Discussion Paper: Draft Range of Options for Agricultural Water Measurement

[Note: This part will be included in the A2 Water Measurement Discussion Paper]

5.0 Frameworks Considered for Creating a Range of Water Measurement Options

DWR is required by CWC §10608.48(i)(1) to develop and adopt a regulation that provides for a range of measurement options. These options allow for a range of conditions and delivery system configurations, including pressurized pipe delivery, non-pressurized pipe delivery, and open-channel delivery.

DWR staff, with input from the Agricultural Stakeholder Committee and the A2 Subcommittee, considered three alternative frameworks for developing a range of options for measuring agricultural water deliveries:

(1) **DWR list of acceptable devices:** Develop a regulation that includes a list of acceptable measurement devices maintained in defined manners to achieve desired accuracy. Suppliers could choose among those devices based on their local conditions.

(2) **DWR performance standards for device accuracy:** Develop a regulation setting a performance standard that defines minimum benchmarks for device accuracy that could be met or bettered by a range of devices. Suppliers could measure delivery using greater accuracy than the standard, based on their and their customers' demands. Included under this option would be requirements defining standards for device rating or calibration but could also set minimum standards for administration, monitoring and maintenance protocols for devices.

(3) **Locally-determined standards for device accuracy:** Develop a regulation that provides a process for suppliers to assess and report their measurement accuracy. For example, the regulation could specify a set of information that a supplier would report to DWR documenting 1) the procedures by which it determined sufficient accuracy, and 2) information documenting its measurement devices and accuracies. The information must demonstrate that the supplier's measurement accuracy is sufficient to meet the two purposes stated in SBx7-7: submit an annual report to the department that summarizes aggregated farm-gate delivery data, and adopt a pricing structure based in part on the volume delivered.

In evaluating these frameworks, DWR staff considered the following criteria:

- CWC §10608.48(b) directs a qualifying agricultural water supplier to measure with sufficient accuracy to (1) enable its adoption of a pricing structure based in part on

the volume delivered to customers, and (2) allow it to report to DWR a summary of aggregated farm-gate deliveries [CWC §531.10(a)]. This latter objective is tied to the stated intent in Section 1 of Assembly Bill 1404 that "[a]appropriate measurement of water use facilitates better water management by making information available to local, state, and federal water managers and planners."[1]

- The need for a certain degree of confidence – through use of a minimum benchmark - that data submitted to DWR [under CWC §531.10(a)] closely represents actual deliveries.
- The need to provide a reasonable degree of flexibility to agricultural water suppliers to accommodate a wide range of water delivery circumstances and supplier/customer relationships.
- The recognition that an agricultural water supplier and its customer have a business relationship associated with the delivery of water and the payment for such services. This relationship in itself can provide incentives necessary to measure accurately.
- The need to balance theoretically potential accuracy with economically and technically practical accuracy while meeting the objectives of the statute.

  The recognition that the term "sufficient accuracy" in the statute refers to the measurement of a volume of water delivered to customers, which would be stated as a numeric value. Measuring and determining a numeric value would imply a numeric standard.
- The recognition that the delivery of water by most agricultural water suppliers is not equivalent to the sale of a commodity, which would be more responsive to market forces. Thus, the relationship between an agricultural water supplier and its customer and the need for accuracy may not be driven primarily by incentives associated with the cost of water and its delivery.

Based on these considerations, DWR staff proposes that the second framework – specifying a performance standard that defines minimum device accuracy benchmarks – provides the most appropriate framework to establish a range of measurement options. A performance standard meets the intent of the legislation in the most flexible and cost-effective manner.

Staff does not recommend adopting a list of acceptable measurement devices for the following reasons:

- Dictating specific devices can unintentionally constrain suppliers or impose unreasonable or unnecessary costs to accommodate the defined devices.
- Measurement technology changes over time, so a list of approved devices would need frequent review and modification.
- Measurement requirements are to assure agricultural water suppliers are able to meet 10608.48(b), which states "Measure the volume of water delivered to

Comment [GD1]: Same comment as below.

Comment [GD2]: It is good to see cost-effectiveness mentioned, but I do not feel that it has received adequate attention thus far.

[1] AB 1404 was approved by the Governor on October 14, 2007. Section 1 includes several legistlative findings and declarations that demonstrate the intent of the statutes enacted by the bill.

customers with sufficient accuracy…" The paragraph is stated in terms of measurement accuracy, not specific devices or technologies.

Staff considered the request by several water suppliers that the regulation allow local conditions to determine appropriate measurement accuracy. The rationale suggested was that, once all suppliers adopt a pricing structure for water customers based at least in part on quantity delivered [CWC §10608.48(b)(2)], all will have adequate incentive to measure accurately as needed to serve that and other local purposes. DWR staff does not recommend this for the following reasons:

- Volumetric pricing is only one of the purposes of sufficient accuracy. The accuracy must also be sufficient from the State's viewpoint to provide reliable reporting of aggregate farm-gate delivery data. For example, a supplier could set a volumetric price that is so low that both the supplier and its customers would accept measurement accuracy that the State would deem insufficient for aggregate reporting purposes.
- This framework is essentially the status quo - suppliers already measure water according to local conditions, cost-effectiveness, the suppliers' accounting needs, and customer demands. Nevertheless, SBx7-7 specifically directs DWR to adopt a regulation.

Attachment 2 provides examples of similar performance standards developed by USBR and other western states. It is worth noting that, of the six states (Arizona, Colorado, Idaho, Kansas, Oregon, and Washington) surveyed for the 2003 CALFED report only one, Arizona, had numerical accuracy standards for points of irrigation water delivery by suppliers to individual customers. None of those surveyed required specific hardware devices (though some included examples of devices that would comply).

5.1 Range of Water Measurement Options

As stated in CWC §10608.48(i), DWR shall adopt regulations that provide for a range of options that agricultural water suppliers may use or implement to comply with the measurement requirements. Using the framework described above, DWR staff has developed a potential range of options that would ultimately be defined in the regulations promulgated by the Office of Administrative Law.

Water suppliers subject to the requirement shall use one of the following options to measure water delivered to customers. Two categories of options are shown. The first applies to measurement at the location at which control of delivered water is transferred from the supplier to the delivery point of individual customers. The second category applies to measurement upstream of the point at which control is transferred, and, under certain circumstances and with justification acceptable to DWR, allows the supplier to measure water at a point upstream of delivery to one or more customers.

Comment [GD3]: This misses a key point related to the degree of variability in accuracy among the population of devices. It is never the case that all devices, even ones of the same type and configuration, have the same accuracy, whatever the standard might be. For purposes of volumetric billing, the main issue is whether the variability in accuracy from farm gate to farm gate is sufficiently narrow to achieve sufficient equitability among customers in cost recovery. Given any range a supplier and its customers might agree to, there will also be an average error that may or may not be acceptable for aggregate reporting.

This leads to the idea of developing an average error standard for purposes of aggregate reporting and letting suppliers deal with the accuracy variability issue with their customers. As the cost/price of water increases, the range in acceptable variability is likely to narrow. If average accuracy is within acceptable bounds, what difference does it make to anyone other than the supplier and customers what the variability is?

Applying the accuracy standard to individual devices, which has been the thrust for a long time now, will surely force an average accuracy that is within the individual device standard. However, this is likely to impose unnecessary cost because achieving consistency is a strong cost driver.