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Ms. Scruggs –

This letter provides my comments on the Department of Water Resources' draft "Groundwater Elevation Monitoring Guidelines" and "Procedures for Monitoring Entity Reporting." Having spent almost 40 years measuring groundwater levels in the State of California I thought it would be beneficial to review the documents and provide my comments. In general, I am impressed with the completeness of the documents and given the diversity in methodologies used in California I am amazed that you were able to negotiate a document. I suspect there was a great deal of "give and take" by all members of the team that produced this document.

My greatest concern is that the Department will never have sufficient funding to oversee and facilitate this program. I was disappointed to see that once again the Legislature and the Governor failed to provide any long-time secure funding for this program. While this legislation requires the passage of other legislation to be instituted, it did not provide any language that relieved the Department of its responsibility to carry out this legislation if the Legislature or the Governor did not provide funding. Actions like this are prime examples of why California is in the fiscal mess that it finds itself today.

My specific comments on the Draft Groundwater Elevation Monitoring Guidelines are:

- Page 1 "*Dedicated groundwater monitoring wells with known construction information are preferred over production wells to determine static water levels, and monitoring wells near rivers or aquifer storage and recovery projects should be avoided due to the potential for rapidly fluctuating water levels and engineered groundwater systems.*" If the goal is to understand the status of the basin, then groundwater levels near water bodies and production facilities are needed. If not, we will not know when the groundwater gradient is near a point of shifting from a water body being a gaining or losing system. Also, if we avoid production recharge facilities, we will not know the actual effect these facilities are having on the groundwater system. For example, if we did not have groundwater monitoring wells around and near Thermalito Afterbay, we would not know that

the leakage from the Afterbay is recharging the Sacramento Valley Groundwater Basin.

- Page 6 & 7 – Arrows that show the direction of flow should be included on the contour maps to show the actual implications of a low density monitoring network. I have seen where pumping holes and groundwater discharge/recharge areas were missed with a low density network. Also, I have seen where wells that monitor the confined when mixed with those that monitor the unconfined produce a map that makes little sense. This development of a viable network will take a number of iterations over a decade. While I know that DWR will work with local entities to eventually develop a viable network, I know that there are some in the State that think that a network can be developed on the first attempt. This caveat that networks will develop over time might be incorporated in the document. I realize it might be but I missed it.
- Page 20 – Requiring a second and possibly a third measurement can increase the measurement time from 10-15 minutes to over an hour. This cost will require a number of wells to be dropped from the network as they require too much time to make a measurement. Of course, these areas might be good candidates for dedicated monitoring wells. In the case when using a steel tape, if you can feel the weight of the tape, you obtain a clean cut between a dry and wet tape, and the measurement falls within a reasonable level; then the measurement should be good. The measurement can always be identified as a “questionable” measurement.
- Page 22- caution should be used when using an Electric Sounding Tape where the water table is shallow (0-20 feet) and when the Tule Fog is really thick. The moisture in the air matched with the moisture in the well casing, can trigger a false reading.
- Page 26 – *“With some data loggers, previous water-level measurements may be lost if the power fails.”* You might consider adding that the data may be lost if the data logger dies, is vandalized, or a glitch occurs during the downloading of the data. Data loggers are valuable tools, but they are like putting all your eggs in one basket.
- One final comment on the guidelines; there seems to be an infatuation with measuring to 0.01 of a foot. While the instrumentation will allow this, time (read fiscal) and reality wonders if this infatuation is valid. I do not recall ever seeing a report of the status of a groundwater basin based on a hundredth of a foot. And if I did, the author’s credibility should be called into question. These guidelines gives the impression that there actually is a “Static” groundwater level, but then in California many think that groundwater and surface water are two distinct, unconnected water bodies.

My comments concerning the Draft Procedures for Monitoring Entity Reporting are minimal and deal only with page 19. You require an “Accuracy of water depth measurement,” and I could not find how this was to be determined or reported. Is the accuracy to be + / - one foot? If you are measuring using a steep tape, even

without using the “leader” you can get within +/- 0.05 feet (which is basically the length of a short fingernail).

- You also mention no measurement and questionable measurement codes. This raises the question of what is the penalty to a monitoring agency that turns in a network of wells and most if not all of the wells have “no measurement” codes or questionable measurement codes? It would be very inexpensive to submit a table of wells that had No Measurement codes that showed that the wells were temporarily inaccessible. I would expect that if this were to happen, DWR would be in discussions with the agency or provide some document that the agency was not in compliance. It doesn't appear that the legislation addresses this scenario which just underscores the failure of the Legislature. At least the legislation does give DWR and “out” to not provide any funding if the agency is not in compliance.

This concludes my comments. Thank you for the opportunity to comment on these documents. As I stated at the beginning, these documents provide evidence of a lot of time spent working with many personalities, methodologies, and perspectives on groundwater monitoring. This is a step in the right direction and should provide the public with valuable data on which to make sound decisions. You will notice that I also sent a copy of my comments to Ms. Kelly Staton as I live within the boundaries of the Northern Region Office.

Sincerely,

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