

April 6, 2011

Department of Water Resources  
Attn: Water Use and Efficiency Branch  
901 P Street  
Sacramento, CA 95814

*SUBMITTED ELECTRONICALLY*

**Re:** Comments on the “Cost Analysis for Proposed Agricultural Water Measurement Regulation in Support of Economic and Fiscal Impact Statement” report dated March 29, 2011.

Dear Mr. Baryohay Davidoff,

The agencies listed below have prepared the following comments on the above referenced report for your review and consideration. We appreciate that there is limited data available for evaluating the potential costs associated with implementing the draft regulation, and that DWR has included a discussion of some of the limitations and assumptions used to fill in the gaps in the analysis. This information helped facilitate the analysis. However, due to the short timeframe available for review, the following comments do not include a complete assessment regarding the accuracy of many of the assumptions and calculations provided, unless specific information was readily available.

Overall, we are concerned that the analysis significantly underestimates the implementation effort and costs, particularly the initial costs by more than 50%. The following provides a discussion of various concerns regarding the report, and the resulting impact to the analysis.

**1. Section 5.4 - Initial Assessment of Existing Measurement Devices**

- a. As a practical matter, for a water supplier to implement the regulation, they will need to assess the current measurement program and facilities to determine what needs to be replaced or repaired. This type of “initial assessment” needs to be completed for all turnouts or other measurement devices. In its current form, the report estimates the assessment will be conducted on only 10% of the sites. In doing so, it seems to confuse the certification and performance verification requirement within the regulation (for a review of 10% of the gates) with the need to review existing facilities to determine what needs to be upgraded to comply with the regulation. To identify the initial capital improvements and repairs needed, all gates need to be evaluated. As a result, the report underestimates the “initial assessment” (as we have defined it above) by 90%. Including these costs substantially increases the initial startup costs for the program.
- b. Verification of the devices, pursuant to the certification and performance requirements outlined in the draft regulation, an evaluation of 10% of the measurement devices or some other statistically representative sample of devices needs to be documented for compliance. This would be equivalent to the costs initially estimated for the “initial assessment” within the draft report. These costs are in addition to the costs incurred under item 1.a. above.

**2. Table 2 – Unit Costs of Measurement Devices**

- a. The economic impact analysis does not provide sufficient information to evaluate the cost estimate of \$5,500 to replace an existing turnout with a new device. Costs will vary depending on the infrastructure requirements. Comments provided by agencies during the stakeholder process included information on costs being nearly 3 times more than the \$5,500 included in the report. The basis for the estimate should be included in the report assumptions, and should include the “average” cost for replacement, including costs associated with:

- Design
- Installation
- Calibration,
- Removal of encroachments or other access improvements needed to allow for the measurement modifications needed, and
- Other potential costs such as a new gate, instrumentation, and/or structures.

Dauids Engineering , a consulting firm with experience in water measurement installations throughout the state, indicated that it has been their experience that total costs per delivery measurement gate (including design, construction/installation and instrumentation) have ranged from \$7,500 (for simply adding data logging capability) up to \$25,000 (for a new gate, structure and remote monitoring capability). (*email communication from Bryan Thoreson*) This suggests that the \$5,500 costs used for the analysis is significantly low; however, it is not possible without further work to know by how much.

- b. It is unclear why O&M costs for devices listed under “Repair and recalibration of existing devices” would be less than 30% of the O&M costs for new or replacement devices.
- c. Information regarding the assumptions, and references used to estimate both the capital and O&M costs should be provided in the report.

3. **Section 5.6 – Proportion of Area Using Turnout-level Measurement**

For the Sacramento Valley Region the report appears to assume that lateral devices serve on average approximately 1,879 acres. The Cooperative Measurement Study, one of the references used in generating the cost estimates, provides examples of two laterals which each served 4 fields having a total acreage of 550 acres or less. This seems to indicate that the assumed acreage per lateral measurement device is too high, resulting in a corresponding underestimation of the total number of measurement devices, and the costs associated with installing and maintaining those devices. To address this issue, an average closer to 1,000 acres should be assumed.

4. **Table 4 – Estimated Number of Measurement Sites Potentially Requiring Action**

- a. Section 5.6 states that the analysis assumes half of the affected acreage in the Sacramento Valley would be measured at the lateral level and that all other regions would be measured at the turnout level only. This assumption results in the number of turnouts in the Sacramento region being divided in half and then multiplied by the

proportions listed in Table 2 to calculate the turnouts requiring modifications or replacement. It is not clear if the 50% reduction is appropriate, or if it is incorporated in the analysis correctly. Is the number of turnouts in Table 1 overestimated, resulting in the need for the reduction? If the assumption is not correct, then the analysis significantly underestimates the costs and impacts to the Sacramento Valley region.

- b. In reviewing the number of turnouts estimated per region, combined with the estimated proportion that require repairs/modifications or new devices, it appears as though Table 4 underestimates the numbers of repairs/modifications and new devices by 50% for all areas of the state, with the exception of the Sacramento Valley suppliers (that is assuming the 50% reduction is appropriate – see comment 4.a. above). The 50% assumption for the Sacramento Valley turnouts seems to have been inadvertently applied to all the areas within the state, resulting in a significant underestimation of the number of turnouts requiring modifications. For example, suppliers with greater than 25,000 acres, the table should show a total of 12,682 turnouts requiring repair/modification (as compared to the 6,900 listed) and 8,308 new turnouts required (as compared to the 5,085 listed).

The same error occurred for the estimates of repairs/modifications and new devices needed for suppliers serving 10,000 to 25,000 acres.

- c. It is unclear how the number of lateral gates needing repair/modification or replacement was determined. The values don't appear consistent with the proportions listed in Table 3. As a result, it is unclear if the estimates are appropriate. However, as reference under item #3 above, the estimates for the number of acres served per lateral level device appear too high.

5. **Section 6.1 – Number of Measurement Sites Potentially Requiring Action**

The estimated totals for turnouts and lateral measurement sites requiring repair/modification and replacement are taken directly from Table 4. The text should be updated to reflect the corrections to Table 4 described above.

6. **Table 5 – Estimated Regional and Statewide Costs to Comply with Proposed Regulation**

Information contained in this table reflects a compilation of errors described above. As the above issues are resolved, they should be reflected in revisions to Table 5. For instance:

- a. The estimated costs for the initial assessment are underestimated, and should be revised to reflect the corrections described above in Comment #1.
- b. The capital cost estimates are calculated using the estimated number of turnouts impacted (from Table 4) multiplied by an estimated cost for either the repair/modification or replacement required. However, as noted above (Comment #3), the number of turnouts are significantly underestimated (by nearly 50%), resulting in a corresponding error in the estimated initial capital and maintenance costs. The table should be revised to reflect the corrections.

- c. Comment #2 above raised concerns regarding the estimated cost per installation. This could compound situation.
- d. Comment #1 above outlines the need to assess all devices to identify the facilities requiring repair or replacement. Pursuant to Comment #1 above, the “initial assessment” dollars should be corrected to reflect the need to evaluate all measurement sites. Additionally, the existing “initial assessment” costs should be relabeled “accuracy validation” costs.

The combination of issues described above results in the initial assessment, capital & maintenance costs, in their current form, being significantly underestimated and misrepresentative.

- e. Additionally, it is unclear how the O&M estimates contained within the table were derived. They do not appear to correlate with the number of facilities in Table 1 or the O&M costs identified in Table 2. The calculations and assumptions used to develop the estimate should be reviewed and documented to ensure transparency.

**7. Table 6 – Summary of Statewide Costs, Suppliers greater than 25,000 irrigate acres**

- a. Information contained in this table reflects a compilation of errors described above. As the above issues are resolved, they should be reflected in revisions to Table 6.
- b. The average farm size is estimated to be 313 acres based upon an “average farm size from the 2007 Census of Agriculture.” However, it should be pointed out that there are other references available to reflect irrigated farm sizes in California. For example, the 2007 Census also refers to a median size farm of 20 acres.

The National Agricultural Statistics Service (NASS) also conducts a Farm Ranch Irrigation Survey (FRIS) to supplement to the Census of Agriculture. The 2008 study, supplements the data collected in the 2007 Census of Agriculture. In the NASS FRIS, the USDA recognizes that California irrigated farms vary substantially in size. A summary of the findings from Table 2 of the report, provided below, shows that 72% of California irrigated farms are below 49 acres in size. Some of this variation is likely regional in nature.

<b>California Farm Sizes</b>			
	<b>Farms</b>	<b>Acres Irrigated</b>	<b>% of Farms</b>
<b>&lt;49 Acres</b>	32,499	408,070	72.00%
<b>50-99</b>	2,865	192,165	6.35%
<b>100-199</b>	3,285	477,492	7.28%
<b>200-499</b>	3,170	1,012,233	7.02%
<b>500-999</b>	1,738	1,225,449	3.85%
<b>1000-1999</b>	965	1,307,090	2.14%
<b>2000+</b>	614	2,706,646	1.36%
<b>TOTAL</b>	<b>45,136</b>	<b>7,329,245</b>	<b>100.00%</b>

Source: USDA NASS FRIS – Table 2 ([http://www.agcensus.usda.gov/Publications/2007/Online\\_Highlights/Farm\\_and\\_Ranch\\_Irrigation\\_Survey/index.asp](http://www.agcensus.usda.gov/Publications/2007/Online_Highlights/Farm_and_Ranch_Irrigation_Survey/index.asp))

This may indicate that the assumed number of turnouts per area used in the calculations throughout the document is underestimated, and the corresponding costs per farm. This obvious trend toward smaller size farms illustrated above draws into question the underlying assumption that all farms are “commercial businesses,” which may in turn influence the economic analysis requirements. It should also be noted that smaller sized farms will have a harder time absorbing the measurement costs, particularly if the farm is the only acreage being served by the measurement device.

In closing, we appreciate the opportunity to review the report. It is important that the report be the best representation of the impacts and costs associated with the proposed regulation. We have provided the above comments to assist DWR in revising the report to better reflect these costs, thereby enabling the California Water Commission and others to analyze the appropriateness of the regulation, and the ability for agricultural water suppliers and their customers to comply with the requirements. We appreciate DWR’s serious consideration of the above comments, and trust they will revise the report to address the calculation errors identified, and clarify the rationale behind the assumptions made, to better reflect the economic impacts.

Sincerely,

*Undersigned Agricultural Water Suppliers*

Richvale Irrigation District  
Oakdale Irrigation District  
Turlock Irrigation District  
Kern County Water Agency  
Modesto Irrigation District  
Reclamation District 108