

PROVING HOW MUCH WATER YOU HAVE PUMPED EACH YEAR

Under the Sustainable Groundwater Management Act (SGMA), or if you are in a groundwater adjudication, you will have to prove based upon acceptable evidence what you have pumped from each of your wells for the last ten years.

Why is this happening?

SGMA¹ authorizes your groundwater sustainability agency (GSA) to require you under the GSA's groundwater sustainability plan (1) to purchase and install a water-measuring device satisfactory to your GSA for each well at your expense, (2) to periodically calibrate the water-measuring device for each well, and (3) to file an annual statement with the GSA reporting the total extractions in acre-feet from each well during the previous water year (October 1 through September 30). A GSA has the power to regulate, limit or suspend extractions from your individual wells.

If no GSA for your area has been formed by June 30, 2017, or if your groundwater subbasin is on probationary status as determined by the State Water Resources Control Board (SWRCB), then you will be required to file a report of groundwater extraction² by December 15 of each year for extractions made during the preceding October 1 through September 30 on a form prescribed by the SWRCB. The form shall include the following, among other requirements: the location of each of your wells, capacity of each of your wells/pumps, monthly records of groundwater extractions determined using a methodology, water-measuring device or combination thereof satisfactory to the SWRCB (see the next section on what those might be), the purpose of use, and the area where the water pumped was used. The SWRCB has not developed the required reporting form yet. They have established a draft fee structure and requirements.³

If your groundwater area is subject to a groundwater adjudication, then you would need to participate in the court proceeding (called "appearing") to protect your groundwater rights. In order to participate, you will need to file an "initial disclosure" with the information required by Code of Civil Procedure 842, which states:

(a) Except as otherwise stipulated by the parties or ordered by the court, *within six months of appearing in a comprehensive adjudication*, a party shall serve on the other parties and the special master, if one is appointed, an initial disclosure that includes all of the following information:

(1) The name, address, telephone number, and email address of the party and, if applicable, the party's attorney.

(2) *The quantity of any groundwater extracted from the basin by the party and the method of measurement used by the party or the party's predecessor in interest for each of the previous 10 years preceding the filing of the complaint.*

(3) The type of water right or rights claimed by the party for the extraction of groundwater.

(4) A general description of the purpose to which the groundwater has been put.

(5) The location of each well or other source through which groundwater has been extracted.

(6) The area in which the groundwater has been used.

(7) Any claims for increased or future use of groundwater.

¹ Water Code Section 10720, et seq.

² Water Code Section 5200, et seq.

³ http://www.waterboards.ca.gov/water_issues/programs/gmp/docs/fees/draft_sgma_feereg.pdf

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(8) The quantity of any beneficial use of any alternative water use that the party claims as its use of groundwater under any applicable law, including, but not limited to, Section 1005.1, 1005.2, or 1005.4 of the Water Code.

(9) Identification of all surface water rights and contracts that the party claims provides the basis for its water right claims in the comprehensive adjudication.

(10) The quantity of any replenishment of water to the basin that augmented the basin's native water supply, resulting from the intentional storage of imported or non-native water in the basin, managed recharge of surface water, or return flows resulting from the use of imported water or non-native water on lands overlying the basin by the party, or the party's representative or agent, during each of the 10 calendar years immediately preceding the filing of the complaint.

(11) The names, addresses, telephone numbers, and email addresses of all persons possessing information that supports the party's disclosures.

(12) Any other facts that tend to prove the party's claimed water right.

(Emphasis added.)

SGMA deadlines are fixed.⁴ If you wait until a reporting deadline is triggered, you are not going to have much time to collect the required information. So it behooves you to start collecting and documenting the information now. Unless you have a recording water meter on each of your wells, the most difficult part is proving what you have pumped each year from each of your wells.

How do you prove what you have pumped each year from each of your wells?

From both a SGMA and groundwater adjudication perspective, it is very prudent for you to begin proving, documenting, and recording your groundwater use now. To do this you may need help from professional specialists, like well drillers, pump contractors, groundwater geologists, or certified crop advisors. An outline of the steps needed follows.

1. Compile well installation records that show the date of installation, driller, and details of construction – copies can be requested through the California Department of Water Resources, http://www.water.ca.gov/groundwater/wells/well_completion_reports.cfm.
2. If you have a totalizing flow meter on your well and have been keeping regular data (monthly) you need only compile and chart the data.
 - a. Plot date in months on the X-axis and pumping in units of acre-feet (ac.ft.) on the Y-axis.
 - b. Be prepared to explain noticeable variations. For example, if high pumping occurred in one period note that it coincided with low surface water deliveries; or if incorrect low pumping was recorded at other times, note the reason. Retain dated repair records to support claims of pumping at rates higher than recorded.
 - c. The new SGMA regulations will require flow meter calibration, and if you have calibration records, they should be retained.
 - d. If one flow meter serves more than one well, independent well tests or well records should be used to rationalize estimates of the proportional monthly flows from each well.
3. If you do not have a recording water meter on your well, the SWRCB has provided acceptable alternative methods⁵ for documenting surface water diversions and some of those methods may

⁴ http://opr.ca.gov/docs/GW_Legislation_Timeline_11x17_100914.pdf

⁵ http://www.waterboards.ca.gov/waterrights/water_issues/programs/diversion_use/docs/msrmnt_guide121511.pdf

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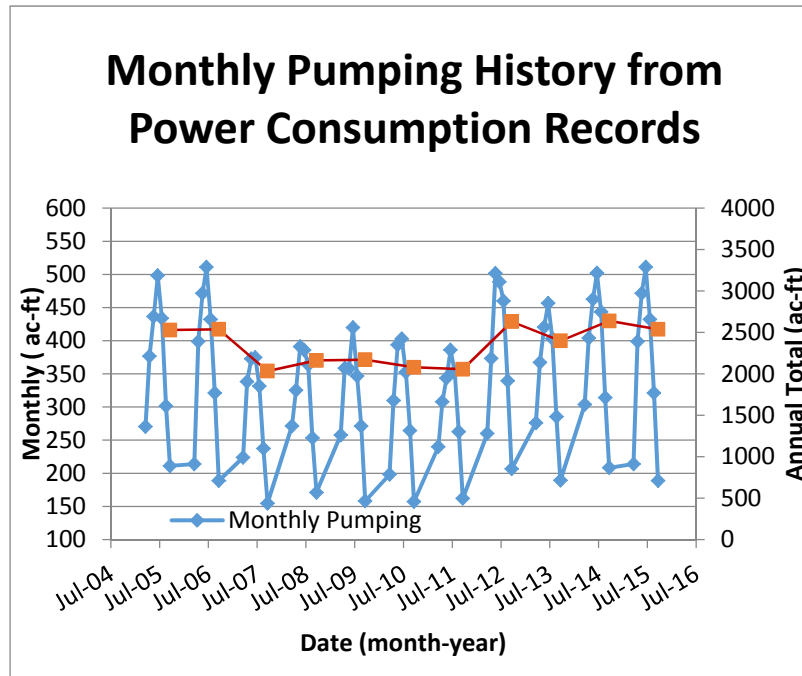
be adopted by your GSA to measure your groundwater extractions. Two methods to consider are (1) power consumption records and (2) crop duty and consumption use estimates:

- a. Power consumption records include fuel for diesel pumps or electricity for electric pumps. Efficiency is power consumption per acre-foot (ac.ft.) of pumped groundwater. It usually degrades with time due to many factors such as pump wear, well screen clogging, lower water tables and higher total dynamic head from new irrigation systems, etc. To properly account for prior use, the pumper should estimate the pumping efficiency over the 10-year period.
 - i. Compile all power consumption values for a given well or set of wells for the past 10 years, or over the full history of newer well(s). For whole farm power values, subtract a percentage for non-well uses and allocate the remainder among the wells. Organize the power consumption data by month in average gallons of fuel (gal) or kilowatt hours (kwh) at each well.
 - ii. Compile efficiency testing reports at each well. These tests are run routinely by pumping contractors when pumps are installed or to monitor power usage for well maintenance. They identify the well and report useful data such as the standing water level, pumping level, flow rate of the test, total head, and overall pumping efficiency (e.g. units of kwh/ac-ft). Efficiency values can be interpolated between the dates of the different reports to generate monthly efficiency numbers for each well. If no such reports are available, have one run soon to establish efficiency.
 - iii. Divide monthly power consumption (C) by efficiency (E) for each well to calculate the pumped groundwater (Q) in ac-ft.

$$\frac{C(kwh)}{E\left(\frac{kwh}{acft}\right)} = Q(acft)$$

Plot the data with date in months on the X-axis and pumping (P) in ac-ft on the Y-axis. Sum the months in each year to calculate annual rates.

- iv. Investigate explanations for noticeable variations.



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- b. Crop duty and consumption use estimates call for crop harvest records and acreage to document water use.
 - i. Crop consumption estimates should document that the irrigation supplied was groundwater from a known well(s).
 - ii. Acreage planted and harvested can be documented from planting and harvesting records, seed sales, harvested product sales records, or other means, including book values from agricultural publications. Historic aerial photography showing crop in production are potentially very useful to corroborate claims.

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