APPENDIX K. KERN SUBBASIN EXCEEDANCE POLICY AND ACTION PLANS

Appendix K-1: Kern Subbasin Exceedance Policy and Action Plans

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K-1.1 KERN SUBBASIN EXCEEDANCE POLICY

K-1.1.1 Introduction

The 2025 Amended Groundwater Sustainability Plan (2025 Plan) establishes Sustainable Management Criteria (SMCs) for four applicable Sustainability Indicators in the Kern County Subbasin (Kern Subbasin):

- Chronic Lowering of Groundwater Levels,
- Reduction of Groundwater Storage (using groundwater levels as proxy),
- Degraded Water Quality, and
- Land Subsidence.

This Kern Subbasin Exceedance Policy (Exceedance Policy) sets forth a common set of protocols and guidelines for the Kern Subbasin Groundwater Sustainability Agencies (GSAs) to follow after a reported exceedance at a single Representative Monitoring Site (RMS). The Exceedance Policy plays a fundamental role in implementation of the 2025 Plan as it:

1. Provides a consistent methodology for evaluating exceedance(s), including investigation into the cause and contributing factor(s);
2. Establishes notification protocols; and
3. Gathers critical information for implementation of the Kern Subbasin Well Mitigation Program (Appendix G to the 2025 Plan).

The Exceedance Policy is applicable to Minimum Threshold (MT) exceedances for groundwater levels, Water Quality Objectives (WQO) and/or MT exceedances for degraded water quality, and Interim Milestone (IM) exceedances for subsidence.

By adopting this Exceedance Policy, the Kern Subbasin GSAs agree to continued collaboration and coordination across the Kern Subbasin, transparent communications to stakeholders of groundwater and subsidence conditions in the Kern Subbasin, and to address specific exceedances through proactive identification and implementation of as needed targeted projects and/or management actions (P/MAs) designed to avoid future exceedances, and therefore undesirable results (URs).

K-1.1.1.1 Sustainability Indicator Action Plans

This Exceedance Policy is paired with a companion Action Plan for each applicable Sustainability Indicator. The Action Plans will be reviewed and revised as necessary based on lessons learned, resolution of data gaps, new monitoring data and/or tools become available, and as technical analyses evolve. The Action Plans are designed to be iterative documents with adaptive management anticipated, as needed.

K-1.1.2 Purpose

As established in the Kern County Subbasin Coordination Agreement, each GSA is responsible for monitoring groundwater levels, groundwater quality, and land subsidence conditions at identified RMS within its respective boundaries to evaluate ongoing compliance with the 2025 Plan. In addition to collecting data within each GSAs boundaries, it is essential that the GSAs share results with each other and with Kern Subbasin stakeholders, including beneficial users of groundwater (e.g., cities, community water systems, domestic well users, etc.).

Accordingly, the Kern Subbasin GSAs agree to follow common monitoring protocols as outlined in the Standard Operating Procedures (Appendix M to the 2025 Plan) and to use a shared Data Management System (DMS) for storing and sharing monitoring results, as detailed in the Kern County Subbasin Coordination Agreement (Appendix C-1).[1]

Per the 2025 Plan, the Kern Subbasin GSAs will utilize data collected at the RMS to evaluate groundwater and subsidence conditions and work cooperatively to avoid Subbasin-wide URs. Kern Subbasin conditions are assessed and documented in the Kern Subbasin's Annual Report, which is submitted to the California Department of Water Resources (DWR) annually by April 1. Each Annual Report will include information regarding compliance with, or exceedance of, SMCs.

K-1.1.3 Policy

The Exceedance Policy below supplements the Kern Subbasin's annual reporting by further documenting actions that will be taken to understand and address MT (or IM, for subsidence) exceedances and avoid future MT exceedances that may lead to undesirable results. The Exceedance Policy incorporates the following five general elements:

1. The GSA agrees to conduct monitoring at each applicable RMS or will compile publicly available data at each applicable RMS, per the Kern Subbasin's monitoring protocols.
2. The GSA agrees to upload monitoring results to the Kern Subbasin DMS per the Kern County Subbasin Coordination Agreement. If there is an MT exceedance at an RMS, a notification will be sent to all Kern Subbasin GSAs identifying the location and date of the MT exceedance.

[1] Use of a single DMS across the Kern Subbasin ensures that all data and information regarding groundwater conditions is available for preparation of a single Annual Report for the Kern Subbasin.

3. Within 60 days of an MT (or IM, for subsidence) exceedance notification, the GSA responsible for the RMS agrees to initiate an exceedance investigation. The exceedance investigation will evaluate conditions surrounding the RMS that may be contributing to the exceedance and follow the protocols outlined in the applicable Action Plan. Findings will be documented in an Exceedance Investigation Report prepared by the GSA.
4. The GSA agrees to provide a copy of the Exceedance Investigation Report to the Coordination Committee and other appropriate agencies (e.g., DWR California Aqueduct Subsidence Program or Friant Water Authority). The Coordination Committee will review the Exceedance Investigation Report within 60 days of receipt. If the exceedance is caused by groundwater management activities, it will count towards the criteria for assessing URs. The Coordination Committee may also recommend the GSA consider implementation of P/MAs to prevent a continued exceedance.
5. The Exceedance Investigation Report(s) will be included in the Annual Report submitted to DWR for the applicable water year.

K-1.2 ACTION PLAN FOR CHRONIC LOWERING OF GROUNDWATER LEVELS

K-1.2.1 Introduction

This Action Plan for Chronic Lowering of Groundwater Levels is a companion document to the Kern Subbasin Exceedance Policy. This Action Plan describes the protocols for Key Elements 1 (monitoring) and Step 3 (exceedance investigation) of the Exceedance Policy as they apply to the Chronic Lowering of Groundwater Levels Sustainability Indicator.

K-1.2.2 Monitoring for Chronic Lowering of Groundwater Levels

As described in the Kern Subbasin Monitoring Network & Protocols (Appendices L1 and M1 of the 2025 Plan), groundwater levels must be measured at each approved Representative Monitoring Well for Chronic Lowering of Groundwater Levels (RMW-WL) twice annually, during the following time frames:

- Spring (seasonal high): January 15 to March 30, and
- Fall (seasonal low): August 15 to November 15.

The Kern Subbasin Groundwater Sustainability Agencies (GSAs) are required to upload seasonal (Spring and Fall) groundwater elevation data to the Kern Subbasin Data Management System (DMS). While some GSAs may take more frequent readings, only Spring and Fall measurements are currently utilized to identify Minimum Threshold (MT) exceedances. If an MT at an RMW-WL is exceeded, the DMS will notify all Kern Subbasin GSAs of the exceedance, including the location and date.

K-1.2.3 Exceedance Investigation

An exceedance investigation is required when a Spring or Fall groundwater elevation measurement at a RMW-WL exceeds its Chronic Lowering of Groundwater Levels MT. Figure 1 below shows the general steps for an MT exceedance related to Chronic Lowering of Groundwater Levels:

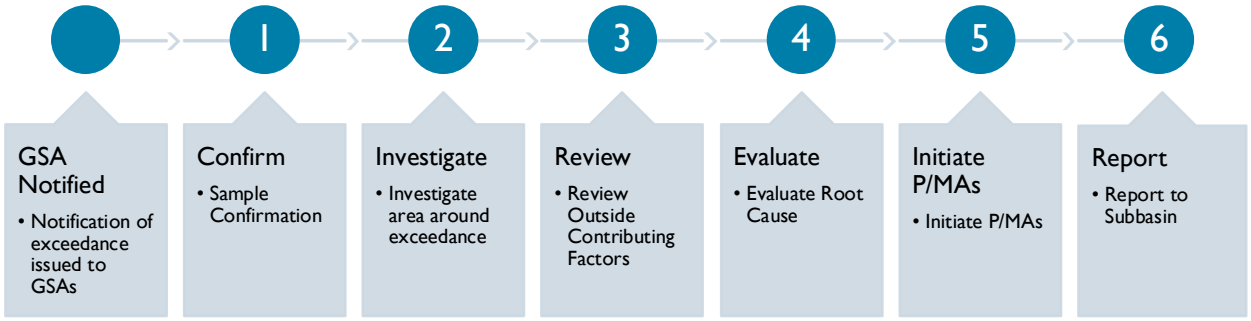


Figure 1. MT Exceedance Investigation Steps for Chronic Lowering of Groundwater Levels

Once an initial MT exceedance notification has been issued to the GSA through the DMS, the following steps shall be taken by the relevant GSA, or multiple GSAs, depending on groundwater conditions observed and result of seasonal measurements.

K-1.2.3.1 Step 1: Confirm Result

The GSA will confirm the reported result, as follows:

- Review field notes and confirm measurement;
- If measurement cannot be confirmed on field notes, re-measure depth to groundwater at RMW-WL; and
- Document location, well construction, lithology, condition of well.

If the confirmation measurement confirms there was not an MT exceedance, no additional action is required.

K-1.2.3.2 Step 2: Investigate Area Around Exceedance

The GSA will designate an independent, qualified, credentialed professional (professional) to perform an Exceedance Investigation. The professional will investigate the area around the RMW-WL with the MT exceedance, identifying any changes in land or water use, and comparing nearby groundwater level trends, as follows.

- Locate nearby production wells, document any new wells or groundwater users;
- Map current land use and compare to any recent changes in local land use;
- Describe local geology;
- Document water district/GSA operating conditions (i.e. surface water availability, water demand patterns, or changes in system); and
- Plot hydrographs of nearby wells that represent the similar groundwater conditions as the RMW that exceeded its MT, giving consideration to hydrogeologic features that affect groundwater conditions, as appropriate.

K-1.2.3.3 Step 3: Review Outside Contributing Factors

The professional will review outside contributing factors to the MT exceedance, including conditions and climactic conditions in adjacent areas managed by other GSA(s) and/or subbasin(s), as follows:

- Communicate, coordinate, and share data with neighboring GSAs and/or subbasins;
- Review regional groundwater elevation contour maps and/or the DMS for the RMW-WL network groundwater levels; and
- Document water year type, precipitation, and evapotranspiration (ET).

K-1.2.3.4 Step 4: Evaluate Root Cause

The professional will evaluate root cause for the MT exceedance to support a determination of whether the MT exceedance is due to groundwater management activities (e.g., groundwater extractions, recharge, or groundwater level changes), as follows:

- Provide assessment of well construction and/or well condition;
- Analyze groundwater level trends since (at least) 2015 using observed hydrograph data, Mann-Kendall test, or equivalent;
- Assess seasonal variation and range of groundwater levels measurements;
- Document changes in local demand;
- Identify whether current water levels have exceeded the recent historical low groundwater level; and
- Identify whether groundwater extraction volumes within a representative area around the relevant RMW-WL have changed in the last 1-3 years relative to the period preceding the exceedance.

K-1.2.3.5 Step 5: Evaluate and Initiate Projects or Management Actions

The GSA will consider the need for increasing the monitoring frequency in the relevant RMW-WL to monthly. The monitoring frequency for nearby RMW-WLs that may be in the radius of influence (as determined through Action Plan Steps 2 through 4) will also be evaluated.

The GSA will also consider whether targeted P/MAs are necessary or appropriate to improve groundwater levels to prevent future MT exceedances. This assessment will include reviewing the timelines and anticipated benefits of P/MAs and identifying whether accelerating planned P/MA schedules, or creating new adaptive P/MAs is warranted. The GSA will develop a timeline for implementing any additional P/MA(s).

K-1.2.3.6 Step 6: Report to Coordination Committee

The GSA will submit an Exceedance Report to the Coordination Committee within 60 days of the exceedance notification. The Exceedance Report will document the findings from Action Plan Steps 1 through 5.

The Exceedance Report will:

- Document the technical professional's finding as to whether the MT exceedance is related to groundwater management activities;
  - If yes, the Exceedance Report will describe any additional P/MA(s) to be implemented, including timeline(s) for initiation;
  - If no, the GSA will continue to monitor the RMW-WL per the Kern Subbasin monitoring protocols;
- Present any recommendations for additional monitoring; and
- Describe the notification procedures (e.g., distribution list, form and method(s) of notice, timeline, documentation, etc.)

K-1.3 ACTION PLAN FOR DEGRADED WATER QUALITY

K-1.3.1 Introduction

This Action Plan for Degraded Water Quality is a companion document to the Kern Subbasin Exceedance Policy (Exceedance Policy). This Action Plan describes the protocols for Key Elements 1 (monitoring) and 3 (exceedance investigation) of the Exceedance Policy as they apply to the Degraded Water Quality Sustainability Indicator.

The Action Plan for Degraded Water Quality will be triggered by an exceedance of a water quality objective (WQO) or an MT exceedance as related to an identified constituent of concern (COC) at a Representative Monitoring Well for Degraded Water Quality (RMW-WQ). This ensures that notification protocols are followed to alert the public to potential health risks, as appropriate.

The 2025 Plan identifies six COCs: arsenic, nitrate, nitrite, total dissolved solids, 1,2,3-trichloropropane (1,2,3-TCP), and uranium. Of these COCs, arsenic, nitrate, nitrite, 1,2,3-TCP and uranium have established WQOs based on primary drinking water standards for the protection of public health.

K-1.3.2 Monitoring for Degraded Water Quality

As described in the Kern Subbasin Monitoring Network & Protocols (Appendix L-1 and M-2 of the 2025 Plan), groundwater quality samples for the identified COCs must be measured at each RMW-WQ twice annually, within two weeks of groundwater level measurements, to the extent feasible.

The Groundwater Sustainability Agencies (GSAs) are required to upload seasonal (Spring and Fall) groundwater quality sample results to the Kern Subbasin Data Management System (DMS). While some GSAs may take more frequent readings, only the Spring and Fall samples are currently utilized to identify exceedances. If a sample at a RMW-WQ exceeds the WQO (based on a drinking water standard)[2] and/or MT, the DMS will notify all GSAs of the exceedance, including the location and date.

K-1.3.3 Exceedance Notification and Investigation

An exceedance notification is triggered when a Spring or Fall groundwater quality sample from a RMW-WQ has a concentration that exceeds the WQO. Additionally, an exceedance investigation is triggered when the corresponding groundwater quality

[2] For purposes of the 2025 Plan, water quality objectives include primary Maximum Contaminant Levels (MCLs), and Secondary Maximum Contaminant Levels (SMCLs), as established in the Water Quality Control Plan for the Tulare Lake Basin (Basin Plan) based on a maximum contaminant level (MCL).

sample also exceeds the Degraded Water Quality MT for the identified COC(s). When there is an exceedance of a WQO based on a primary drinking water standard for a COC, the timing for notification to domestic and non-public well owners[3] within the specified radius of an RMW-WQ varies depending on the COC. For nitrate exceedances, public notification to nearby domestic and non-public well owners will occur within 30-days from sample confirmation. For arsenic, nitrite, 1,2,3-TCP, and uranium, notification to domestic and non-public well owners will be provided within 10-days after completion of the exceedance investigation. In all cases, the exceedance investigation (triggered upon exceedance of the Degraded Water Quality MT) will be completed within 60-days of the GSA being notified of the exceedance. Figure 2 below shows the general steps for an exceedance related to Degraded Water Quality.

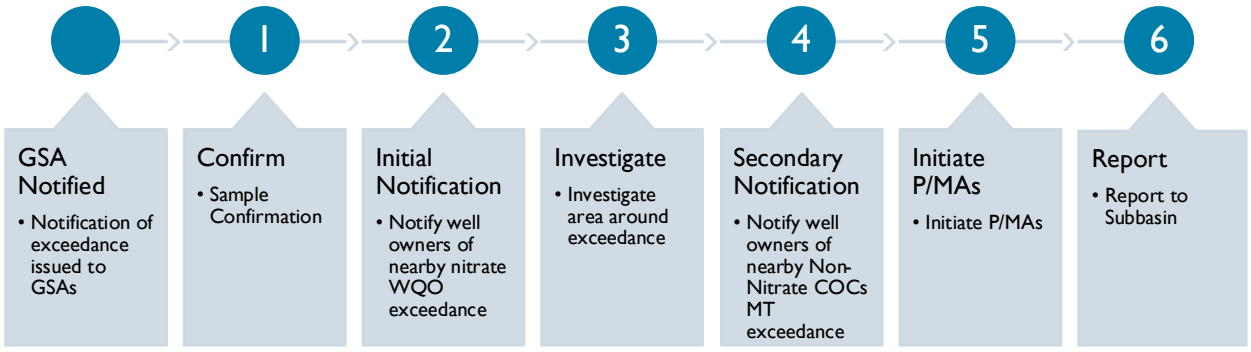


Figure 2. Exceedance Investigation Steps for Degraded Water Quality

Figure 3 below outlines the general notification and investigation procedures under Steps 1 through 4 and is followed by detailed descriptions of each step.

[3] The terms domestic well owner and non-public well as used in this appendix mean domestic wells that serve up to four service connections.

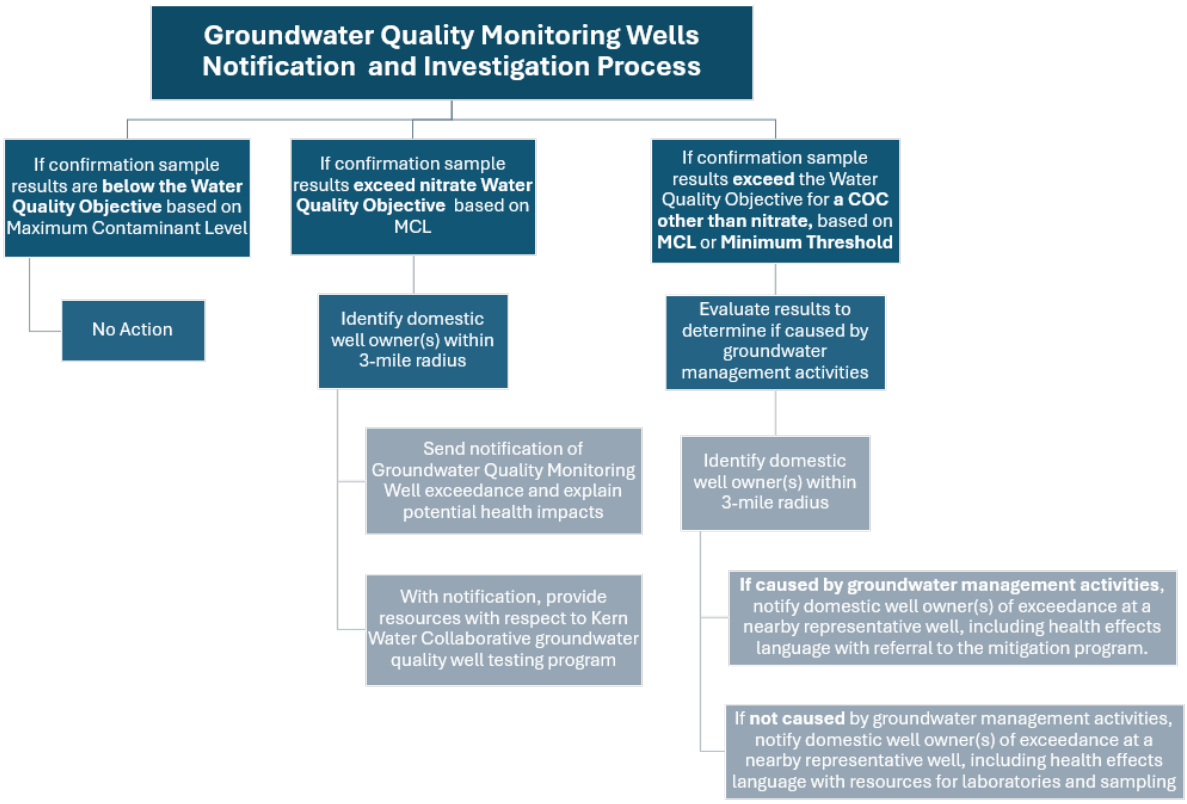


Figure 3. Notification and Investigation Procedures for Groundwater Quality Monitoring Wells

Once a GSA is notified that a WQO or MT has been exceeded (by the DMS or laboratory), the relevant GSA or GSAs will take the following steps.

K-1.3.3.1 Step 1: Confirm Result

The GSA will confirm the reported result exceeds the WQO, based on either a primary MCL and/or MT exceedance, as follows:

- Review lab sheets or field notes;
- Collect a confirmation sample by re-sampling the RMW-WQ; and
- Document location, condition of well, well construction (as available), and lithology (as available).

If the confirmation sample confirms the sample exceeds the WQO based on either the MCL and/or MT, proceed to Step 2.

Conversely, if the confirmation sample does not confirm a WQO and/or MT exceedance, no additional action is required.

K-1.3.3.2 Step 2: Domestic and Non-Public Well Owner Notification for Nitrate

If a GSA confirms that a sample result for nitrate exceeds the WQO under Step 1, the GSA will identify potential beneficial users at risk within the zone of influence of the RMW-WQ, as follows:

- Identify domestic and non-public (i.e., those wells that serve two to four connections for domestic uses) well owners of record within a 3-mile radius;
- Make reasonable efforts to identify additional notifications to domestic and non-public well owners that may be clustered around or associated with those at the periphery of the 3-mile radius; and

If the confirmation sample concentration(s) are above the WQO for nitrate, the GSA(s) will send direct mail notice to identified potential beneficial users at risk within the zone of influence of the RMW-WQ within 30-days of sample confirmation. The notification shall include details on the RMW-WQ exceedance, including an explanation of potential health impacts. The notice shall also provide information with respect to the Kern Water Collaborative's program for well-testing specific to nitrate, *at no cost* to the well owner.[4] Under the Kern Water Collaborative's program, alternative drinking water supplies are offered to residents reliant on a domestic well that exceeds the WQO for nitrate.

In some cases, the identified potential beneficial users at risk within the 3-mile radius may be outside of the GSA with the RMW-WQ exceedance. In this case, the GSA will provide notice in coordination with adjacent GSA(s).

If the confirmation sample confirms there is also an MT exceedance, proceed to Step 3.

K-1.3.3.3 Step 3: Exceedance Investigation

The GSA will designate an independent, qualified, credentialed professional (professional) to perform an Exceedance Investigation when there is an exceedance of a MT based on relevant, existing data and information. The Exceedance Investigation will involve investigating the pertinent area around the RMW-WQ with the MT exceedance, identifying pre-existing conditions, and identifying potential driving mechanisms, to determine a potential cause of the MT exceedance. This investigation shall include the following tasks and/or considerations:

- Locate nearby production wells, document any new wells or groundwater users;
- Map current land use and compare to any recent changes in local land use;

[4] On June 13, 2025, the Kern Water Collaborative took action to extend its nitrate well testing and alternative sources of drinking water program to domestic well owners throughout the entirety of the Kern Subbasin. A letter from the Kern Water Collaborative to State Water Resources Control Board staff documenting this decision was sent to State Water Resources Control Board staff on or about June 17, 2025.

- Describe local geology;
- Document water district/GSA operating conditions (i.e. surface water availability, water demand patterns, or changes in distribution system);
- Provide assessment of well construction and/or well condition;
- Plot hydrographs of nearby wells (3-mile radius) that represent the same groundwater conditions as the relevant RMW-WQ, and for the RMW-WQ, as available. Depending on location of RMW-WQ, consideration should be given to geologic features that affect groundwater conditions;
- Plot time concentration charts ("chemographs") for identified COCs for nearby wells (3-mile radius) and for the relevant RMW-WQ;
- Determine constituent source and if its presence in the aquifer is due to the actions of others that are a likely responsible party(ies);
- Plot historical water quality data to determine if water quality was degraded prior to January 1, 2015;
    - Historical water quality data may be supplemented from other monitoring programs, as needed (see Section 5.7.5 of the 2025 Plan for a full list of potential programs);
    - Since water quality data are not available for domestic and non-public wells, the professional shall rely on the baseline characterization provided in Section 8.4.2 of the 2025 Plan; see also Attachment 1 to this Action Plan (providing baseline data for small community wells that may be used as suitable proxy for domestic wells); see also Appendix I-4 to the 2025 Plan (providing RMW-WQs chemographs that include data representing baseline conditions and data from nearby proxy wells);
- Examine the local GSA's and neighboring GSAs' operations to determine if the MT exceedance is related to ongoing, standard operations consistent with operations prior to January 1, 2015, or after January 1, 2015.
- Determine if there is a statistically significant correlation between groundwater level trends and groundwater quality concentrations;
    - Conduct statistical and/or spatial analyses between groundwater levels and groundwater quality concentrations to determine causation, depending on the availability of data (e.g., an analysis could be performed if an RMW-WQ has at least five (5) sampling points with water level data that temporally overlaps with water quality data, a granger causality test, or equivalent, between water levels and water quality could be conducted;
- Identify nearby recharge operations and source water. Conduct statistical and/or spatial analyses between nearby recharge operations and water quality concentrations, or using other appropriate method(s); and

- Identify other potential driving mechanisms based on relevant local conditions, including (but not limited to) hydrogeology, geochemistry, redox conditions, land use, nearby point- and non-point sources, and well operations, relying on best available data and professional judgment (see, e.g., Section 8.4.2 of the 2025 Plan, referencing potential driving mechanism(s) for each identified COC);
- Review outside contributing factors to the MT exceedance, including operating and climate conditions in adjacent areas managed by other GSA(s) and/or subbasin(s);
    - Communicate, coordinate, and share data with neighboring GSAs and/or subbasins;
    - Review regional groundwater elevation contour maps and/or the DMS for the RMW-WL network groundwater levels and water quality; and
    - Document water-year type, precipitation, and evapotranspiration (ET).

Using the above information, the professional shall document the investigation and conclusions in an Exceedance Investigation Report. Conclusions shall include whether the MT exceedance is due to groundwater management activities (i.e., groundwater rechange and extractions). The exceedance investigation will be completed within 60-days of the GSAs being notified of the MT exceedance.

K-1.3.3.4 Step 4: Domestic and Non-Public Well Owner Notification for Non-Nitrate COCs

The GSA will use the findings from the Exceedance Investigation Report to evaluate whether domestic and non-public wells within the zone of influence are *assumed*[5] to be impacted due to groundwater management activities for non-nitrate COCs. It will:

- Document number of *assumed* wells to be at risk due to groundwater management activities; and
- Identify domestic and non-public well owners of record for wells *assumed* to be at risk versus others within the zone of influence that are not assumed to be at risk.

The GSA will send direct mail notice to nearby domestic and non-public well owners of record generally located within a 3-mile radius. After completion of the Exceedance Investigation, notice of the RMW-WQ exceedance will be provided to domestic and non-public well owners of record generally within a 3-mile radius if the exceedance is also an exceedance of a WQO based a primary drinking water quality standard. The content of the notice will vary depending on whether the Exceedance Investigation finds that domestic and non-public wells are *assumed* to be impacted due to groundwater management activities. The notice will be sent within 60 days of sample confirmation.

[5] Wells in the radius of influence are assumed to be impacted until they can be sampled and constituent concentration validated.

- **Notice 1**: If the professional has determined that the MT exceedance is due to groundwater management activities, then the domestic and non-public well owners of record for the *assumed* impacted wells will be provided notice that includes the following information:
  - Notice of the exceedance;
  - Notice that their well is *assumed* to be impacted;
  - Notice of the public health impacts associated with such exceedances; and
  - Specific information regarding the process available for submittal of an Application for Mitigation, which would include the opportunity for the *assumed* impacted well to be sampled and tested.
- **Notice 2**: If the independent professional has determined that the MT exceedance is NOT due to groundwater management activities, or the well is NOT one of the assumed impacted wells, then the domestic and non-public well owners of record will be provided notice that includes the following information:
  - Notice of the exceedance;
  - Notice that their well is NOT *assumed* to be impacted by groundwater management activities but that does not mean their well water is safe to drink as other factors may contribute to exceedances of drinking water standards;
  - Notice of the public health risks associated with exceedances of non-nitrate drinking water standards; and
  - General information regarding available resources should the domestic and non-public well owner desire to have their well sampled and tested at their own cost.

K-1.3.3.5 Step 5: Evaluate and Initiate Projects or Management Actions

The GSA will then consider initiating Projects and Management Actions (P/MAs), as appropriate.

The GSA will consider the need for increasing the monitoring frequency to monthly for the specific constituent that was exceeded in the RMW-WQ. The GSA will also evaluate the monitoring frequency for nearby RMW-WQs that may be in the radius of influence of the RMW-WQ where the exceedance was recorded.

The GSA will also consider whether targeted P/MAs should be implemented to improve groundwater conditions and prevent future exceedances. This assessment will include reviewing the timelines and anticipated benefits of P/MAs and identifying whether existing P/MA schedules should be accelerated or new, adaptive P/MAs implemented. The GSA will develop a timeline for implementation of the P/MA(s).

K-1.3.3.6 Step 6: Report to Coordination Committee

The responsible GSA or GSAs will provide an Exceedance Report to the Coordination Committee. The Exceedance Report will document the findings from Action Plan Steps 1 through 5, as detailed below. The Exceedance Report will be submitted to the Coordination Committee within 60 days of sample confirmation.

The contents of the Exceedance Report will include the following:

- Document how many initial notifications were mailed;
- Document the findings of the Exceedance Investigation Report conducted by the professional, including whether the MT exceedance was determined to be related to groundwater management activities;
    - If yes, the Exceedance Report will document how many wells were *assumed* to be impacted, how many secondary notifications were mailed, and the P/MA(s) identified and applicable timeline(s) for implementation;
    - If no, the Exceedance Report will document how many secondary notifications were mailed, and the GSA shall continue to monitor the RMW-WQ per the Kern Subbasin monitoring protocols;
    - If the Exceedance Report pertains specifically to nitrate, document how many wells are *assumed* to be impacted, how many nitrate-specific notifications were mailed under Step 2.
- Present recommendations for additional monitoring, as applicable.

K-1.4 ACTION PLAN FOR LAND SUBSIDENCE

K-1.4.1 Introduction

This Action Plan for Land Subsidence is a companion document to the Kern Subbasin Exceedance Policy. This Action Plan describes the protocols for Key Elements 1 (monitoring) and 3 (exceedance investigation) of the Exceedance Policy as they apply to the Land Subsidence Sustainability Indicator.

The Kern Subbasin Groundwater Sustainability Agencies (GSAs) recognize the nexus between groundwater levels and land subsidence and are exploring comparing land subsidence measured via the California Department of Water Resources (DWR) Interferometric Synthetic Aperture Radar (InSAR) to groundwater elevation changes in RMW-WLs in all Hydrogeological Conceptual Model (HCM) Areas. However, as discussed in the 2025 Plan, not all subsidence can be attributed to activities that are within the authority of the GSA to manage (i.e., GSA-related). Some non-GSA causes of subsidence include age of critical infrastructure, expansive/soluble soils, oil field extraction activities, lack of adequate pre-construction hydro-compaction, and geologic faulting and compaction.

Land subsidence driving mechanisms are complex, and residual subsidence can continue to occur for years. Therefore, the Kern Subbasin GSAs have conservatively extended Steps 1 through 3 of this Action Plan for Land Subsidence to be implemented when a single Land Subsidence Interim Milestone (IM) exceedance occurs. This ensures proactive investigation responses before a Minimum Threshold (MT) exceedance and accounts for the complex (GSA and non-GSA related) driving mechanisms for subsidence and residual subsidence, which can continue for years after groundwater levels are stabilized.

As discussed in the Exceedance Policy, this Action Plan will be reviewed and revised based on lessons learned, resolution of data gaps, new monitoring data and/or information, and new analytical methodologies. There are two anticipated review and revision cycles for the Subsidence Action Plan:

- Within six (6) months of receipt of the final DWR land subsidence Best Management Practices (BMPs) (currently in development, expected for release in late 2025), this Action Plan will be revised and may be revised, as appropriate, to identify specific standardized criteria for protocols, actionable timelines, and proposed project and/or management action (P/MA) responses consistent with the relevant BMPs.
- Once the California Aqueduct Subsidence Program (CASP) publishes the framework for California Aqueduct long-term rehabilitation (expected to be

completed in the next few years), Step 4 of this Action Plan will be reviewed and may be revised, as appropriate, to include mitigation alternative(s) as a P/MA.

Any updates to this Action Plan will be documented in the Annual Reports submitted to DWR.

K-1.4.2 Monitoring for Land Subsidence

The GSA(s) will collect and evaluate land subsidence data quarterly, and report them annually. The GSA(s) will compile and review available land subsidence data at the Representative Monitoring Sites for Land Subsidence (RMS-LS) and across the Kern Subbasin. Such data may include:

- Monthly DWR InSAR subsidence data (which is released quarterly);
- Continuous Global Positioning System (GPS) vertical displacement data;
- Extensometer compaction data;
- Benchmark and mile post precise survey results along Regional Critical Infrastructure (typically collected annually), such as:
    - Data collected by the DWR CASP for those RMW-LS along the California Aqueduct; and
    - Data collected by the Friant Water Authority (FWA) for those RMW-LS along the Friant-Kern Canal; and,
- Benchmark precise survey results collected by GSA(s) along GSA Area Critical Infrastructure.

Assessment of subsidence data will be conducted in close consultation with the relevant and appropriate agencies (e.g., CASP/DWR, FWA, CalGEM, etc.). Quarterly check-in teleconferences will be conducted between the Kern Subbasin GSAs and DWR CASP to discuss current data trends and the potential for IM and/or MT exceedances pertaining to critical infrastructure, if any.

The GSAs are required to upload annual land subsidence data to the Kern Subbasin Data Management System (DMS). While some data may have more frequent readings, only the quarterly InSAR measurements or annual precise survey results are currently utilized for identifying IM and/or MT exceedances. If an IM and/or MT is exceeded, the DMS will notify all GSAs of the exceedance, including the location and date.

K-1.4.3 Exceedance Investigation

The 2025 Plan defines Land Subsidence SMCs on three scales: mileposts along Regional Critical Infrastructure (i.e., California Aqueduct and Friant-Kern Canal), average adjacent to GSA Area Critical Infrastructure, and average across each HCM Area. An exceedance investigation is required when at least one of the following occurs:

- The land subsidence rate and/or extent monitored at a single RMS-LS (i.e., milepost) along the California Aqueduct or Friant-Kern Canal exceeds its Land Subsidence IM or MT rate and/or extent based on two consecutive quarterly InSAR sampling events or one annual survey measurement.
- The DWR InSAR land subsidence rate and/or extent along GSA Area Critical Infrastructure based on two consecutive quarterly sampling events exceeds the GSA Area Critical Infrastructure IM or MT, based on best available subsidence data (e.g., InSAR, annual survey data, CGPS, extensometers, etc).
- The DWR InSAR land subsidence rate and/or extent averaged across the HCM Area based on two consecutive quarterly sampling events exceeds the HCM Area IM or MT, based on best available subsidence data (e.g., InSAR, annual survey data, CGPS, extensometers, etc).

InSAR measures vertical deformation in millimeters; as such, various factors can cause fluctuation in data (recovery or subsidence) over a short temporal period. A minimum of two consecutive quarterly sampling events are necessary to confirm the exceedance. For the Regional Critical Infrastructure, annual survey data, where available, will also be assessed to ground-truth InSAR measurements. As discussed above, quarterly check-in teleconferences will be conducted between the Kern Subbasin GSAs and DWR CASP to discuss current land subsidence trends and the potential for IM and/or MT exceedances pertaining to Regional Critical Infrastructure, if any.

Figure 4 below outlines the general process and timeline triggers for each of the three exceedance investigation pathways.

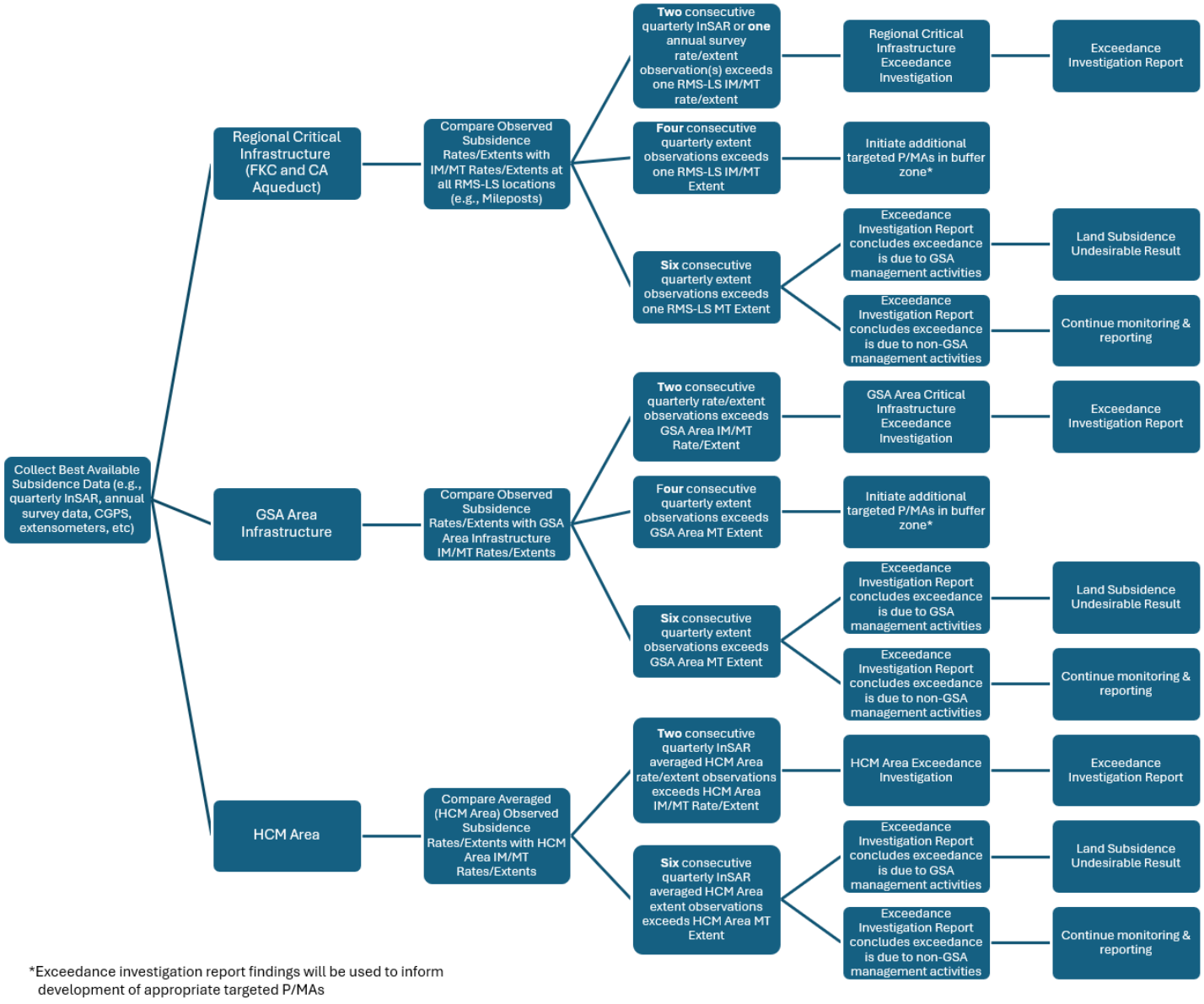
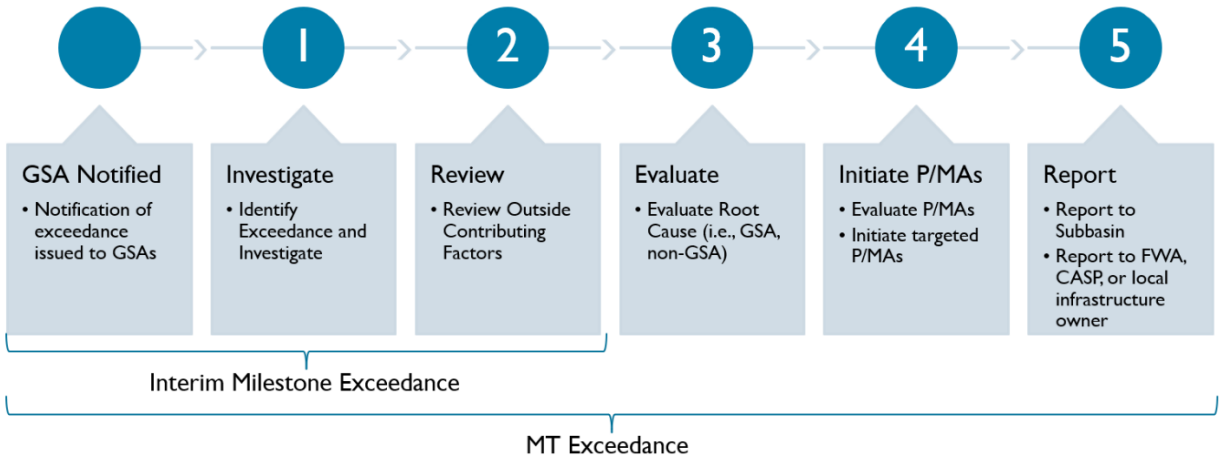


Figure 4. General Process and Timeline Triggers for Land Subsidence

Figure 5 below shows the general steps for an IM and/or MT exceedance related to Land Subsidence.



If the rate after 4 consecutive quarterly sampling events continues to exceed the MT extent, additional GSA management actions (such as pumping restrictions, etc.) must be initiated in a focused area identified under steps 2-4

Figure 5. IM and/or MT Exceedance Steps for Land Subsidence

Once an initial IM and/or MT exceedance notification has been issued through the DMS, the following steps shall be taken by the GSA, or multiple GSAs, depending on prior exceedances and GSA actions.

Pending future Action Plan revisions based on final DWR land subsidence BMPs, the GSA will determine if the exceedance has been previously identified, and, if so, will examine previous GSA management actions taken to address the exceedance.

- If the exceedance persists such that the subsidence rate after four consecutive quarterly sampling events exceeds the IM and/or MT extent, additional focused GSA management actions (such as localized metering, new well moratoriums, pumping restrictions, etc.) will be timely scheduled and implemented (i.e., within 60 days, unless otherwise specified), and will be informed by the Exceedance Investigation as described in the Action Plan Steps 1 through 4.
- If no prior exceedance has been identified and no GSA management actions have been taken to address the exceedance, the Action Plan Steps 1 through 5 will be implemented. The GSA will also identify potential beneficial users at risk due to the exceedance.

K-1.4.3.1 Step 1: Investigate Area Around Exceedance

Within 60 days of notification, the GSA will designate an independent, qualified, credentialed professional (professional) to perform an Exceedance Investigation based on relevant, existing data and information.

The professional will investigate the area around the IM and/or MT exceedance, identifying any changes in land or water use, and comparing nearby land subsidence trends, as follows:

- Locate nearby wells and identify status and use, document any new wells or groundwater users;
- Map current land use and compare to recent changes in local land use;
- Describe local hydrogeology;
- Plot hydrographs of nearby Kern Subbasin wells (within a radius of 2.5 miles of an IM and/or MT subsidence exceedance point);
- Plot cumulative displacement since July 2015 based on InSAR, since 2016 based on DWR CASP precise survey data, and/or since 2015 based on FWA precise survey data;
- Document GSA operating conditions (i.e., beneficial users at risk, water demand patterns, surface water availability, etc.);
- Document GSA-related groundwater extractions using either direct methods (metered data) or indirect methods (Land IQ evapotranspiration data, or best available data); and
- If data availability allows, estimate critical head using 1-D modeling.

The GSA may develop a coordinated field investigation protocol in consultation with relevant and appropriate agencies (e.g., DWR, CASP, FWA etc.) as part of this Action Plan.

K-1.4.3.2 Step 2: Review Outside Contributing Factors

The professional will review outside contributing factors to the IM and/or MT exceedance, including conditions in adjacent GSA(s) and/or subbasin(s), climactic conditions, and non-GSA factors, as follows:

- Communicate, coordinate, and share data with neighboring GSAs and subbasins;
- Review regional contour maps and/or DMS for the RMW-WL network groundwater levels;
- Review regional land subsidence trends; and
- Review for potential non-GSA factors: map local soil types, identify nearby faults, identify nearby oil and gas operations and quantify extractions and reinjections using data provided on CalGEM dashboard.

K-1.4.3.3 Step 3: Evaluate Root Cause

The professional will evaluate potential root causes for the exceedance to support a determination of whether the exceedance is due to groundwater management activities

within the GSA's authority to manage.[6] Assessments will include the elements described below.

For direct measurements of land subsidence (land-based survey or InSAR):

- Analyze trends;
- Assess for seasonal variations;
- Identify exceedance cause:
  - Compare DWR TRE-Altamira quarterly Kern Subbasin InSAR data for previous four consecutive quarters at the reported IM/MT Exceedance location (i.e., including surrounding 2.5-mile radius) with previously available data at the mile post or within the HCM Area with the IM/MT Exceedance;
  - Identify all wells and uses in the assessment area and, if non-GSA activities are identified, collect and review supplemental evidence (e.g., CalGEM production information, Underground Injection Control (UIC) Application data, etc.) and published hydrogeologic information for submittal to the relevant and appropriate agencies; and
  - Determine if a more refined InSAR analysis is needed (e.g., InSAR Time Series utilizing DWR Tre-Altamira data or, if necessary, the 12-step data processing utilized for refined assessment provided in the 2025 Plan Section 8.5.

K-1.4.3.4 Step 4: Evaluate and Initiate GSA Projects or Management Actions

If the cause of the exceedance is determined to be GSA-related, the GSA will evaluate the need for targeted GSA Projects and Management Actions (P/MAs), as follows:

- Identify area of influence for GSA P/MAs;
- Identify whether a single GSA P/MA or suite of targeted GSA P/MAs will address the exceedance. Potential targeted P/MAs may include:
  - Well registration,
  - New well moratorium,
  - Metered production,
  - Groundwater pumping charges, and/or
  - Pumping restrictions;
- Finalize corrective P/MAs and next steps in consultation with the Coordination Committee and relevant and appropriate agencies; and

[6] As discussed in the 2025 Plan, similar investigations have been conducted along the Aqueduct by the Subbasin GSAs and the Westside District Water Authority (WDWA) GSA in consultation with CASP and DWR to identify the disparate causes of subsidence, not all of which are GSA-related.

- Implement GSA P/MAs in consultation with relevant and appropriate agencies, as necessary.

If the cause of an exceedance is determined to be non-GSA, the GSA will document and report such findings to all relevant and appropriate agencies.

Friant-Kern Canal: Appendix G-2 of the 2025 Plan provides information on additional data collection and modeling being conducted by a consortium of GSAs to evaluate future impacts on water levels and subsidence adjacent to areas of interest along the Friant-Kern Canal.

California Aqueduct: DWR CASP is currently studying the options for long-term rehabilitation projects. Once CASP publishes the framework for rehabilitation (expected to be completed in the next few years), mitigation alternative(s) may be included in this Step as a P/MA, as needed.

While the current Action Plan for Land Subsidence is not a mitigation plan, it is important to note that the GSAs located near the primary subsidence Aqueduct “choke points” are also member units of the Kern County Water Agency and, through their Statements of Charges, are financially contributing to broader repair and mitigation efforts undertaken by DWR. This ongoing financial participation provides a strong incentive for these GSAs to meet subsidence management targets and reinforces alignment with CASP's goals without requiring duplicative or premature commitments. The Kern Subbasin GSAs will continue to engage with CASP on this issue especially once DWR SGMO releases their subsidence BMPs and as CASP releases additional information (including scope, timeline, and cost structure) for the California Aqueduct Subsidence Planning Study Alternatives and Formulation and Evaluation Phase.

K-1.4.3.5 Step 5: Report to Coordination Committee, CASP/FWA, or Local Infrastructure Owner, as appropriate

The GSA(s) will prepare and provide an Exceedance Report documenting the findings from Action Plan Steps 1 through 4.

If the exceedance is found to be due to GSA-related activities, the Exceedance Report will be submitted to the Coordination Committee and relevant and appropriate agencies within 60 days of completing the investigative process. The Exceedance Report will include findings and recommendations of GSA P/MAs that are proposed or implemented. The IM and/or MT exceedances will be identified and discussed in the next Annual Report that follows the exceedance event.

If the exceedance is found to be non-GSA-related, the GSAs will continue to monitor, document, and report to relevant and appropriate agencies (e.g., DWR, CASP, CalGEM, FWA, etc.).

Appendix K-1: Kern Subbasin Exceedance Policy and Action Plans - Attachment 1

Attachment 1. Summary of WQ COC Concentrations in Small Community Wells

Water System Name	Population Served	Well Name	Public Supply Code	Well Status	1,2,3-TCP (ppt)				Arsenic (ppb)			Nitrate as N (ppm)			Nitrite as N (ppm)			Total Dissolved Solids (ppm)			Uranium (pCi/L)		
					Count	min	max	median	min	max	median	min	max	median	min	max	median	min	max	median	min	max	median
Old River Mutual Water Company	126	Well 01	CA1500096_001_001	Active	28	<5	34	<5	-	<2	-	10.5	13	13	-	<0.1	-	420	450	435	<2	34	25
Mirasol Company Water System		Well 02	CA1500152_002_002	Active	6	-	<5	-	4.4	8.5	6.3	-	<0.4	-	-	<0.1	-	540	630	610	-	<2	-
Stockdale Annex Mutual Water Company	433	NORTH WELL	CA1500211_001_001	Active	6	-	<5	-	-	<2	-	<0.4	0.7	2.5	-	<0.1	-	130	190	170	-	-	-
Stockdale Annex Mutual Water Company		SOUTH WELL	CA1500211_002_002	Active	6	-	<5	-	-	-	-	0.4	2.5	0.7	-	<0.1	-	180	233	215	-	-	-
Victory Mutual Water Company	849	WELL 01 (MARION)	CA1500231_002_002	Active	37	<5	253	66	3.6	6.0	5.1	1.9	8.4	3.1	-	<0.1	-	550	1,400	570	-	-	-
Athal Mutual Water System	150	WELL 01	CA1500289_005_005	Active	29	<5	290	16	5.0	7.5	6.3	2.3	12	4.1	-	<0.1	-	480	600	590	-	<2	-
Fuller Acres Mutual Water Company	545	Well 01	CA1500296_002_002	Active	30	<5	52	14	<2	14	8.0	1.3	4.9	2.9	-	<0.1	-	400	480	430	16	16	16
Brock Mutual Water Co	462	Well 01 - South	CA1500409_001_001	Active	95	<5	180	91	<2	32	3.0	11	12	12	-	<0.1	-	320	480	360	3.6	9.3	3.6
Brock Mutual Water Co	462	Well 02 - North	CA1500409_002_002	Active	94	<5	130	22	<2	17	5.0	1.5	10	3.0	-	<0.1	-	220	370	240	14	14	14
Agbayani Village Water System	38	Well 01	CA1500518_001_001	Active	6	-	<5	-	6.3	8.0	7.0	13	18	17	-	<0.1	-	610	740	730	-	-	-
Harvest Moon Mutual Water Company	138	Well 01 (Heath/Blackhawk) - Raw	CA1500546_001_001	Active	29	<5	20	<5	-	<2	-	3.3	9.7	6.2	-	<0.1	-	220	320	270	5.3	7.1	6.4
Harvest Moon Mutual Water Company		Well 02 (Johnson/Moon)	CA1500546_002_002	Active	24	<5	20	6	-	<2	-	3.4	9.5	5.6	-	<0.1	-	260	300	270	8.6	10	11
Ranchos Del Rio	62	WELL 02, INACTIVE	CA1500553_002_002	Inactive																			
Ranchos Del Rio		WELL 04	CA1500553_004_004	Active	5	-	<5	-	-	<2	-	-	<0.4	-	-	<0.1	-	150	180	160	-	<2	-
Mustang Mutual Water System		Well 01	CA1500555_001_001	Active	29	<5	26	22	3.7	4.1	4.7	2.4	5.3	3.1	-	<0.1	-	150	180	160	-	-	-
Stockdale Ranchos Mutual Water Company	393	WELL 01 (ENSENADA/SAN SIMEON)	CA1500557_001_001	Active	6	-	<5	-	-	<2	-	3.4	4.3	4.0	-	<0.1	-	-	200	-	-	-	-
Kranenburg Water System	42	Well 01	CA1500560_001_001	Active	10	<5	7	<5	-	<2	-	10	12	11	-	<0.1	-	200	350	243	2.9	5.1	4.8
Round Mountain Water Company	50	WELL 01	CA1500561_001_001	Active	7	-	<5	-	-	<2	-	2.3	4.6	3.7	-	<0.1	-	430	510	480	20	50	27
Round Mountain Water Company		WELL 02	CA1500561_002_002	Active	7	-	<5	-	-	<2	-	<0.4	5.1	2.1	-	<0.1	-	330	360	350	12	65	22
San Joaquin Estates Mutual Water Company	165	WELL 01	CA1500575_001_001	Active	29	14	510	320	4.3	8.7	5.9	4.0	23	14	-	<0.1	-	1,300	2,000	1,750	12	13	13
Gooselake Water Company	90	Well 01 Stephanie St - Raw	CA1500584_001_001	Active		<5	16	<5	-	<2	-	2.5	12	8.0	-	<0.1	-	230	290	280	4.0	14	8.4
Oasis Property Owners Association		Well 01, INACTIVE	CA1500585_001_001	Inactive	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Oasis Property Owners Association	100	Well 02, STANDBY	CA1500585_002_002	Standby	1	12	12	12	3	40	11	2	16	11	-	<0.1	-	560	730	645	-	2.7	-

Water System Name	Population Served	Well Name	Public Supply Code	Well Status	1,2,3-TCP (ppt)				Arsenic (ppb)			Nitrate as N (ppm)			Nitrite as N (ppm)			Total Dissolved Solids (ppm)			Uranium (pCi/L)		
					Count	min	max	median	min	max	median	min	max	median	min	max	median	min	max	median	min	max	median
Oasis Property Owners Association		Well 03	CA1500585_003_003	Active	7	<5	140	<5	7	13	11	1.1	10	1.5	-	<0.1	-	250	270	260	-	<2	-
Uplands Of The Kern Mutual Water Company	80	WELL 01	CA1500593_001_001	Active	6	-	<5	-	<2	10	<2	-	<0.4	-	-	<0.1	-	140	210	180	-	-	-
Uplands Of The Kern Mutual Water Company		WELL 02	CA1500593_003_003	Active	5	-	<5	-	-	<2	-	-	<0.4	-	-	<0.1	-	180	210	200	2.1	5.9	3.3
Di Giorgio School Water System		WELL 02	CA1502068_002_002	Active	26	<5	26	<5	<2	29	11	-	5.0	-	-	<0.1	-	-	330	-	-	<2	-
Lakeside School		LAKESIDE SCHOOL 01, INACTIVE	CA1502154_001_001	Inactive																			
Lakeside School	897	Well 02- Raw	CA1502154_002_002	Active	7	<5	6	<5	<2	20	15	-	<0.4	-	-	<0.1	-	240	250	245	2.4	3.8	3.1
Llanas Camp Four Water System	54	Well 01 - Raw	CA1502164_001_001	Active	23	12	150	60	<2	3.3	2.6	1.6	10	5.2	-	<0.1	-	180	330	310	-	-	-
Pond School Water System	250	Well 02 - Before AS-TRT	CA1502221_002_002	Active	5	-	<5	-	7	34	15	3.1	4.2	1.8	-	<0.1	-	-	-	-	-	-	-
Rio Bravo Greeley School Water System	1219	Well 01 - Before_GAC- TCP & IX - Nitrate Pend	CA1502229_001_001	Active	55	54	470	150	<2	<2	2	4.7	14	10	-	<0.1	-	-	-	-	-	-	-
Nord Road Water Association	32	Well 01 - Before Arsenic RO TRT	CA1502383_001_001	Active	7	<5	12	<5	<2	19	14	0.6	2.3	1.5	-	<0.1	-	110	160	140	-	-	-
Panama Road P.O.A.	45	Well 02	CA1502465_002_002	Active	6	<5	45	<5	5.5	8.0	7.9	3.3	5.2	3.9	-	<0.1	-	570	740	685	-	2.4	-
Schweikart Water System	27	WELL 01	CA1502545_001_001	Active	13	<5	13	<5	-	<2	-	4.2	8.9	3.5	-	<0.1	-	170	220	180	4.4	4.9	4.7
Wegis Mutual Water Company	64	Well 01	CA1502600_001_001	Active	6	<5	7	<5	<2	<2	4	0.7	1.6	1.3	-	<0.1	-	130	180	165	-	-	-
Pond Mutual Water Company	48	Well 01 - Before_ADSP-Aresnic_TRT	CA1502620_001_001	Active	5	-	<5	-	5.1	18	13	2.4	4.5	2.7	-	<0.1	-	160	270	190	-	7.0	-
Heath Brimhall P.O.A.	39	Well 01	CA1502629_001_001	Active	7	<5	9	<5	-	<2	-	3.2	9.9	4.0	-	<0.1	-	210	260	230	-	2.2	-
Meadows of the Kern Mutual Water Co		Well No. 01 - Raw	CA1502645_001_001	Active	7	-	<5	-	-	<2	-	-	<0.4	-	-	<0.1	-	150	330	290	-	<2	-
Meadows of the Kern Mutual Water Co		Well No. 02 - Raw	CA1502645_002_002	Active	6	-	<5	-	-	<2	-	-	<0.4	-	-	<0.1	-	260	430	325	-	<2	-
Meadows of the Kern Mutual Water Co		Well No. 03 - Raw	CA1502645_003_003	Active	6	-	<5	-	<2	2.0	<2	-	<0.4	-	-	<0.1	-	370	480	410	-	<2	-
Meadows of the Kern Mutual Water Co	32	Well No. 04 - Raw	CA1502645_004_004	Active	6	-	<5	-	<2	3.0	1	-	<0.4	-	-	<0.1	-	190	300	220	-	<2	-
Town & Country Water Company	73	WELL 01 - RIVERTON	CA1502663_001_001	Active	8	-	<5	-	-	<2	-	<0.4	0.6	<0.4	-	<0.1	-	120	130	125	<2	89	<2
Town & Country Water Company		WELL 02 - BOREL	CA1502663_002_002	Standby	1	-	<5	-	-	-	-	<0.4	17	16	-	<0.1	-	-	-	-	-	<2	-
East Wilson Road Water Company	35	Well 01 - Raw	CA1502699_001_001	Active	29	<5	62	18	2.9	3.7	5.2	9	15	12	-	<0.1	-	970	1,300	1,200	-	9.3	-
Riverview Home Owners Association	40	Well 01	CA1502750_001_001	Active	6	-	<5	-	-	<2	-	<0.4	3.8	<0.4	-	<0.1	-	260	410	260	5.2	6.2	5.3
Ski West Village Water System	101	WELL 01	CA1502757_001_001	Active	2	-	<5	-	-	-	-	<0.4	3.0	<0.4	-	<0.1	-	-	-	-	-	-	-
Paradise Water System	31	Well 01 - Raw	CA1503194_001_001	Active	29	<5	270	120	<2	3.3	3.3	<0.4	13	7.4	-	<0.1	-	-	-	-	-	-	-

Water System Name	Population Served	Well Name	Public Supply Code	Well Status	1,2,3-TCP (ppt)				Arsenic (ppb)			Nitrate as N (ppm)			Nitrite as N (ppm)			Total Dissolved Solids (ppm)			Uranium (pCi/L)		
					Count	min	max	median	min	max	median	min	max	median	min	max	median	min	max	median	min	max	median
Superior Mutual Water Company	61	Well 01	CA1503209_001_001	Active	30	<5	57	<5	3.9	6.5	10	<0.4	3.1	0.7	-	<0.1	-	-	150	-	-	<2	-
Superior Mutual Water Company		Well 03	CA1503209_004_004	Active	29	<5	97	55	2.0	2.4	3.8	2.0	4.7	3.7	-	<0.1	-	300	380	350	-	<2	-
Four Winds Water System	100	Well 01	CA1503231_001_001	Active	1	42	42	42	-	-	-	5.4	9.3	4.2	-	<0.1	-	-	-	-	-	<2	-
GGG Water System	60	Well 01	CA1503330_001_001	Active	7	<5	6	<5	-	<2	-	2.2	4.4	3.3	-	<0.1	-	230	320	240	-	-	-
Western Acres Mutual Water Company	380	WELL 01	CA1503475_001_001	Active	6	-	<5	-	<2	2	<2	0.6	2.1	1.7	-	<0.1	-	180	200	190	-	<2	-
Western Acres Mutual Water Company		WELL 03 - STBY2015	CA1503475_003_003	Standby	1	-	<5	-	-	<2	-	<0.4	3.6	1.8	<0.1	1	0.3	330	360	345	-	-	-
Western Acres Mutual Water Company		WELL 04	CA1503475_004_004	Active	28	<5	65	33	<2	17	<2	<0.4	6.5	5.6	-	-	-	330	480	370	-	-	-
The Anne Sippi Clinic - Riverside Ranch	51	WELL 01- INAC2023	CA1503509_003_003	Inactive																			
Wini Mutual Water Company	29	WINI WELL	CA1503526_001_001	Active	28	<5	19	9	3.4	5.5	5.0	14	33	10	-	<0.1	-	620	740	630	<2	3.1	3.0
Grace Community Church Water System	52	Well 01 -Raw	CA1503648_001_001	Active	16	-	<5	-	-	-	-	1.6	5.4	4.2	-	<0.1	-	-	-	-	-	-	-
Dirty Bird H2O	25	Well 01	CA1503650_001_001	Active	9	-	<5	-	-	-	-	2.7	6.0	2.4	-	<0.1	-	-	-	-	-	-	-
Derrel's Mini Storage #66	28	Well 01	CA1503667_001_001	Active	14	-	<5	-	-	-	-	10	10	5.0	-	<0.1	-	-	-	-	-	-	-
North Kranenburg Water System	28	Well 01	CA1503669_001_001	Active	28	<5	16	<5	<2	2	<2	0.9	7.2	4.5	-	<0.1	-	180	330	225	2.3	5.0	3.6

*Notes: The minimum, maximum, and median values for 1,2,3-Trichloropropane (TCP), arsenic, nitrate as N, nitrite, and total dissolved solids (TDS) are based on SDWIS data collected on November 20, 2024, covering the period from January 1, 2015, to November 20, 2024. Uranium data are based on all available SDWIS data up to November 20, 2024.

Red text indicates concentration is above the water quality objective.

The Chronic Lowering of Groundwater Levels MTs generally maintain existing local groundwater gradients and are thus anticipated to be protective in terms of preventing migration of poor-quality water within the Kern Subbasin. Section 8.4 evaluates a list of 14 potential COCs and identifies six COCs applicable to the Kern Subbasin. Trend analyses have been conducted to evaluate the relationship between groundwater management activities (e.g., chronic lowering of groundwater levels and implementation of P/MAs) and to identify driving mechanisms for increasing constituent concentrations. Findings of these analyses are:

- No direct correlation has been observed between groundwater management activities and increasing concentrations of 1,2,3-TCP or uranium.
- No clear Subbasin-wide correlation between groundwater management activities and increasing concentrations of arsenic and nitrates. However, the driving mechanisms for degradation indicate that concentrations may increase in some wells, depending on well construction and lithology, when groundwater levels decline.
- A direct correlation was observed between banking programs (P/MAs) and decreasing concentrations of naturally occurring TDS.

Driving mechanisms to exacerbate arsenic and nitrates concentrations is provided in the following section. With each constituent summary, an assessment of COC concentrations in small community wells is provided along with discussion of the risk of new water quality objective exceedances. Small community water systems can be used as a proxy for areas lacking water quality data, particularly where there is moderate density of domestic and state-small water systems.

Arsenic

Observations from trend analyses of public supply wells indicate a relationship between declining groundwater levels and increasing arsenic concentrations in some areas of the Kern Subbasin. This relationship is somewhat dependent on well construction, and strongly dependent on lithology. Areas where arsenic may be present above the water quality objective, set based on the drinking water MCL of 10 ppb, are:

- Where the E-clay (Corcoran Clay) is present with well screens across the clay deposits.
- In the Delano-McFarland Area, some wells that are deeper than 800 feet bgs may exceed the arsenic MCL.
- In the Kern River Fan HCM Area, some wells that are deeper than 600 feet bgs may exceed the arsenic MCL.
- In the eastern portion of the South Basin HCM Area, some wells that are deeper than 550 feet bgs may exceed the arsenic MCL.

Wells that are moderately deeper than these regional depth estimates can fluctuate above and below the water quality objective with water level changes. Some wells significantly deeper (i.e., wells that extend into the base of fresh water) than the region-specific levels are more likely to exceed the arsenic water quality objective regardless of groundwater levels. However, this observation cannot be consistently applied to all wells in any of the HCM Areas. Approximately 14 percent of small community wells have a maximum concentration of arsenic above the 10 ppb water quality objective, while 11 percent have a median concentration above the water quality objective.

- 9 of 56 active public water supply wells have a maximum arsenic concentration above the water quality objective.
- As applied directly to public water supply wells as a drinking water standard, compliance with the arsenic MCL is based on a running annual average of sample results. Thus, actual compliance with the MCL for these wells cannot be estimated without further research. Six of the 9 wells have a median concentration above the water quality objective of 10 ppb.
- Another 6 active wells have median arsenic concentrations between 5 and 9.9 ppb.

Nitrates

Analysis of municipal and small community wells, and varying geologic conditions indicates the primary influence to fluctuating nitrate concentrations are localized (i.e., there are no known nitrate plumes that are migrating as a result of dense pumping centers). Where the E-clay is present, nitrates are commonly below the water quality objective and there is no clear relationship between nitrate concentration fluctuations and groundwater levels.

In the Kern River Fan HCM Area, where significant banking activities occur, nitrate concentrations appear to be reduced by the high-quality waters used for recharge and/or banking. Several wells were evaluated and demonstrate that nitrate concentrations are typically diluted by the large volumes of recharge. Based on the analysis conducted, nitrate is commonly present above the water quality objective of 10 ppm in the following circumstances:

- In shallow wells where the source of nitrate is persistent (i.e., septic systems), and when groundwater levels decline during dry periods when pumping is more intensive.
- Where the E-clay is present but localized conditions enable nitrate to migrate laterally or vertically. While Kern County Environmental Health adopted an ordinance to protect against migration of contaminant plumes, older wells or improperly destroyed wells could serve as a conduit for constituent migration.

Approximately 23 percent of small community wells have a maximum concentration of nitrate above the water quality objective of 10 ppm; 15 percent have a median concentration above the objective. Based on data trending analysis and the relatively narrow range between percentage of wells with maximum and median arsenic concentrations above the water quality objective, localized conditions appear to contribute to most water quality objective exceedances.

- 8 of 56 active wells have a maximum nitrate concentration above the objective.
- Another 8 active wells have median nitrate concentrations between 5 and 9.9 ppm.
- These eight wells with median nitrate concentrations above 5 ppm are the highest risk of a water quality objective exceedance and potentially triggering an UR.

TDS

Most of the Kern Subbasin, with the exception of the Western Fold Belt HCM Area, is considered high-quality with respect to TDS because concentrations are generally equal to or less than 500 ppm. Water quality objectives for TDS are based on Secondary MCLs, which are consumer acceptance limits and are not based on risks to public health. In the Basin Plan, groundwater designated for municipal beneficial use are not to exceed the TDS Upper Limit of 1,000 ppm. TDS ranging in the Upper Limit of 1,000 ppm is acceptable if it is demonstrated that it is not reasonable or feasible to achieve lower levels.

The Western Fold Belt HCM Area is an exception because groundwater is naturally saline due to the extensive presence of marine sediments. Hydrogeologic conditions that pre-date development, such as the channeling of groundwater flow by the San Joaquin Valley Syncline and the obstruction of flow by various anticlines, influence gradients and are important factors affecting the occurrence of TDS in the Kern Subbasin. There are no known driving mechanisms that would result in migrating high TDS groundwater from the Western Fold Belt into areas where TDS is below the water quality objective.

Appendix K-2: Degraded Water Quality Implementation Provisions

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Tables

K-2 DEGRADED WATER QUALITY IMPLEMENTATION PROVISIONS

Establishing appropriate Sustainability Management Criteria (SMCs) for Degraded Water Quality is a critical component of the Sustainable Groundwater Management Act (SGMA) and the 2025 Amended Groundwater Sustainability Plan (2025 Plan). Equally important is understanding how the SMCs for Degraded Water Quality will be implemented by the Kern County Subbasin Groundwater Sustainability Agencies (Kern Subbasin). The 2025 Plan ensures that the Kern Subbasin have a consistent methodology for evaluating data against the SMCs and consistent triggers for taking certain actions based on data results. For example, the 2025 Kern Subbasin Exceedance Policy (Appendix K-1), sets forth consistent methodologies for evaluating data against the Degraded Water Quality SMCs, notifying groundwater beneficial users of water quality objective (WQO) and MT exceedances, and for conducting Minimum Threshold (MT) exceedance investigations. The 2025 Kern County Subbasin Mitigation Program (Appendix G-1) explains the Degraded Water Quality Mitigation Program Track and how it will be implemented throughout the Kern Subbasin.

This document details actions that will be taken by Kern Subbasin GSAs based on the results of data evaluation and against the Degraded Water Quality SMCs and under the Degraded Water Quality Mitigation Program Track. This Appendix also summarizes and explains the Kern Subbasin's coordination efforts with other existing state and local programs related to water quality. Collectively, the Kern Subbasin refers to these combined elements as the Degraded Water Quality Implementation Provisions.

For ease in understanding the comprehensive nature of the Degraded Water Quality Implementation Provisions, this Appendix includes four parts:

- Part I – Summary of Degraded Water Quality SMCs and Constituents of Concern
- Part II – Stakeholder Roles, Responsibilities and Coordination
- Part III – Implementation of SMCs for Degraded Water Quality
- Part IV – Public Notification and Mitigation for Degraded Water Quality

In summary, the 2025 Plan includes multiple details, descriptions, data evaluations and more related to Degraded Water Quality throughout various sections of the 2025 Plan. However, to better understand the comprehensive nature of the Degraded Water Quality program contained in the 2025 Plan, the Kern Subbasin GSAs have developed this stand-alone appendix for stakeholders to better understand the totality of the Degraded Water Quality Implementation Provisions.

K-2.1 Part I – Constituents of Concern and Degraded Water Quality SMCs

In Section 8.4, the Kern Subbasin provides a thorough analysis of groundwater quality conditions across the Kern Subbasin and identifies constituents of concern (COCs) based on this analysis. In Section 13.3, the Kern Subbasin establishes its SMCs for Degraded Water Quality. The SMCs include criteria for Undesirable Results (URs), Minimum Thresholds (MTs) and Measurable Objectives (MOs). A summary of each is provided in sections A and B, respectively.

A. Constituents of Concern

To identify appropriate constituents of concern (COCs), the Subbasin GSAs conducted a consistent assessment across the Subbasin of existing groundwater conditions to identify groundwater constituents that are most prevalent and may be potentially impacted by groundwater management activities (Sections 8.4.1 and 8.4.2). The Kern Subbasin then developed SMCs for COCs that meet all of the following criteria (Section 13.3.1.4):

- *Existence of Water Quality Objective Based on a Drinking Water Standard*[1]*:* A COC meets this criterion if there is an adopted water quality objective in the Water Quality Control Plan for the Tulare Lake Basin (Basin Plan) based on a maximum contaminant level (MCL). For this process, water quality objectives include primary Maximum Contaminant Levels (MCLs), and Secondary Maximum Contaminant Levels (SMCLs). SMCs were not developed for COCs that do not have existing water quality objectives. For COCs where there are no adopted water quality objectives based on state-adopted drinking water standards (i.e., emerging constituents), such COCs will be reevaluated in the next periodic evaluation to determine (1) if new water quality objectives are available; and, (2) if the COC meets other criteria as detailed in Section 8.4. Notably, where there is no water quality objective, but an otherwise adopted drinking water standard exists, the Kern Subbasin, at its discretion, may use such standard for evaluation of emerging constituents (e.g., PFOS and PFOA).
- *Post-SGMA Exceedance of Water Quality Objective*: A COC meets this criterion if, based on GAMA data from 2015 through 2023, at least 5 percent of wells sampled Subbasin-wide exceed the applicable water quality objective for the COC, as described in Section 8.4.1. SMCs were not developed for COCs that

[1] Maximum Contaminant Levels (MCLs) are legally enforceable standards that apply to the finished water, meaning the water delivered to the consumer, not to the source water. Treatment is often required to by public and community water systems to meet drinking water standards. Primary maximum contaminant levels and secondary maximum contaminant levels set forth in Title 22 of the California Code of Regulations (Title 22) are incorporated by reference into the Basin Plan. The incorporation-by-reference of Title 22 maximum contaminant levels in the Basin Plan is prospective, including future changes to the incorporated provisions as the changes take effect.

had reported water quality objective exceedances in less than 5 percent of sampled wells.

- *Potential to Impact Beneficial Users:* A COC meets this criterion when both of the following conditions apply: (1) the COC is prevalent throughout the Subbasin; and (2) concentrations are or have the potential to be exacerbated by groundwater management activities taken by the GSAs. A COC is considered prevalent throughout the Subbasin if post-SGMA (i.e., 2015-2023) median concentrations exceed the water quality objective in any HCM area, as described in Section 8.4.1. A COC would have the potential to be exacerbated by groundwater management activities if concentrations are affected by groundwater level or chemistry changes. A COC was considered to have high potential to impact beneficial users if both criteria were met, moderate potential if one of these criteria was met, and low potential if neither of these criteria were met. SMCs were not developed for COCs with low potential to impact beneficial users.

The results of the screening process for each identified COC are summarized in Table 1 (same as Table 13-6). The COCs applicable for the development of Degraded Water Quality SMCs, as shown in bold text in Table 1, are arsenic, nitrate (as N), nitrite, total dissolved solids (TDS), 1,2,3-Trichloropropane (1,2,3-TCP), and uranium. The COCs that were evaluated against the criteria but for which Degraded Water Quality SMCs were not included are included in Table 1 in plain text.

Table 1. Criteria for Developing Degraded Water Quality SMCs

Constituent of Concern	Existing Water Quality Objective	% of Wells Exceeding Water Quality Objective	Potential to Impact Beneficial Users	SMC Developed
Arsenic	10 ppb	22.4%	High	Yes
Nitrate (as N)	10 ppm	14.9%	Moderate	Yes
Nitrate + Nitrite (as N)	10 ppm	24.9%	Moderate	Yes
Nitrite (as N)	1 ppm	1.8% [1]	Moderate	Yes
Total Dissolved Solids	1,000 ppm	11.7%	Moderate	Yes
1,2,3-Trichloropropane (1,2,3-TCP)	5 ppt	44.5%	Moderate	Yes
Uranium	20 pCi/L	7.2%	Moderate	Yes
1,2 Dibromoethane (EDB)	20 ppt	0.7%	Low	No
1,2,-Dibromo-3-chloropropane (DBCP)	200 ppt	2.0%	Low	No
Benzene	1 ppb	0.5%	Low	No
Gross Alpha	15 pCi/L	5.1%	Low	No
Perfluorooctanoic acid (PFOA)	4 ppt	14.8%	N/A[2]	No[2]
Perfluorooctanoic sulfonate (PFOS)	4 ppt	6.9%	N/A[2]	No[2]

Constituent of Concern	Existing Water Quality Objective	% of Wells Exceeding Water Quality Objective	Potential to Impact Beneficial Users	SMC Developed
Selenium	50 ppb	0.9%	Low	No

[1]As discussed in Section 8.4, nitrite is primarily non-detect in the Kern Subbasin. Median concentrations and exceedance locations of total nitrate/nitrite (as N) are similar to the prevalence of nitrate. SMCs were established for individual nitrate species because they contribute to the total nitrate/nitrite (as N).

[2] In April 2024, the USEPA announced the Final MCLs for PFOA and PFOS of 4 ppt. Per the USEPA's final rule, public water systems have three years (by 2027) to complete initial monitoring and five years (by 2029) to implement solutions. In California, the DDW is in the process of developing primary MCLs consistent with California Code of Regulations, Title 22 for PFOA and PFOS. Once primary MCLs are adopted by DDW, they are incorporated into the 2025 Plan as a water quality objective. Due to limited existing data at a Subbasin-wide scale and lack of an adopted water quality objective, SMCs for PFOA and PFOS are not set at this time. Kern Subbasin GSAs will use emerging data from public water systems to conduct an initial assessment of Kern Subbasin conditions. SMCs for PFOA and PFOS will be informed by data collected during Plan implementation and will be evaluated as part of the first Periodic Evaluation.

As described more fully in Section 13.3.1, the Kern Subbasin GSAs have identified domestic well owners[2] as the most vulnerable beneficial users for the Degraded Water Quality sustainability indicators. The SMCs for Degraded Water Quality are thus designed to prioritize protection of the most vulnerable beneficial users, which are inherently protective of all other beneficial users. By prioritizing the protection of the most vulnerable groundwater users, the Degraded Water Quality SMCs are designed to ensure the protection of all beneficial users in the Subbasin.

In setting MTs for Degraded Water Quality (Section 13.3.2), the Kern Subbasin has evaluated data from 1994 through the present (where data is available) to set MTs at either (1) an estimated baseline condition based on available data; or, (2) based on applicable water quality objectives for protection of the municipal and domestic supply (MUN) beneficial use.[3] In all cases, the Kern Subbasin has compared available data against applicable water quality objectives for protection of MUN to establish appropriate and protective MTs.

[2] The terms domestic well owner and non-public well as used in this appendix mean domestic wells that serve up to four service connections. Reference to state small water systems in this appendix means a drinking water system as defined in Health and Safety Code section 116275, which services at least 5, but not more than 14 service connections and does not regularly serve drinking water to mor than an average of 25 individuals daily for more than 60 days out of the year. Notably, as part of the 2025 Plan, and as documented therein, the Kern Subbasin as prepared an extensive well inventory that categorizes well type by their use, which is set forth in Section 5, Table 5-5. Use of such terminology for purposes of the well inventory and data analysis should not be construed to conflict with similar terms as defined and applied by the State Water Resources Control Board's Division of Drinking Water, which regulates water systems that are considered to be public water systems used for drinking water, because the terms are used for different purposes.

[3] The Water Quality Control Plan for the Tulare Lake Basin (Basin Plan) defines MUN to mean "[u]ses of water for community, military, or individual water supply systems, including, but not limited to, drinking water supply." To protect MUN, the Basin Plan incorporates by reference state drinking water standards for both primary and secondary contaminants (i.e., primary and secondary MCLs).

Other beneficial uses of groundwater, e.g., agricultural irrigation or industrial use, are generally less sensitive than MUN and thus such uses are sufficiently protected by using water quality objectives designed to protect MUN. Furthermore, the 2025 Plan establishes a network of representative monitoring wells for water quality (RMW-WQ) with sufficient Subbasin-wide coverage to monitor impacts to all Subbasin beneficial users. Details regarding the Degraded Water Quality monitoring program are available in Section 15.2.4.

B. Degraded Water Quality SMCs

Degraded Water Quality SMCs include criteria for Undesirable Results (URs), Minimum Thresholds (MTs) and Measurable Objectives (MOs). The legal definitions for each are included in Section 11.

Consistent with the legal definitions, the Kern Subbasin has established criteria for each SMC, which are set forth in detail in Section 13.3.

K-2.1.1 Undesirable Results (URs)

The Subbasin-wide definition of URs for Degraded Water Quality is as follows (Section 13.3.1):

> *The point at which significant and unreasonable impacts occur over the planning and implementation horizon, as caused by water management actions, that affect the reasonable and beneficial use of, and access to groundwater by overlying users.*

Notably, the Kern Subbasin's approach to Degraded Water Quality does not address Degraded Water Quality URs that occurred before and not corrected by January 1, 2015 (CWC § 10727.2(b)(4)), which is consistent with SGMA. The URs definition focuses on whether water quality conditions have degraded due to GSA projects and groundwater management actions activities since the effective date of SGMA, January 1, 2015.

To implement the Subbasin UR definition, the Kern Subbasin has identified quantitative UR criteria for Degraded Water Quality for the applicable COCs:

1. Subbasin-wide, 15 percent of RMW-WQ exceed the MT for COCs per water year based on confirmed sample and MT Exceedance investigation results[4]; or
2. Annually, 5 percent of domestic wells have an assumed MT Exceedance[3] based on radius of influence analysis around the RMW-WQ that exceeds the MT, with cumulative maximum of 15 percent of domestic wells through 2040; or,
3. A GSA is unable to meet well mitigation needs[3]

[4] Water quality exceedances and mitigation applications are evaluated as defined in the Exceedance Policy and Action Plan for Degraded Water Quality (Appendix K-1) and Well Mitigation Program (Appendix G-1).

For purposes of evaluating compliance with the UR criteria, a domestic well means both a domestic well that serves less than two connections and non-public or state small water systems that serve less than 25 people.

The three separate and distinct UR criteria are designed to evaluate if URs are occurring on a Subbasin basis or localized basis, or in the case of the third criteria, if a GSA is unable to provide sufficient resources to mitigate Degraded Water Quality for impacts caused by their projects and management activities within their GSA area.

Implementation of the UR criteria is explained further in Part 3 below.

K-2.1.2 Minimum Thresholds

MTs for Degraded Water Quality (Section 13.3.2) are set for the six COCs at each of the RMW-WQ and are tied to regulatory water quality standards – namely, water quality objectives that are considered protective of the MUN beneficial use (i.e., primary and secondary MCLs contained in CCR Title 22), as applicable to each COC. The MT and MOs for Degraded Water Quality for each RMW-WQ are shown in Section 13, Table 13-8. The MT is set for each RMW-WQ based generally on the following criteria:

1. MT is set at the water quality objective if the following condition is met:
    a. Limited or no historical water quality sample results (data)
2. If historical data exceeds the water quality objective:
    a. And at least 5 sample results are available, MT is set at the 80th Percentile of all data
    b. If there are less than 5 sample results, proxy data is used to set the MT at the 80th Percentile of all available data
3. Discretion is applied in setting the MT when data shows a trend
    a. If there is an increasing trend, MT set at the 80th Percentile of Pre-2015 data
    b. If there is a decreasing trend, MT set as close to the water quality objective as reasonable considering the following
        i. Timeframe for calculating the 80th Percentile is Post-2015 data
        ii. Median value, rather than 80th Percentile
        iii. Other circumstances for a lower MT may apply when most historical data is at or below the MT
    c. If the 80th Percentile is within 10% of the water quality objective, the MT is set at the water quality objective
4. Proxy Data is used primarily to demonstrate baseline conditions that support the MT, discretion may be applied when
    a. The MT may be based on proxy well data when RMW-WQ and proxy well are similar enough to represent the same lithology/aquifer conditions

b. Sample results show consistent concentration and/or trends

Implementation of the MTs is explained further in Part 3below.

K-2.1.3 Measurable Objectives

MOs for Degraded Water Quality (Section 13.3.3) are defined for key COCs: arsenic, nitrate, nitrite, TDS, 1,2,3-TCP, and uranium. The MOs for Degraded Water Quality are set at the water quality objective for protection of the MUN beneficial use. The MOs for Degraded Water Quality for each RMW-WQ are shown in Section 13, Table 13-8.

K-2.2 Part II - Stakeholder Roles, Responsibilities and Coordination

With respect to Degraded Water Quality, there are many other agencies and entities operating in the Kern Subbasin that also seek protect water quality throughout the Subbasin. Section 5.7.5 describes existing groundwater quality monitoring and management programs within the Kern Subbasin. Implementation of such responsibilities and authorities must be coordinated to the extent feasible to ensure that degraded groundwater quality conditions improve, future degradation does not occur or is minimized, and those reliant on groundwater as a source of domestic and municipal water supply have access to safe and affordable drinking water. It is also imperative that these various entities coordinate their activities so that the Kern Subbasin can more efficiently use its resources to protect public health and avoid duplication of activities.

Accordingly, the Kern Subbasin's implementation efforts for Degraded Water Quality include working closely with multiple entities and stakeholders for the benefit of all stakeholders across the Kern Subbasin. To better understand the roles and responsibilities of key entities within the Kern Subbasin that play a part in the Kern Subbasin's groundwater quality conditions, such roles, responsibilities and coordination amongst the entities are summarized here.

K-2.2.1 Kern Subbasin GSAs

When it comes to groundwater quality conditions, the Kern Subbasin GSAs are required by SGMA to manage the groundwater basin in a manner that does not result in significant and unreasonable degradation of groundwater quality beyond conditions in existence as of January 1, 2015 (CWC §§ 10721(x)(4), 10727.2(b)(4)) due to groundwater management activities. To avoid such degradation, the Kern Subbasin has established SMCs for Degraded Water Quality. However, just establishing SMCs is not enough, and the Kern Subbasin must affirmatively take actions toward implementation of the SMCs.

In summary, these actions include:

- Monitoring for impacts from projects and management activities and evaluating the relationship between the SMCs and such activities (Section 15);

- Identifying and taking corrective actions if groundwater management activities are degrading water quality below applicable SMCs (Section 14);

Reporting monitoring results, impacts and findings from studies and investigations conducted and making such results available to the public (Section 15.2.4 and Appendix K-1);

- Informing domestic and non-public well owners about local groundwater conditions that may represent groundwater conditions for their well (Appendix K-1);
- Informing domestic and non-public well owners about local resources available for domestic well testing (Appendix K-1);
    - Providing mitigation to domestic and non-public well users if degraded water quality conditions are due to groundwater management activities (Appendix G-1); and,
    - Working closely with community partners for the benefit of the Kern Subbasin as a whole.

The Kern Subbasin GSAs understand they are in a unique position to coordinate efforts with respect to groundwater quality conditions throughout the Kern Subbasin. For example, as the Kern Subbasin implements its monitoring program, which includes monitoring for the COCs twice a year at the RMW-WQs, data regarding groundwater quality conditions will be collected. It is important that the Kern Subbasin work with other entities and agencies to share this data and information with domestic well owners within a radius of influence of an RMW-WQ and notify domestic well and non-public well owners of available resources when water quality objectives have been exceeded.

Further details specific to notifications and mitigation for Degraded Water Quality are provided in Part 4 below.

K-2.2.2 State Water Board's Division of Drinking Water

The Division of Drinking Water (DDW) within the State Water Board regulates public water systems and enforces standards established in Title 22 for public water systems to protect public health. A public water system is defined by law to mean a system for the provision of water for human consumption through pipes or other constructed conveyances that has 15 or more service connections or regularly serves at least 25 individuals daily at least 60 days out of the year (Health and Safety Code § 116275(h)). Domestic, non-public, or wells for state small systems that do not meet the definition of being a public water system are either not regulated or are regulated by Kern County. Notably, as explained in footnote 2 above, DDWs regulations apply to finished water served by public water systems and do not regulate groundwater conditions within the aquifer.

DDW's primacy with respect to regulating public water systems does not change due to the existence and implementation of SGMA. Similarly, regulation, or lack thereof, for domestic and non-public wells does not change due to SGMA. Rather, the Kern Subbasin GSAs serve an important role by further promoting the importance of safe drinking water throughout the Subbasin for all beneficial users. Specific to Kern Subbasin authorities and responsibilities, the Kern Subbasin will implement the SMCs in the manner described in the 2025 Plan to avoid degrading groundwater quality above water quality objectives for protection of MUN beneficial uses as set forth in the Basin Plan or above MTs, as applicable. If degradation to a domestic well does occur and such degradation is due to GSA groundwater management activities – mitigation for such actions is available through the Kern Subbasin Well Mitigation Program (Appendix G).

K-2.2.3 Central Valley Regional Water Quality Control Board

The Central Valley Regional Water Quality Control Board (Central Valley Water Board) has primary authority to protect "waters of the state" from discharges of waste. Waters of the state are defined broadly to include all surface and groundwaters within California. Through this authority under the Porter-Cologne Water Quality Control Act (Porter-Cologne), the Central Valley Water Board prescribes requirements on discharges to groundwater that must implement the Basin Plan, which includes both the designated beneficial uses and water quality objectives necessary to reasonably protect beneficial uses (Wat. Code, § 13263). When it issues waste discharge requirements, the Central Valley Water Board may authorize use of assimilative capacity in local groundwater as long as the discharge will not cause groundwater to exceed applicable water quality standards and the discharge is to the maximum benefit to the people of the state.

Within the Kern Subbasin, the Central Valley Water Board regulates a number of dischargers and their discharges of constituents that overlap with the COCs identified in the 2025 Plan. Dischargers regulated by the Central Valley Water Board include irrigated agriculture, dairy facilities, publicly owned treatment works, oil and gas activities, industrial dischargers, land application of biosolids, food processors and others. To a lesser extent, the Central Valley Water Board maintains an oversight role with respect to septic systems through its review and approval process of Local Agency Management Plans (LAMPs) for septic systems.

Two constituents of significant interest for both the Kern Subbasin and the Central Valley Water Board are nitrate (as N) and salts (expressed in this 2025 Plan as total dissolved solids or TDS). Through a multi-year stakeholder process commonly referred to as CV-SALTS (Central Valley Salinity Alternative for Long-Term Sustainability), the Central Valley Water Board adopted and the State Water Board approved a Central Valley-Wide Salt and Nitrate Control Program, which incorporates two independent programs for salt and nitrate into the Basin Plan: Salt Control Program and Nitrate

Control Program. The Kern Subbasin is actively coordinating with local groups and entities directly involved in implementation of both programs (see below for further details)

The Central Valley Water Board also maintains significant enforcement authority to bring actions against dischargers or potential dischargers of contaminants to groundwater. Such actions include authority to issue Cleanup and Abatement Orders (Wat. Code, § 13304) to sources of groundwater contamination – typically associated with some sort of industrial discharge or plume created from industrial activities. Through its groundwater monitoring activities, if Kern Subbasin GSAs become aware of some significant source of contamination that appears to be degrading groundwater, the Kern Subbasin GSAs intend to share that information with the Central Valley Water Board as appropriate.

K-2.2.4 Kern Water Collaborative

The Kern Water Collaborative (KWC) is a local, non-profit organization that was organized in conjunction with the Central Valley Water Board's Nitrate Control Program under CV-SALTS. In summary, the KWC provides those that are subject to the Nitrate Control Program an option for participating in a management zone – as allowed under the Basin Plan. As a management zone, the KWC is directed by the Basin Plan to interact and coordinate its efforts with those being implemented under SGMA.

More specifically, the KWC is taking an active role in helping domestic well owners that may be impacted by nitrate in groundwater. Starting in February of 2025, KWC began its efforts to reach local domestic well owners and let them know that they can have their well tested for nitrate by the KWC at no cost to the owners. Then, if their well exceeds the nitrate drinking water standard, the KWC will provide bottled water deliveries to the residents at no cost to the resident. As the KWC program further develops, KWC may seek to obtain SAFER grant funding in the future to offer testing for additional contaminants of concern.

Moreover, over the next 12 to 18 months, the KWC will need to develop a comprehensive Management Zone Implementation Plan that will set forth for an implementation schedule for long-term drinking water solutions for nitrate and a program for reducing nitrate discharges within certain portions of the Subbasin to meet water quality objectives. As part of the Management Zone Implementation Plan, the KWC will need to consider Kern Subbasin efforts under the 2025 Plan and their impact to nitrate levels in groundwater.

Considering the overlapping nature of activities and interests between the KWC and the Kern Subbasin, KWC and the Kern Subbasin have entered into a Memorandum of Understanding (MOU) to coordinate efforts and avoid duplication. Through this MOU, the programs look to initially share data and information and coordinate outreach efforts to domestic well owners regarding resources for well testing and available resources.

As both programs mature in their efforts, the programs are committed to exploring other opportunities to enhance coordination of efforts for the betterment of the Subbasin.

K-2.2.5 Irrigated Lands Regulatory Program

The Central Valley Water Board regulates discharges of waste to surface and ground waters from irrigated agricultural lands through a series of general waste discharge requirements. Irrigated lands in the Kern Subbasin are regulated under Waste Discharge Requirements General Order for Growers within the Tulare Lake Basin Area that are Members of a Third-Party Group, which is commonly referred to as the long-term Irrigated Lands Regulatory Program, or ILRP. Under the ILRP, growers may join a third-party group, which assists growers in complying with the provisions of the program and administers certain monitoring and reporting requirements under the ILRP on behalf of their members. In the Kern Subbasin, there are four third-party groups that assist growers: Buena Vista Coalition, Cawelo Water District Coalition, Kern River Watershed Coalition Authority and Westside Water Quality Coalition (collectively hereafter referred to as “Coalitions”).

Among other requirements, the ILRP requires the Coalitions to assist growers in complying with nitrate specific provisions to protect groundwater quality, a primary COC within the Kern Subbasin. Nitrate specific provisions include, but are not limited to: (1) focused education and outreach on best management practices designed to minimize nitrate leaching into groundwater; (2) development and implementation of an individual Irrigation and Nitrogen Management Plan; (3) farm evaluations; (4) reporting on the amounts of nitrogen applied annually to crops and the amount of nitrogen removed or sequestered in permanent wood; and, (5) testing of domestic wells on agricultural parcels for nitrate. Further, on behalf of their grower members, the Coalitions conduct groundwater trend monitoring, direct compliance with the Salt Control Program and Nitrate Control Program, comprehensively assess groundwater conditions on a periodic basis, and administer grower implementation under the Groundwater Management Plan.

In the Kern Subbasin, there is significant coordination between the Coalitions and the Kern Subbasin GSAs. Several of the Coalitions are administered by agencies that also serve as an individual GSA for their area of the Kern Subbasin. With such considerable overlap, there is constant communication between the Coalitions and the Kern Subbasin with respect to their various roles each plays with respect to groundwater quality. In the future, this coordination may be expanded if the Coalitions and the Kern Subbasin determine it is in the best interest of the Subbasin.

K-2.2.6 CV-SALTS: Salt Control Program

The Salt Control Program is a phased program, with Phase I consisting of implementation of a Prioritization and Optimization Study (P&O Study). Phase II consists of permitting and planning for preferred management actions, and Phase III is

slated for implementation of the preferred management actions. Considering the complexity of managing salt across the Central Valley, each phase is expected to take at least 10 years. Currently, the Salt Program is approximately five years into Phase I.

The P&O Study is a multi-year, comprehensive study that seeks to determine the most efficient and effective ways to manage salts throughout the whole of the Central Valley on local and regional scales. The effort includes development of interlinking models to evaluate salt fate and transport in both surface and ground waters as water moves across the valley through the various water projects. With the models, and as part of the P&O Study, CV-SALTS will model various management scenarios over decades to evaluate salt impacts. As part of this process, GSP implementation will be considered as it is a critical component of groundwater management for the Central Valley generally and the Kern Subbasin specifically.

The Kern Subbasin maintains informed of P&O Study efforts and coordinates with the Central Valley Salinity Coalition on salt related issues. As the P&O Study continues to be implemented and salt management actions are further evaluated, the Kern Subbasin will provide data and information as determined useful for P&O Study efforts.

K-2.2.7 Kern County

Kern County Public Health and its Environmental Health Services Department play an important role in SGMA, as detailed in Section 5. For this Appendix, Kern County's role and coordination with respect to groundwater quality is highlighted. Importantly, Kern County Public Health actively participates in sharing groundwater quality data for the Kern Subbasin's Well Inventory, coordinates well permitting processes, and continues to Kern Subbasin GSAs in their development of the Kern County's Drought Resilience Plan in accordance with Senate Bill 552.

As described in Section 5.6, the County has actively supported the Subbasin-wide well inventory by providing requested data from County files to cross reference with well completion reports including permit numbers, well location coordinates, intended use, and other data as requested. Records were also provided to identify all non-public and state small water systems with well locations and parcels served.

Importantly, the County's Environmental Health Services Department administers an Onsite Wastewater Treatment System (OWTS) program under the Local Agency Management Plan. While large areas of the Kern Subbasin are currently within a sewer boundary, there are a large number of unincorporated parcels in the Metropolitan Bakersfield area that rely on septic systems as well as small communities and subdivisions. According to the 2017 Local Agency Management Plan, the Kern Subbasin has an estimated 4,961 OWTS. While nitrate loading from septic systems may not be a widespread problem, it can degraded water quality in localized areas and in domestic wells that may be inappropriately sited near a septic system.

K-2.2.8 Local Cities within the Kern Subbasin

Local Cities and water system purveyors in the Kern Subbasin continue to actively participate in the GSP development process and related and groundwater management activities. Municipalities and water system purveyors participate in stakeholder meetings, share experiences with groundwater issues and potential impacts to their operations, and invite Kern Subbasin GSAs to take an active role in Urban Water Management Plans develop shared goals for communities with respect to water resource needs. The Kern Subbasin is committed to continuing its efforts to coordinate with the local cities throughout the County.

K-2.3 Part 3 - Implementation of SMCs: Determining URs and Exceedances of MTs

The Kern Subbasin uses a consistent methodology for evaluating data to determine if URs have occurred and if MT exceedances are due to groundwater management activities. Section 13.3.1 and Appendix K-1 discuss the UR definition and the exceedance evaluation when UR criteria are met. Additional details and examples for making such determinations are provided here for illustrative purposes.

A. Determining URs

To apply the first two UR criteria, the Kern Subbasin will implement the following methodology with respect to "counting wells" towards determining if there is a significant and unreasonable effect due to groundwater management activities. The first two UR criteria are as follows (Section 13.3.1):

1. Subbasin-wide, 15 percent of RMW-WQ exceed the MT for COCs per water year based on confirmed sample and MT Exceedance investigation results[5]; or
2. Annually, 5 percent of domestic wells have an assumed MT Exceedance[21] based on radius of influence analysis around the RMW-WQ that exceeds the MT, with cumulative maximum of 15 percent of domestic wells through 2040; or,

The methodology starts with evaluating monitoring data results from an RMW-WQ against its applicable MT. If an RMW-WQ well exceeds the assigned MT, the Kern Subbasin will implement the Exceedance Policy Action Plan for Degraded Water Quality (Appendix K-1), and perform an MT exceedance investigation, as applicable. Through implementation of the Exceedance Policy, Kern Subbasin GSAs will determine if there are domestic wells within the zone of influence (i.e., approximately 3-mile radius) that are *assumed* to be impacted due to groundwater management activities. The term "*assumed"* from the Exceedance Policy is as a special term of art that means a well that

[5] Water quality exceedances and mitigation applications are evaluated as defined in the Exceedance Policy and Action Plan for Degraded Water Quality (Appendix K-1) and Well Mitigation Program (Appendix G-1).

may be impacted due to groundwater management activities because of its characteristics as compared to the RMW-WQ and likelihood of being impacted due to the COC's properties. If a well within the 3-mile zone of influence is *assumed* to be impacted, it counts toward determining if there is a significant or unreasonable effect based on 5 percent of domestic wells and non-public water systems combined annually and 15 percent cumulatively.

Currently, within the Kern Subbasin, there are an estimated 2,322 domestic wells and non-public wells, collectively. Based on this number, a significant and unreasonable effect will occur if 116 wells (5 percent of 2,322) are *assumed* to be impacted in any single water year. For the cumulative portion of this UR criteria, a significant and unreasonable effect will occur if 348 (15 percent of 2,322) wells are *assumed* to be impacted through 2040. An *assumed* impacted well may be removed from this count if an assumed well is subsequently tested and the test result is below the MT.

K-2.3.1 Example Scenario #1

In Example Scenario #1, monitoring results indicate that hypothetical RWW-WQ XYZ exceeds the MT for arsenic, which for this well is based on the water quality objective. Based on the Kern Subbasin's February 2025 well inventory, 33 wells are determined to be within the 3-mile zone of influence. Of these 33 wells, 32 are domestic wells and 1 is a non-public well. After implementing the Exceedance Policy, the Kern Subbasin concludes that 3 of the 33 wells are *assumed* to be impacted by groundwater management activities. Determinations of impact may be based on aquifer characteristics, baseline conditions, well depths and other factors specifically related to the COC at issue with the MT exceedance.

- RMW-XYZ exceeds the arsenic MCL
- **32** domestic and **1** non-public **wells** are within the 3-mile zone of influence
- Of the **33** collective wells, MT Exceedance Investigation finds **3 wells** equal or deeper than RMW-XYZ (705-ft bgs) and likely impacted by groundwater management activities
- **3** wells assumed to be impacted by groundwater management activities
- **3** wells count towards the 5 percent annual UR criterion per water year number
- **3** wells count towards the 15 percent cumulative maximum through 2040 UR criterion
- If an *assumed* well is subsequently tested and results find that the *assumed* impacted well does not exceed the water quality objective, it will be removed from the well count

K-2.3.2 Example Scenario #2

In Example Scenario #2, the MT exceedance is for nitrate at hypothetical RMW-WQ well XYZ and the MT for this well based on the nitrate water quality objective. There are 241 domestic wells within the 3-mile zone of influence. After conducting an MT exceedance investigation under the Exceedance Policy (Appendix K-1), the GSA finds that 196 of the 241 domestic wells are comparable to the RMW-XYZ and thus are *assumed* to be impacted by groundwater management activities. Notably, this hypothetical is for illustrative purposes only and does not represent an actual anticipated scenario with respect to implementation of the 2025 Plan.

- RMW-XYZ exceeds the nitrate water quality objective
- **241 domestic wells** are within the 3-mile zone of influence
- MT exceedance investigation finds **196 wells** comparable to RMW-XYZ (410-ft bgs) but of the **196 wells**, the MT exceedance investigation finds that **100** of the wells exceeded the nitrate water quality objective prior to January 1, 2015
- **96 wells** are *assumed* to be impacted by groundwater management activities
- **96** wells count towards the 5 percent annual UR criterion
- **96** wells count towards the 15 percent cumulative maximum through 2040 UR criterion
- If an *assumed* well is subsequently tested and results find that the *assumed* impacted well does not exceed the water quality objective, it will be removed from the well count

By combining example scenarios #1 and #2 to count *assumed* impacted wells, Table 2 demonstrates if a UR has occurred based on the 5 percent annual, per-water year criteria for *assumed* impacts.

Table 2. Annual Groundwater Level MT Exceedances and UR Check

WY 2028	Subbasin Count of RMWs	MT Exceedances	UR Trigger	UR Occur?
Domestic Wells	2,327	99 impacted	5% (116 wells)	**No**

Table 3 demonstrates hypothetically if an UR has occurred based on the cumulative criteria for *assumed* impacts.

Table 3. Cumulative Groundwater Level MT Exceedances and UR Check

	MT Exceedances	Impacted Wells		Annual UR Triggered?	Cumulative UR Triggered?
		Annual	Cumulative		
WY 2028	3	199	199	Yes	No
WY 2029	1	20	219	No	No
WY 2030	5	220	439	Yes	Yes

For the second UR criteria, which is based on 15 percent of RMW-WQ wells Subbasin-wide exceeding an MT annually (on a water year basis), wells are counted for this criterion based on an actual confirmed sample result that exceeds the MT and a finding that the MT exceedance is the result of groundwater management activities. In the examples presented here for illustrative purposes only, there are 55 RMW-WQ wells, resulting in a trigger of 8 RMW-WQ wells per water year for an UR to occur. Notably, as data gaps are filled and additional wells are added to the RMW-WQ network, these numbers will change.

In the hypothetical scenario depicted in Table 4 of this appendix for WY 2028, there are 3 confirmed MT exceedances – meaning that the MT exceedance is based on a confirmed sample and the result of groundwater management activities, as determined through the Exceedance Policy (Appendix K-1). Because the number of confirmed MT exceedances is below the trigger of 15 percent within the water year, an UR has not occurred. Conversely, if there were 8 or more confirmed MT exceedances, then a UR will have occurred and the Kern Subbasin would need to initiate corrective actions.

Table 4. Annual Groundwater Quality MT Exceedances and UR Check

WY 2028	Subbasin Count of RMW-WQ wells	MT Exceedances	UR Trigger	UR Occur?
RMW-WQs	55	3	15% (8 wells)	No

For the third UR criteria, an UR will be deemed to occur if mitigation program funds are not available as compared to the need for mitigation. Currently, the Kern Subbasin has funded a $3.5 million Mitigation Program reserve that will be replenished annually based on incurred expenses (see Section 16.2.1.1). Note, the $3.5 million mitigation budget includes funding for uncertainty in the analysis, inflation, and climate change as well as funding for program administration, technical assistance for municipal, industrial and community wells, and mitigation for groundwater level related impacts. The Kern Subbasin $3.5 million Well Mitigation Program reserve also includes a conservative estimate of potential costs associated with water quality mitigation based on an estimate of $2,500 per domestic well mitigated due to groundwater management activities.

A. Implementation of Minimum Thresholds for Degraded Water Quality

As detailed in Section 13.3.1.4, COCs were screened to consider risks to vulnerable drinking water beneficial users based on water quality objectives that incorporate by reference drinking water standards promulgated in the Basin Plan and based on areas of the Subbasin where groundwater quality may be impacted by groundwater management activities. As shown in Table 1 of this appendix, the COCs for setting SMCs in the Kern Subbasin are arsenic, nitrate (as N), nitrite, TDS, 1,2,3-TCP, and uranium.

MTs for Degraded Water Quality are set for each RMW-WQ and are tied to regulatory water quality standards – namely, water quality objectives that are considered protective of the MUN beneficial use (i.e., primary and secondary MCLs contained in CCR Title 22), as applicable to each COC (Section 13.3).

Final MTs for Degraded Water Quality for each RMW-WQ are shown in Section 13.3 in Table 13-8. Additionally, Appendix I-4 contains chemographs that plot historical water quality concentrations, the MT, and the MO for each RMW-WQ and for each COC. In total, there are 330 MTs, which incorporate 6 COCs for the 55 RMW-WQ wells (Table 13-8, Section 13.3).

The Kern Subbasin monitoring program will test each RMW-WQ twice yearly for the identified COCs (Section 15). Sampling of the RMW-WQs will occur in association with monitoring of groundwater levels to the extent possible. Spring samples will be collected between January 15 and March 30 when groundwater is typically considered to be at its seasonal high; fall samples will be collected between August 15 and November 15 when groundwater is typically considered to be at its seasonal low. Monitoring results are uploaded to the Kern Subbasin data management system (DMS), and once uploaded, are managed and addressed in accordance with the Kern County Subbasin Coordination Agreement and Exceedance Policy . All results uploaded to the DMS are available publicly.

If monitoring results at a RMW-WQ exceed a water quality objective or a Degraded Water Quality MT (Table 13-8, Section 13.3), GSAs will implement the Action Plan for Degraded Water Quality as set forth in the Exceedance Policy (Appendix K-1).

- Step 1 of the Action Plan for Degraded Water Quality looks to confirm the sample result, which may include resampling the well. If there is a confirmed sample for nitrate above the water quality objective, the GSA(s) will proceed to Step 2.
- Step 2 of the Action Plan will identify domestic well owners and non-public wells used for domestic purposes (i.e., wells that serve two to four connections) located generally within a 3-mile radius of the RMW-WQ. Once identified, the GSA(s) will send direct mail notification to these well owners of record within 30-days of sample confirmation of the water quality objective exceedance and provide owners with information regarding the Kern Water Collaborative's program for well-testing specific to nitrate, at no cost to the well owner.

If there is a confirmed sample for a non-nitrate COC above the water quality objective and/or MT, then the GSA(s) will proceed directly to Step 3 of the Action Plan, which is the Exceedance Investigation. After implementation of Step 3 of the Action Plan for Degraded Water Quality, a GSA (or GSAs) will use the findings from the exceedance investigation to determine if wells are *assumed* to be impacted due to groundwater management activities and to implement the notification procedures detailed in the Action Plan for Degraded Water Quality within 60-days of sample confirmation (Appendix K-1).

In summary, the GSAs will implement a notification process to inform domestic and non-public well owners of record when monitoring results at an RMW-WQ are confirmed to exceed water quality objectives that are based on primary maximum contaminant levels (MCLs). The Kern Subbasin will also administer a mitigation program that seeks to mitigate Degraded Water Quality impacts to domestic wells that are degraded due to groundwater management activities (Appendix G-1).

K-2.4 Part IV – Notification and Mitigation for Degraded Water Quality

A. Notification Process

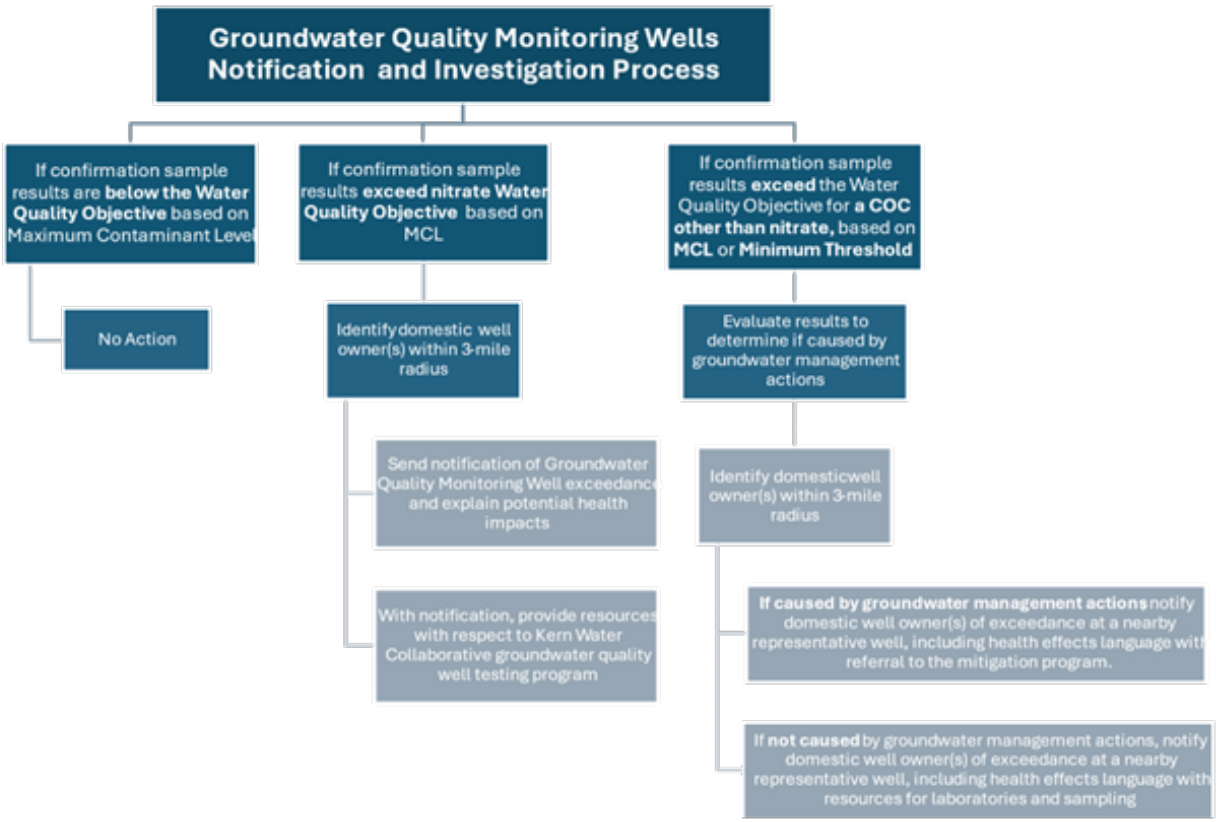
With respect to notification, the Kern Subbasin will provide notice to all domestic and non-public well owners of record generally within the 3-mile radius of an RMW-WQ that exceeds a primary MCL to inform them of potential health risk based on the RMW-WQ result. The content of the notice will vary depending on if the primary MCL exceedance at the RMW-WQ is also an MT Exceedance and if the MT exceedance investigation finds that domestic or non-public wells are *assumed* to be impacted due to groundwater management activities.

Notably, a water quality result at an RMW-WQ above a primary MCL does not necessarily mean that the individual well exceeds the applicable primary MCL. Actual risk cannot be determined until the individual well is sampled. Thus, the notice provided will explain the differences between an RMW-WQ result and potential impact to domestic and non-public wells within the zone of influence.

Per the Exceedance Policy and Action Plan for Degraded Water Quality (Appendix K-1), direct mail notice to domestic and non-public well owners for confirmed samples that exceed the nitrate water quality objective will be provided within 30-days of sample confirmation. For confirmed nitrate exceedances, well owners will be provided information specific to the Kern Water Collaborative's program for testing wells for nitrate, at no cost to the owner, and alternative drinking water supplies for wells that exceed the nitrate water quality objective.

For non-nitrate COCs, notice of water quality objective exceedance will be provided to domestic and non-public well owners of record if the exceedance is also an exceedance of primary MCL. The content of the notice will vary depending on if the MT exceedance investigation finds that domestic or non-public wells are *assumed* to be impacted due to groundwater management activities. The notice will be provided within 60-days of sample confirmation.

- Notice 1: If the independent consultant has determined that the MT exceedance is due to GSA groundwater management activities, then domestic and non-public well owners of record for the *assumed* impacted wells will be provided notice that includes the following information:
  - Notice of the exceedance
  - Notice that their well may be impacted
  - Notice of the public health impacts associated with such exceedances
  - Specific information regarding the process available for submittal of an Application for Mitigation, which would include the opportunity for the *assumed* impacted well to be sampled and tested
- Notice 2: If the independent consultant has determined that the MT exceedance is NOT due to GSA groundwater management activities, or the well is NOT one of the *assumed* impacted wells, then the domestic well and non-public well owners of record will be provided notice that includes the following information:
  - Notice of the exceedance
  - Notice that their well is NOT *likely* to be impacted by groundwater management activities but that does not mean their well water is safe to drink as other factors may contribute to exceedances of primary MCLs
  - Notice of the public health impacts associated with exceedances of primary MCLs of concern
  - General information regarding available resources should the domestic or non-public well owner desire to have their well sampled and tested



B. Mitigation for Degraded Water Quality

The Kern Subbasin Well Mitigation Program (Appendix G-1) includes a specific mitigation track for Degraded Water Quality that is similar to the mitigation program track for dry wells. For the Degraded Water Quality Mitigation Track, the Kern Subbasin anticipates that it will receive applications for mitigation in one of two manners: (1) Application received due to domestic or non-public well owner receiving a notice directly from the Kern Subbasin that their well may be impacted due to groundwater management activities (Notice 1); or, (2) Application received based on general public outreach throughout the Subbasin of the Kern Subbasin Well Mitigation Program. The primary distinction between the two is based on when the application for mitigation receives technical review and analysis from an independent qualified professional to determine if the domestic or non-public well in question has degraded water quality due to groundwater management activities. In the first scenario (i.e., via Notice 1), the independent technical evaluation is implemented under the Exceedance Policy's Action Plan for Degraded Water Quality (Appendix K-1). Under the second scenario, the independent technical evaluation for making such a finding is done as part of the application review process. The steps associated with the Degraded Water Quality Mitigatoin Track(Appendix G) are summarized in Table 5 below.

Table 5. Degraded Mitigation Program Track Application Steps

Degraded Mitigation Program Track Application Steps			
Scenario 1 – Per MT Exceedance Policy, well *assumed* to be impacted due to groundwater management activities and receives Notice 1		**Scenario 2 – Unknown if well is impacted due to groundwater management activities; application unrelated to receiving Notice 1 per MT Exceedance Policy**	
Step 1	Specific Notice re: Degraded Water Quality Mitigation Program	Step 1	General Notice re: Degraded Water Quality Mitigation Program
Step 2	Well owner submits Application to Kern Subbasin Single Point of Contact	Step 2	Well owner submits Application to Kern Subbasin Single Point of Contact
Step 3	Contractor/Entity tests domestic well, provides short-term drinking water if MCL exceeded *Note: If domestic well does not exceed COC associated with MT exceedance, no further steps apply as it relates to Kern Subbasin Mitigation Program. Contractor/entity may continue forward as their independent program allows.*	Step 3	Contractor/Entity tests domestic well, provides short-term drinking water if MCL exceeded *Note: If domestic well does not exceed any of the Kern Subbasin COCs, no further steps apply as it relates to Kern Subbasin Mitigation Program. Contractor/entity may continue forward as their independent program allows.*
Step 4	Contractor/Entity conducts well evaluation & recommends potential long-term mitigation measure	Step 4	Contractor/Entity conducts well evaluation & recommends potential long-term mitigation measure
Step 5	Qualified Professional identified by Kern Subbasin performs evaluation of well evaluation and recommendation for long-term mitigation provided by contractor/entity	Step 5	Independent qualified professional performs investigation/evaluation using same factors for consideration and information identified in the MT Exceedance Policy, as applicable, to determine if degraded water quality is due to groundwater management activities. Further, qualified professional evaluates recommendation for long-term mitigation provided by contractor/entity
Step 6	Kern Mitigation Evaluation Committee will review information and findings from steps 2 through 4 to determine if well mitigation is eligible for reimbursement and provides recommendation to GSA Board.	Step 6	Kern Mitigation Evaluation Committee will review information and findings from steps 2 through 4 to determine if well mitigation is eligible for reimbursement and provides recommendation to GSA Board.
Step 7	GSA Board considers KMEC recommendation for approval of application for mitigation.	Step 7	GSA Board considers KMEC recommendation for approval of application for mitigation.
Step 8	Implementation of Long-term Solution & GSA Reimbursement If an application is approved under Step 6, GSA will work with its contractor/entity to reimburse costs for implementation of long-term solution based on terms of agreement between Kern Subbasin and contractor/entity.	Step 8	Implementation of Long-term Solution & GSA Reimbursement If an application is approved under Step 6, GSA will work with its contractor/entity to reimburse costs for implementation of long-term solution based on terms of agreement between Kern Subbasin and contractor/entity.

More information with respect to each step is included in the Kern Subbasin Well Mitigation Program (Appendix G-1). Further, the Kern Subbasin Well Mitigation Program includes an appeal process if an applicant disagrees with the mitigation proposed or if

an application is denied by the GSA Board. The appeal's process is explained in the Kern Subbasin Well Mitigation Program.

K-2.5 Conclusion

The Kern Subbasin's 2025 Plan incorporates a comprehensive Degraded Water Quality implementation program that goes beyond the requirements of SGMA and its implementing regulations. Through the implementation of its multiple provisions devoted to groundwater quality, Kern Subbasin water quality will be protected and mitigated as necessary and appropriate.