or well replacement when and if needed at a future time. If the existing pump is too small to pump from the greater depths, then the GSA may purchase and install a new pump for the landowner.

### 7.2 DEEPEN WELL

It must be understood that the majority of dry wells cannot be deepened due to the various risks from unknown well conditions and the limitations created by the existing well construction. In fact, many well drilling contractors will not deepen wells due to a variety of risks involved. In addition, a domestic well would typically need to have an 8-inch diameter casing or larger to be deepened. However, when deemed feasible, the GSA may select deepening an existing well as a mitigation option. The depth of the modified well will follow the same criteria as the depth for new wells (see next section). To the extent feasible, deepened wells will be constructed to the standards outlined in **Section 6** of this document. If

the existing pump is too small to pump from the greater depths then the GSA may purchase and install a new pump for the landowner.

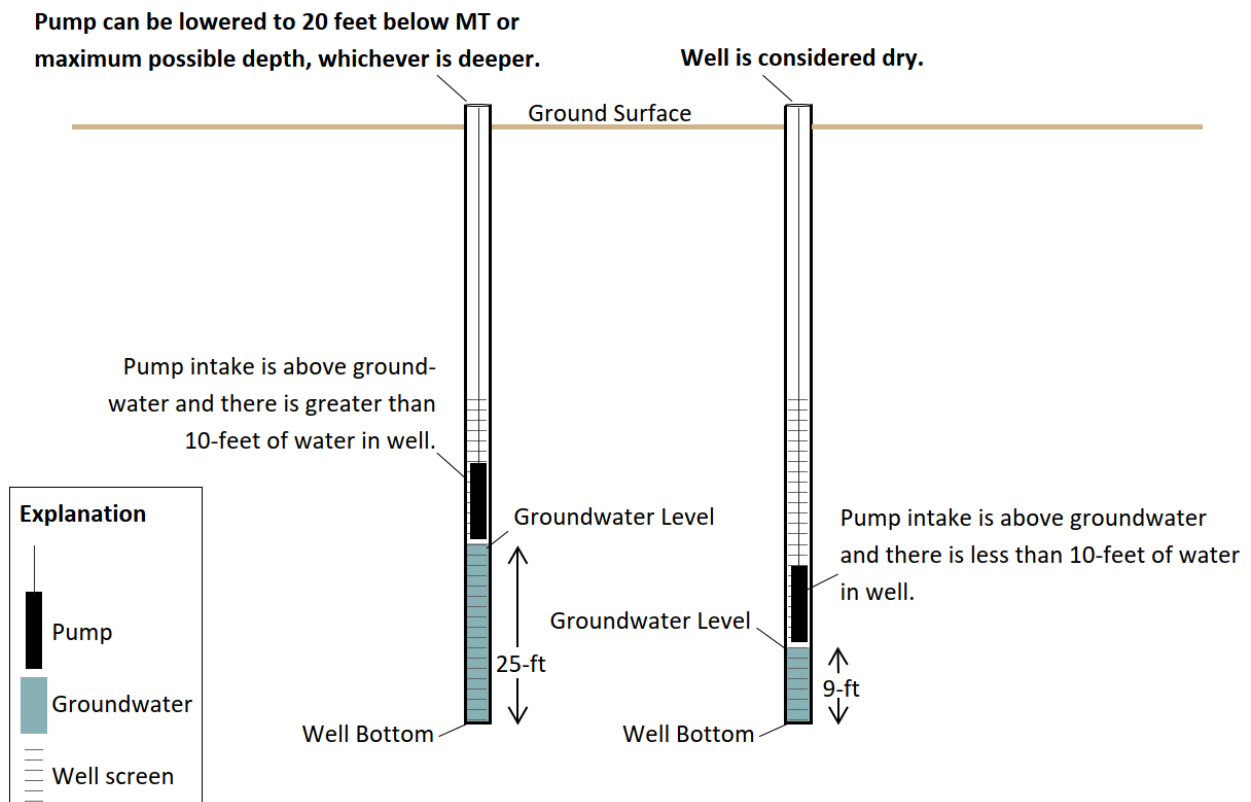


Figure 6: Criteria for Lowering Pump or Installing Replacement Well

### 7.3 NEW WELL

If a well is not sufficiently deep to lower the pump, and it is not feasible to deepen the well, then a replacement well may be installed. New wells will generally be completed to a depth of a minimum of 20 feet below the Sustainable Management Criteria Minimum Threshold in the well area or 50 feet deeper than the failed wells constructed depth, whichever is deeper. However, each well may be evaluated on a case-by-case basis to determine if these criteria are acceptable, or if other depths are more appropriate. Replacement wells will be constructed to the standards outlined in **Section 8** of this document.

### 7.4 OTHER OPTIONS

Other options could include referral to other existing programs if the well owner does not meet eligibility criteria. Another option could include connection to an existing water system. When the GSA determines it is feasible and practical, they may require connection to an existing water system over construction of a new well.

## 8 WELL DESIGN STANDARDS

DWR Bulletin 74 (DWR, December 1981) and Bulletin 74-90 (DWR, January 1990) set the minimum standards for water wells. Local jurisdictions have the authority to adopt standards which meet or exceed these standards. Well standards are administered and enforced at the local level. As such, mitigation wells shall comply with DWR Bulletin 74-81 and Bulletin 74-90, and any applicable County Water Well Standards. For standards that are periodically updated, the most current version of said standard shall be used. In addition, each GSA may have specific well construction standards (e.g. minimum depth) that must also be followed.

Links to applicable well standards, current as of the date of writing, are summarized in Table 3, below.

**Table 3: Applicable Well Construction Standards**

California Well Standards	Fresno County Well Standards	Tulare County Well Standards	Kings County Well Standards
<a href="#">Bulletins 74-81 &amp; 74-90</a>	<a href="#">Ordinance 14.04</a> <a href="#">Ordinance 14.08</a>	<a href="#">County Code Chapter 13-Construction of Wells</a>	<a href="#">Ordinance No. 587</a> <a href="#">Chapter 14A-Water Wells</a>
<a href="#">Bulletin 74-6</a>	<a href="#">Water Surveillance Program</a>	<a href="#">Environmental Health Division Water Wells Guidance Library</a>	<a href="#">Division of Water and Natural Resources</a>

### 8.1 WELL CONSTRUCTION

In addition to the State and local well standards identified directly above, domestic wells installed under the Well Mitigation Program must meet, at a minimum, the following specifications, in addition to any specifications formally authorized by the applicable GSA Board:

**Drilling Method:** Replacement and deepened wells installed under the Well Mitigation Program shall be drilled by cost-efficient drilling methods that are appropriate for the desired outcome. Mud rotary drilling will typically be the most appropriate method for the size of wells to be installed. Replacement and deepened wells will generally not be drilled into hard rock (i.e., bedrock).

**Installation Depth:** New wells and wells suitable for deepening will generally be completed to a depth of a minimum of 20 feet below the Sustainable Management Criteria Minimum Threshold in the well area, or 50 feet deeper than the failed wells constructed depth, whichever is deeper, or to a different depth if site specific conditions merit other criteria. Wells can be drilled deeper at the expense of the landowner.

**Well Casing:** Replacement and deepened wells installed by the Mitigation Program will generally be constructed with 5-inch or 6-inch nominal PVC casings and couplings conforming to the current ASTM F480 and AWWA A100 standards.

**Well Borehole:** Replacement well boreholes will be drilled to a minimum diameter of 10-inches. Boring diameters for domestic wells to be deepened will be determined on a case-by-case basis.

Sanitary Seals: Replacement well sanitary seals will be installed to the minimum depths required by local well standards. As of January 2024, in the absence of site-specific information necessitating a higher standard, the minimum sanitary seal depth for domestic wells in Fresno and Kings County is 20-feet and for Tulare County it is 50-feet.

Sounding Tubes: Sounding tubes are beneficial for reliable collection of groundwater level data. As such, 1-inch diameter PVC (or similar) sounding tubes may be installed in replacement and deepened domestic wells during construction, and in wells where the pump will be lowered.

Well Development: Following construction, replacement wells and deepened wells will be developed to industry standards for private domestic wells. Well development will be completed to the mutual approval of the GSA and the drilling contractor.

Electrical and Plumbing: Electrical and plumbing service may be provided to the extent necessary to restore water service to the residential dwelling associated with a replaced or deepened well. If necessary to provide service to the new well, other appurtenance upgrades may be provided such as powerpoles, electrical panels, groundwater rods, pressure tanks, etc. The GSA will not replace infrastructure that is adequately sized but in disrepair or poor condition.

Miscellaneous: Miscellaneous activities, such as clearing and grubbing, associated with domestic well replacement may be provided on a limited basis and at the discretion of the GSA.

## 8.2 WELL DESTRUCTION

The destruction of replaced wells will be conducted in conformance with state and local well standards. Domestic wells replaced under the Well Mitigation Program could be good potential monitoring points to collect groundwater level data, if groundwater levels have not fallen below the depth of the bottom of the well screen. On a case-by-case basis and at its discretion, the GSA may either have the replaced well destroyed or maintain the well as a monitoring point for tracking groundwater levels. Standard contractual terms will allow the GSA to access and monitor any wells maintained for monitoring. The GSA may pay necessary costs to destroy wells or convert them to monitoring wells.

## 9 PAYMENT OPTIONS

GSA and well owner payment responsibilities for interim measures and well mitigation are discussed below.

### 9.1 INITIAL WELL ASSESSMENT

The well owner will be responsible for contacting a well services contractor and initially paying for their investigation of the well. If the landowner shows that the well failed due to declining groundwater levels then that may be reimbursed by the GSA.

### 9.2 INTERIM MEASURES

The GSA may provide a temporary domestic water supply, as described in **Section 6**, until the completion of the mitigation measure if the well failure is determined to be a result of declining groundwater levels.

The extent of the interim measures will be determined based on household size. The costs for interim measures would be paid fully by the GSA until a permanent water supply is provided.

### 9.3 PUMP LOWERING

The GSA may incur the costs to lower an existing pump within a well when this mitigation measure is found appropriate following the TAC claim evaluation (**Section 7**). Such measures will be performed by a GSA preferred well service contractor.

### 9.4 REPLACEMENT WELLS AND WELL DEEPENING

Wells eligible for replacement will be subject to a cost-sharing agreement between the well owner and the GSA. As stated above, the 50-year life span is based on several references that state domestic well life expectancies range from 30 to 50 years. The GSA's portion of the cost of well replacement decreases proportionally with the age of the well at 2% per year, to account for depreciation of the well asset. For example, the GSA's portion of the replacement cost for 25-year old well would be 50%.

The GSA would pay the full cost for deepening a well, if that option is selected.

Costs for replacement wells, well deepening and well abandonment could be paid directly by the GSA, or by the landowner and then reimbursed by the GSA after submittal of invoices and field inspection of the well. Each GSA will be able to choose which payment option is used.

Following the TAC evaluation, a cost sharing agreement will be prepared if the GSA agrees to partially fund the mitigation. When this situation arises, the GSA may provide other funding options to cover the landowners share of the mitigation costs, including loans (discussed below) or referral to other programs.

New wells and deepened existing wells will adhere to the specifications presented in **Section 8** of this document or to the TAC recommendations. Newly installed wells may be installed by a GSA preferred well drilling contractor under pre-established rates and under contract with the GSA. Well owner responsibilities are explained in **Section 1**.

### 9.5 ZERO OR LOW INTEREST LOANS FOR WELL OWNERS

Zero or low interest loans may be offered to well owners to fill funding gaps when the mitigation grant does not meet the entire well cost. Any well owner may apply if a loan is needed once eligibility has been confirmed through the well claims process described in **Section 2**. The terms and conditions of any GSA provided loans would need to be established. Items to consider include credit worthiness of applicants, interest rates, maximum loan amounts, repayment periods, loan origination fees, collateralization, subsidization, and selection of a loan-issuing financial institution.

## 10 WELL OWNER RESPONSIBILITIES

Well owner responsibilities for the various facets of the Program are summarized below.

### 10.1 WELL CLAIMS PROCESS

- After submitting a claim application, the well owner will provide a copy of the well service contractor's assessment report and provide GSA staff access to the well, if needed, to collect additional information and confirm Program eligibility. The well owner will need to sign an agreement allowing the GSA to access and inspect their well.
- The claimant will be responsible for responding to any additional information requests by the GSA or TAC in a reasonable and timely manner.
- The claimant is responsible for providing safe and clear access to the well during the Well Claims Process and well mitigation activities.

### 10.2 INTERIM SOLUTIONS

- The claimant is responsible for providing safe and clear access for water deliveries.
- The claimant shall use interim water supplies for indoor domestic purposes only and should plan on limiting daily water usage to less than 50 gallons/person/day.

### 10.3 CONTRACTUAL AGREEMENT

- Wells installed or deepened under the Well Mitigation Program will be owned by the property owner, who will be responsible for all aspects of operation, maintenance, and repairs including but not limited to well appurtenances, electrical services, plumbing both above ground and below ground and within buildings.
- The quality and safety of water from private wells are not regulated by the Safe Drinking Water Act (SDWA) or any State or County laws. Individual well owners are responsible for maintaining and monitoring the water quality of their private systems. As such, the Program is not intended to assess the cause of or mitigate water quality issues. At their own discretion, the well owner can purchase or install water treatment equipment to a new well installed under the Program. If a treatment system is already installed, the GSA will connect it to the new well.
- Wells installed or deepened by the Well Mitigation Program will be used to supply water for domestic purposes only.
- If the GSA opts to keep the old well as a monitoring point instead of destroying it, the property owner shall take all reasonable measures not to damage or contaminate the abandoned well.
- The GSA will offer no warranty or guarantee on a well installed or deepened by the Well Mitigation Program. However, the GSA may require that drillers offer a minimum warranty to the



homeowners. It is recommended for the well owner to speak with their home insurance provider or a home warranty company to explore coverage options for private wells.

## 10.4 PAYMENT

- Well mitigation measures not completely funded by the GSA will require the claimant to pay the remaining portion of the mitigation measure cost. In these circumstances the GSA may assist claimants in securing low-cost loans as discussed in **Section 9**.