

From: Walt Ward [WalterW@MID.ORG]
Sent: Tuesday, January 25, 2011 3:25 PM
To: Agriculture Water Use Efficiency
Cc: Davidoff, Baryohay; Alemi, Manucher; 'Ceppos, David M'
Subject: SBX7-7 Ag Water Measurement
Attachments: draft_text_of_ag_regulation_01-17-11_Comments with track changes.doc;
draft_text_of_ag_regulation_01-17-11_Comments with changes accepted_Clean copy.doc

To Whom It May Concern,

Please see attached revisions to the Ag Water Measurement regulation in track changes mode and clean mode (with comments included for clarification). I believe that significant discussion still remains to be held regarding agreement upon reasonable and attainable accuracy standards that are meaningful and implementable.

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California Code of Regulations
Title 23. Waters
Division 2. Department of Water Resources
Chapter 5.1. Water Conservation Act of 2009
Article 2. Agricultural Water Measurement

§597. Agricultural Water Measurement

Under the authority included under Paragraph 10608.48(i)(1), the Department of Water Resources shall adopt regulations that provide for a range of options that agricultural water suppliers may use or implement to comply with the measurement requirements in paragraph (1) of subdivision (b) of §10608.48.

For reference, §10608.48(b) of the California Water Code requires that:

Agricultural water suppliers shall implement all of the following critical efficient management practices:

(1) Measure the volume of water delivered to customers with sufficient accuracy to comply with subdivision (a) of Section 531.10 and to implement paragraph (2).

For further reference, paragraph (2) of §10608.48(b) of the California Water Code requires that agricultural suppliers:

(2) Adopt a pricing structure for water customers based at least in part on quantity delivered.

For further reference, §531.10 of the California Water Code require that:

(a) An agricultural water supplier shall submit an annual report to the department that summarizes aggregated farm-gate delivery data, on a monthly or bi-monthly basis, using best professional practices.

Note: Authority cited: Section 10608.48 (b), Section 531.10 Water Code. Reference:

§597.1. Applicability

- a) Agricultural water suppliers that serve less than 10,000 irrigated acres are not subject to the SBx7-7 water measurement requirements. They remain subject to requirements of Section 531.10 of the Water Code if they deliver more than 2,000 acre feet of water or irrigate 2,000 or more acres of land.
- b) Agricultural water suppliers serving 10,000 or more irrigated acres but less than 25,000 irrigated acres are not required to implement the SBx7-7 water measurement requirements unless sufficient funding is provided specifically for that purpose. They remain subject to requirements of Section 531.10 of the Water Code.

- c) Agricultural water suppliers serving 25,000 irrigated acres or more shall be required to implement the SBx7-7 water measurement requirements and are subject to requirements of Section 531.10 of the Water Code.
- d) A wholesale agricultural water supplier that distributes or sells water to another water supplier (the receiving water supplier) for ultimate resale to customers is subject to the measurement regulations at the location at which control of the water is transferred to the receiving water supplier. It is not required to measure deliveries that the receiving water supplier makes to its customers. [Pending further work by DWR staff, this bullet will also clarify the applicability of measurement regulations to Joint Powers Authorities or other entities that act as agents to distribute water for USBR or DWR.]
- e) [Pending further work by DWR staff, this bullet will clarify the applicability of measurement regulations to agricultural water suppliers that provide water for ground water extraction
- f) Paragraph 10608.8 (d) also excludes from the measurement requirement any agricultural water supplier “that is a party to the Quantification Settlement Agreement, as defined in subdivision (a) of Section 1 of Chapter 617 of the Statutes of 2002, during the period within which the Quantification Settlement Agreement remains in effect.” [DWR staff to follow-up on which agencies are technically included in the QSA].
- g) Paragraph 10608.12(a) excludes the Department of Water Resources

§597.2. Definitions

- (a) The terms used in this article are defined in this subdivision.
 - 1) “Accuracy” is defined as the ~~range of~~ measured delivered volume, velocity or flow rate relative to the actual delivered volume, velocity or flow rate, expressed as a percent. The percent shall be calculated as $100 \times (\text{measured value} / \text{actual quantity} - \text{actual value} / \text{measured quantity}) / \text{actual value} / \text{measured quantity}$.
 - 2) “Agricultural water supplier,” as defined in §10608.12(a), means a water supplier, either publicly or privately owned, providing water to 10,000 or more irrigated acres, excluding recycled water. “Agricultural water supplier” includes a supplier or contractor for water, regardless of the basis of right that distributes or sells water for ultimate resale to customers. “Agricultural water supplier” does not include the Department.
 - 3) “Best professional practices” means practices attaining and maintaining accuracy of measurement and reporting devices and methods.
 - 4) “Community conveyance system” is a conveyance~~lateral~~ system not owned, maintained or otherwise controlled by the water supplier.
 - 5) “Customer” means (DWR staff to follow-up on this definition).
 - 6) “Delivery point” is the location at which the agricultural water supplier transfers physical control of irrigation water to a customer or group of

customers. Delivery points can include farm-gates, turnouts to a community conveyance system, or turnouts to another water supplier.

- 7) ‘Farm-gate’ means the point at which water is delivered from the agricultural water supplier’s distribution system to each of its customers. [§531(f)]
- 8) “Ground water recharge” is the mechanism by which surface water moves from the land surface, through the topsoil and subsurface, and into de-watered aquifer space, or through injection of water directly into the aquifer by wells.
- 9) “In house built devices” are those devices that are manufactured by an entity other than a licensed manufacturing business.
- 10) “Lateral” is a portion of an agricultural water supplier’s distribution system that directly feeds multiple farm-gate turnouts and is generally supplied from other primary or secondary conduits, canals or pipelines.
- 11) “Measurement device” is the means by which the agricultural water supplier measures the water delivered, to a customer. Measurement devices generally fall into two categories: totalizing and non-totalizing. Totalizing devices provide a direct measurement of volume delivered, and include most meters, such as propeller meters. Non-totalizing devices require a combination of measurements, such as velocity (used to calculate the flow rate) and duration or head difference and duration, in order to determine the volume of water delivered.
- 12) “On-site built devices or structures” measurement devices that are built in-situ on water conveyance [D1] systems.
- 13) “Recycled water” is defined in subdivision (n) of Section 13050 as water, which as a result of treatment of waste is suitable for a direct beneficial use or a controlled use that would not otherwise occur and is therefore considered a valuable resource.
- 14) “Standard” is the criterion that establishes the accepted accuracy levels.

Note: Authority cited: Section 10608.48, Water Code. Reference: Sections 10608.

§597.3 Agricultural Water Measurement Options.

a) Options Applicable to Measurement at the Location of Transfer to Delivery Point of Individual Customers

- 1) Measurement Device’s with a Laboratory/in-field Accuracy Standard. [T2] Agricultural water suppliers shall measure water delivered to each delivery point ~~customer~~ using measurement devices that can be shown to be accurate within plus or minus 10-15%. [T3] ~~+XX% by volume or by either the flow rate in the laboratory (before field installation) or in-field measurement device types can be certified by a licensed engineer.~~ The accuracy must apply to the range of flow

under which the device will be operating in most conditions after field installation. The manufacturer's accuracy may be used for off-the-shelf proprietary measurement devices, or in house built devices/on site built devices or structures custom built devices that are certified by a licensed engineer or professional testing organizations. Best professional practices shall be used to design, operate, maintain ~~or~~ and replace ~~such~~ measurement devices.

Or, 2) Measurement Device's Built In house, or On-site.^[T4]

Agricultural water suppliers shall measure water delivered to each delivery point using measurement devices that can be shown to be accurate within plus or minus YY%. The accuracy of measurement devices or structures built in house, or on-site shall be certified by a certified professional^[T5], licensed engineer or professional testing organization. Best professional practices shall be used to design, operate, maintain and replace measurement devices.

No more than ___ years after field installation, the devices shall be tested in situ to have accuracy within $\pm YY\%$ by volume or flow rate under most operating conditions.

Or,

~~2) Measurement Device's Design/Installation Accuracy Standard~~

~~Agricultural water suppliers shall measure water delivered to each customer using devices with design/installation that can be certified to be accurate within $\pm YY\%$ by volume or flow rate under designed operating conditions, as determined after field installation of the device. In field certification following installation shall be performed by [need to define qualified testing organizations and individuals].~~

Or,

~~3) Existing Measurement Device's Accuracy Standard (as Measured in Field)~~

~~Agricultural water suppliers shall measure water delivered to each customer using devices that had been installed prior to November 9, 2009 if those devices can be shown to be accurate within $\pm YY\%$ by volume or flow rate under designed operating conditions. In field testing shall be performed by testing organizations on ___% of the existing devices. After replacement of existing measurement devices, the new or replacement devices must be tested and meet the requirements of section 597.3(a) (1) or (2).~~

b) Options Applicable to Measurement Upstream of the Location of Transfer to the Delivery Points of Multiple Individual Customers

A water supplier that uses one of the options below shall provide the following information in its Agricultural Water Management Plan:

A) Measurement at delivery points other than the farm gate shall be supported by information demonstrating that farm gate measurement under section 597.3(a) is not legally or technically feasible, legally allowable or provides an unacceptable level of unreliable measurements for reporting or pricing. of accuracy given the range of operating conditions expected.

This demonstration may include a technical evaluation of the relative merits associated with farm gate and lateral-based measurement, including an assessment of the probable error associated with each measurement approach, supporting the determination that this option is likely to provide more accurate accounting of customer deliveries than at the customer point of delivery.

B) The methodology the supplier will use to apportion the values/quantities measured into volumes delivered to individual customers for purposes of reporting aggregated farm gate delivery and adoption of a water pricing structure based at least in part on volume the measured water delivered to customers. This methodology must:

(i) Account for differences in water use among individual customers, using information that may include, but is not limited to, irrigated acreage, crop, and irrigation system.

(ii) Be formally approved by the supplier's governing body (e.g., Board of Directors), Proposition 218 process.[T6].

(iii) Accommodate protests of allocation methods and resulting values/volumes while assuring that all measured delivery is accounted for.

1) Measurement Device's Laboratory Accuracy Standard

~~Agricultural water suppliers shall measure water delivered to each customer using devices that can be shown to be accurate within $\pm AA\%$ by volume or flow rate in the laboratory (before field installation). The accuracy must apply to the range of flows under which the device will be operating in designed conditions after field installation. The manufacturer's accuracy rating may be used for off-the-shelf proprietary devices or custom-built devices that satisfy defined laboratory certification protocols [need to define qualified testing organizations and individuals]~~

~~No more than ___ years after field installation, the devices shall be tested in situ by [need to define qualified testing organizations and individuals] to have accuracy within $\pm BB\%$ by volume or flow rate under most operating conditions.~~

Or,

2) Measurement Device's Design/Installation Accuracy Standard

~~Agricultural water suppliers shall measure water delivered to each customer using devices with design/installation standard that can be shown to be accurate within $\pm BB\%$ by volume or flow rate under designed operating conditions, as~~

measured after field installation of the device. In field certification following installation shall be performed by ~~[need to define qualified testing organizations and individuals]~~.

Or,

~~3) Existing Measurement Device's Accuracy Standard (as Measured in Field)~~

~~Agricultural water suppliers shall measure water delivered to each customer, and may use devices that had been installed prior to November 9, 2009 if those devices can be shown to be accurate within $\pm BB\%$ by volume or flow rate under designed operating conditions. In field testing shall be performed by ~~[need to define qualified testing organizations and individuals]~~ on ~~___~~% of the existing devices. After replacement of existing measurement devices, the new or replacement devices must be tested and meet the requirements of section 597.3 (b) (1) or (2).~~

c) Water Supplier that files USBR Water Management Plan

An agricultural water supplier that has a current, approved United States Bureau of Reclamation Water Management Plan prepared for compliance under Bureau of Reclamation Mid-Pacific Region's Conservation and Efficiency Criteria (Criteria) shall be deemed in compliance with the measurement requirement, provided that all irrigation water delivered by that supplier is delivered through devices that comply with Reclamation's measurement accuracy standards outlined in the Best Management Practices of the Criteria and is consistent with the metering requirement in CVPIA Section 3405(b).

Note: Authority cited: Section 10608.48, Water Code. Reference: Sections 10608. Water Code.

§597.4 Installation, Operation and Maintenance of Agricultural Water Measurement devices

- a) All measurement devices, shall be correctly installed, operated, maintained, inspected, and monitored. Devices shall be appropriate for the site and installed and maintained in a manner consistent with the manufacturer's recommendations and utilizing best professional practices.

~~All measurement devices used by agricultural water suppliers shall meet the standard of accuracy, as described in §597.3, for measuring delivered water. Accuracy by volume would be calculated as:~~

$$\del{100 \times (\text{measured volume} - \text{actual volume}) / \text{actual volume}}$$

- b) ~~Suppliers shall use devices that comply with the standard and are installed and maintained subject to the following criteria.~~
- 1) ~~Each measurement device shall be tested for accuracy every ___ years or less to assure continued accuracy of measurement readings. Devices not meeting this requirement within five years will be considered to have an “expired” accuracy rating and are no longer compliant.~~
 - 2) ~~Compliance of device accuracy, installation, and operational conditions for existing agricultural water measurement devices shall be verified by an registered professional engineer, or certified testing organization. If an installed device does not meet the manufacturer’s or a certified testing laboratory/institution’s specifications or the original design specifications,, then the agricultural water supplier shall either;~~
 - ~~A) service the device,~~
 - ~~B) recalibrate the device,~~
 - ~~C) re-engineer and/or re-install the device, or~~
 - ~~D) replace the device.~~
 - 3) ~~Measurement devices shall be inspected periodically according to best professional practices to ensure the device is in good working condition and free of obstructions~~
- c) Records shall be maintained by the agricultural water supplier sufficient for certification as defined above that the [measurement](#) device has performed as intended for at least 10 years. The records shall include at a minimum: date of inspections, maintenance, repairs, calibrations, reset of water measurement devices, and adjustments to farm-gate and lateral-gate measurement devices.
- d) All measured water must be reported to the department, per §531.10, annually that summarizes water deliveries either in a bi-monthly or monthly basis and must be based on totalizing the farm-gate quantities delivered to the customers.

Note: Authority cited: Section 10608.48, Water Code. Reference: