

**MID-KINGS RIVER
GROUNDWATER
SUSTAINABILITY
AGENCY**

RE: GROUNDWATER PUMPING MEASUREMENT POLICY
(Updated May 13, 2025)

A POLICY PRESENTING ALLOWABLE METHODS TO
MEASURE GROUNDWATER PUMPING. The policy hereby
contains as follows:

County of Kings

City of Hanford

Doug Verboon
Chair

Joe Neves

Richard Valle

Rusty Robinson

Robert Thayer

Kimber Regan

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BACKGROUND AND PURPOSE

- I. The Mid-Kings River GSA (MKR GSA) is committed to sustainably managing groundwater in its jurisdictional area, consistent with views of significant and unreasonable undesirable results as set out in the Mid-Kings River GSA's Groundwater Sustainability Plan (MKR GSP).
- II. MKR GSA understands that the measurement of groundwater pumping is critical to the management of the GSA to achieve groundwater sustainability goals. The GSA also understands that a variety of methods can be used to measure groundwater pumping.
- III. MKR GSA understands that estimates of groundwater pumping can be made using satellite imagery. These estimates include assumed values related to crop evapotranspiration, ideal irrigation, soils conditions and irrigation efficiencies. These kinds of assumptions were made, and these types of estimates were developed for use in the previous GSP as other better information was not available in the MKR GSA area. However, the direct measurement of groundwater pumping through flow meters is viewed as superior quality monitoring data given the number of estimates and assumptions involved in calculating groundwater use from satellite imagery. Direct flow measurement would also provide important information to local groundwater users that they will need to better understand as efforts during the SGMA Implementation period progress. It is the goal of the GSA to move completely towards direct flow measurements until then multiple methods to measure groundwater pumping will be utilized.
- IV. At this time, it is not well understood how many groundwater wells are active in the MKR GSA area, how

many active groundwater wells have flow meters or do not have flow meters. However, the MKR GSA views that measuring

groundwater pumping is necessary to develop a complete view of groundwater use in the MKR GSA, that this requirement will aid and promote the sustainable management of groundwater and that it is in the best interest of the MKR GSA, its landowners, businesses and residents.

- V. MKR GSA understands that privacy is an ongoing concern of landowners in the area related to the agency's monitoring efforts. MKR GSA will make efforts to keep monitored information as private as possible, while being consistent with State laws and at the same time providing the Department of Water Resources (DWR) data they require.
- VI. MKR GSA understands that Kings County and the City of Hanford have required permits for the development and modification of groundwater wells for many years. This Policy is not intended to infringe on that authority or permitting process. However, MKR GSA will work with those agencies to develop a process, currently suggested as a "will serve letter", that recognizes the requirements set forth within this Policy. The process is expected to include a requirement that the applicant obtain a letter of authorization from the MKR GSA where they agree to comply with the requirements of the Policy.
- VII. The purpose of this Policy is to require all non de minimis users measure groundwater pumping in the jurisdiction of the MKR GSA, and to establish other regulatory requirements in connection with these purposes. De minimis users are defined as pumping less than two acre-feet annually. Landowners that are unsure if they qualify as de minimis users are encouraged to contact the GSA.
- VIII. MKR GSA understands that it has the authority to require that "groundwater extraction facilities within the management area of the GSA be measured by a water-measuring device satisfactory to the GSA" and that "all costs associated with the purchase and installation of the water-measuring device shall be borne by the owner or operator of each groundwater extraction facility" through Section 10725.8 of the California Water Code.
- IX. Further, the MKR GSA Board of Directors finds that adopting and implementing a policy requiring the reporting of groundwater extraction from all non de minimis users in the jurisdiction of the MKR GSA is necessary to develop a complete view of groundwater use in the MKR GSA, and is in the best interest of the MKR GSA, its landowners, businesses and residents.
- X. Finally, for the reasons set forth above, the MKR GSA Board of Directors finds that the adoption of this Policy will aid and promote the sustainable management of groundwater.

DEFINITIONS

"Active" describes a groundwater well that is in use or is planned for use.

"De minimis" is defined as pumping less than two acre-feet of groundwater annually.

"Certified" means to be tested for accuracy and verified it is within the allowed range in accordance with the manufacturer's specifications. This can be done by taking the meter to a location where it is calibrated and certified, or by using another proven meter at the well to test the accuracy of the in-place meter.

"Industrial well" are used to supply water to processing, manufacturing, commercial purpose, nurseries, and golf courses.

"Groundwater" is underground water, or subsurface water, that is contained in aquifers.

"Groundwater well" is a facility used to extract groundwater.

"Groundwater extraction facility" is the term used in the California Water Code to mean Groundwater well.

"Public water system" is the system for the provision of water for human consumption and residential use through pipes or other constructed conveyances that has 15 or more service connections or regularly serves at least 25 individuals at least 60 days out of the year.

"Overdraft" usually refers to an extended decline in the storage of an unconfined aquifer. This is also a term that sometimes get used with confined aquifers that relates to extended use beyond the sustainable yield.

"Recharge" means the intentional sinking of surface water to add volume stored in an aquifer.

"Seepage" means the incidental loss of water as it is being conveyed or put to beneficial use.

"Water flow meter" means a mechanical or electronic device that is used to measure the rate and amount of water being extracted by a groundwater well.

"Water table" means the level, generally observed in groundwater wells, at which saturated soil is observed.

"Water well motor" means the motor powering a groundwater well.

"Water well pump" means the pump used to extract groundwater from a well.

"Water well sounding" means the measurement of the distance from a reference point to the water level in a well, generally using a device known as a sounder.

GROUNDWATER PUMPING MEASUREMENT POLICY

- A. Parties within the MKR GSA that have NON DEMINIMIS ACTIVE GROUNDWATER WELLS are required to report groundwater pumping. The acceptable methods for reporting groundwater flow are flow meters or evapotranspiration measurement.

B. Flow Meters

The configuration of the installation shall conform to a drawing prepared by the permittee and shall conform to the technical standards set forth by MKR GSA.

C. Flow meters on groundwater wells must:

- 1) Have a totalizer with the ability to totalize tenths of an acre-foot (AF);
- 2) Read instantaneously in either gallons per minute (GPM) or cubic-feet per second (CFS); and
- 3) Be selected appropriately for the operating flow of the groundwater well; and
- 4) Be installed consistent with the manufacturer's specifications; and
- 5) Have an accuracy of at least plus or minus five percent(+/- 5%) when installed consistent with manufacturer's specifications and operating within intended flow ranges.

D. Evapotranspiration

Landowners may choose to utilize evapotranspiration (ET) measurement to estimate groundwater pumping. ET data is based on NSAS LandSat satellite imagery as provided by a third party. Currently, the GSA contracts with LandIQ to provide ET data across the GSA. The landowner is responsible for providing all required additional information to the GSA. To calculate the amount of groundwater extracted, the following equation is applied.:

1. Total applied surface water as metered by the irrigation district on a parcel basis
2. Evapotranspiration data as calculated by third party on a parcel basis
3. If surface water applied is more than ET, the landowner may receive a credit for over application in accordance with the GSA Recharge Policy
4. The satellite imagery used to determine ET values will be audited by the GSA through spot checking land use for cropping patterns
5. The GSA will provide an effective precipitation values based on available data across the GSA
6. The amount of surface water plus the precipitation value will be subtracted from the ET value on a parcel basis. Any remaining ET will be assumed to be made up from groundwater pumping.
7. The remaining ET will be divided by the assumed irrigation efficiency based on crop type as listed in the GSP.

- E. For non de minimis active wells, on or near the first day of each month the well operator shall read, and maintain a log for, the water flow meter or calculate pumping from ET data and provide this data to the MKR GSA during the first week following each quarter (April, July, October, and January the following year).
- F. With prior notice, the well owner and/or well operator shall grant the MKR GSA staff access to inspect facilities in order to verify compliance with this Policy. The GSA will contact the landowner or representative to determine the desired inspection date.
- G. Groundwater well flow meters are required to be certified every five years or in accordance with the manufacturer's recommendations by a qualified professional with supporting documentation provided to the MKR GSA.
- H. Groundwater well flow meters are required to be certified if at any point MKR GSA's estimates of groundwater use differ more than 15% from totalized flow meter records.
- I. Industrial wells and wells serving public water systems are required to be metered in accordance with this policy. Wells used to service animal confinement facilities, including dairies are not considered industrial wells.
- J. Water use at animal confinement facilities, including dairies, will be metered or measured in accordance with the 4Creeks "Net Groundwater Consumption within Dairy Facility Area" report for the footprint of the facility and ET data for land in production.

ENFORCEMENT- VIOLATION

- A. Penalties. Any person, firm or corporation, whether acting as principal, agent, employer or otherwise, who violates any provision of this Policy, or the terms and/or conditions of any permit issued pursuant to this Policy, may be punishable by a fine per violation as presented below:

Violation	Fine
1st	Written notice of violation with at least 90 days to comply
2nd	\$500 with at least 90 days to comply
3rd or more	Up to \$1000 per violation as determined by MKR Board

Landowners may appeal any violation notice to the MKR GSA Board.

- B. Civil Action - Injunctive Relief. MKR GSA may elect additionally, or alternatively, to proceed with a civil action, including, but not limited to, seeking injunctive relief, rather than, or in addition to other actions described in subsection (A) of this section. Any person, firm or corporation, whether acting as principal, agent, employer or otherwise, who willfully violates any provision of this Policy, or the terms and/or conditions of any permit issued pursuant to this Policy, may be liable for a civil penalty not to exceed one thousand

(\$1,000) dollars for each day or portion thereof, that the violation continues to exist. In determining the amount of the civil penalty to impose, the court shall consider all relevant circumstances, including, but not limited to, the administrative and legal costs incurred by the MKR GSA to address the violation, the extent of the harm caused by the conduct constituting the violation, the nature and persistence of such conduct, the length of time over which the conduct occurred, and any corrective action taken (and timing of such corrective action), or lack thereof, by the violator.

SEVERABILITY

If any section, sub-section, sentence, clause or phrase of this Policy is held by a court of competent jurisdiction to be invalid, such decision shall not affect the remaining portions of this Policy. The MKR GSA Board of Directors hereby declares that it would have passed this Policy, and each section, sub-section, sentence, clause, and phrase hereof, irrespective of the fact that one or more sections, sub-sections, sentences, clauses and phrases be declared invalid.

EFFECTIVE DATE

This policy will be in effect until June 1, 2027. At that time, the policy may be reevaluated and amended.

The Policy shall take effect and be in force thirty (30) days after its passage and prior to expiration of fifteen (15) days after its passage thereof, shall be published by title and summary on the MKR GSA's website together with the names of members of the MKR GSA Board of Directors voting for and against the same.

Respectfully submitted for your consideration,



Chuck Kinney, General Manager

Vote of all Directors at the regular May 13, 2025 meeting:

AYES: Joe Neves, Richard Valle, Doug Verboon, Rusty Robinson, Kimber Regan

NOES:

ABSTAINED:

ABSENT: Robert Thayer