

1/8/19

From: Dr.Don Decker, IWVGA TAC member, Domestic Well Owners representative

To: Mr.Steve Johnson, Stetson Engineers

Subj: Stetson Engineers request for comments concerning baseline pumping, impacts to shallow wells, potential Navy-Coso royalty projects and project priorities, draft GSP Chap 1 and modeling scenarios

Ref: Stetson Engineers 1/3/19 TAC presentations

I. Introduction

This set of notes is coming from a IWVGA TAC member with 50 year's of experience with the issues concerning the groundwater supply in the IWV, California DWR Basin 6-54. This TAC member has also initiated and participated in detailed discussion with many senior Navy officials of the groundwater supply issues affecting the Navy mission at China Lake. This participation started in the early 1970's and continued until my retirement from the Navy in 2005. This biographical information is offered for the record.

II. Specific responses to the Stetson TAC presentation on 1/3/19

1. TAC agenda item 3aii, baseline pumping.

The correction noted here is to an entry in the Baseline Pumping (No Action) chart. The estimated recent pumping entry for DOM should read 1,100 not 2,120. 2,120 is an earlier estimate made by the Cooperative Groundwater Group and was fundamentally a guess. The 1,100 value is a refined estimate partly based on work by Todd Engineers.

2. TAC Agenda item 3bi, impacts to shallow wells

A very valuable analysis is presented here. Several suggestions/comments:

- a. It would be clearer if the nomenclature between the slides was fully consistent starting with slide 2.
- b. The 50' water column range in slide 3 is too large given the relatively small useable water column in most wells
- c. The section by section rate of change shown in slide 5 doesn't seem consistent with the KCWA change map plotted for the years 2003 to 2008. Part of the discrepancy is no doubt coming from the relatively large ranges shown on the Stetson color-coded map.
- d. Slide 6 displays a 10 year cyclic nature in well impacts which is certainly an artifact of the analysis. It also does not appear to show any increase in the time rate of failures which is apparent in the actual circumstance.
- e. The estimated cumulative well failure numbers for 2020 to 2030 are similar to the observed present rate (personal observation). I assume the numbers shown result from an extrapolation of the known well characteristic to the full DOM well count (832)? Are you assuming significant reductions in rates of decline of groundwater elevation in time in your model as an assumed sustainability plan is effective?
- f. I assume your model has a correction built in to take into account the "renewal" that occurs when a failed well is redrilled or deepened?

3. TAC agenda item 3g, Navy-Coso project priority summary

- a. Most but not all of the suggested Navy-Coso Royalty funded projects have strong benefit to the China Lake Navy as expected. Projects 3, 9, 10, and 15 have relatively low potential benefit to probable Navy interest. Some other projects on this list either are already funded, e.g., item 5, or are so specific to likely Navy interests to not be of Basin wide priority, items 13 and 14. The existing round of Royalty funding will be inadequate to fully support any of the major recommended projects summarized below. However, this funding would provide at a minimum, a solid early start for the highest priority project, item 2, described in b below.
- b. **This reviewer places project 2, Imported Water as having the highest priority of the remaining project areas.** This priority is based on the essential nature of this project to the future function and well being of existing Basin activity including specifically Navy interests. No other project on the list can claim such a distinction.
- c. The project of second priority is project 4, Water Storage and Recovery, that undoubtedly would be an essential element of a long term reliable imported water facility.
- d. For the third priority project I would suggest combining projects 7 and 8 with the aim of sharing the reclaimed water between the Navy and the City of Ridgecrest.
- e. For fourth priority I suggest rewriting project 12 to be based on a shallow seismic survey with a modern tomographic analysis that would extend down the primary western (Sierra) recharge zone from the Little Lake Gap into the El Paso Basin. The survey should extend to the West into the lower Sierra Canyons and to the East to SNORT well 1 and to BoR 3 and 4. This will provide valuable new insight into both recharge detail and the areal extent of the organic clay (poor water) zone underlying North Brown Rd and the poor water area surrounding BoR 3. This project would have lasting benefit to the proper management of both Navy and IWVWD future groundwater supplies.

4. TAC Agenda item 3e, draft GSP Chapter 1 suggestions

- a. This draft of Chapter 1 of the GSP is reasonably complete and well written. The comments below are to be taken as suggestions for improvement.
- b. The entire document will benefit from a thorough scrubbing looking at sentence clarity and flow from one sentence to another. Flow and meaning within a given sentence(s) is frequently awkward or even contradictory. For example, look at the two sentences in paragraph 2 of Section 1.1 on the first page. The first sentence identifies what is described as *intent* but the second sentence starts with *additionally* and then says SGMA *establishes*.... This paragraph was chosen as a convenient example of unclear writing and such sentences could benefit substantially by a rewrite.

There is a consistent over-use of certain words and phrases in proximity in sentences and paragraphs. Again, on page 1-1, the phrase “greatest extent possible/feasible” is used in three out of the four paragraphs on the page. These examples are not intended to be overly critical but to simply provide useful comment. It is not my intent to do a clean up but to point out some useful/important changes, partly as examples of additional editing that should be accomplished.

- c. Page 1-3, last sentence in the second paragraph would be more useful and accurate if “large” were replaced by “smaller”. In the last sentence on this page “federal” should be capitalized.

- d. On page 1-4, the rotating nature of the IWVGA should be made clearer by adding “as of January 1,2019” at the end of the Title line. The footnote should be retained as it provides additional information.
 - e. On page 1-5, first paragraph 3’rd line “city” should be capitalized. On line 6 why is “and/or:” used instead of just “and”? Line 15, again “city” should be capitalized.
 - f. Top of page 1-7, combine the first two sentences to read “... through SGMA as the sole GSA for the IWVGB”.
 - g. Section 1.3.2 provides a summary of the Authority of the IWVGA. **There needs to be a corresponding section describing the IWVGA Responsibilities.** Existing section 1.4 Notice and Communication belongs in this new Responsibilities component. In addition, there is more in SGMA that needs to be brought forth into this new section including GSP oversight and management. Much of the content for this new section exists in the present version but is scattered. For example, on page1-8, the section describing the requirements of WC 10723.2 is a GA Board responsibility although it is described in the PAC section since the PAC has an advisory role to play in this area. Some duplication will undoubtedly be necessary to accomplish what I am suggesting. To summarize: the paragraph under discussion on page 1-8 belongs in the (new) GA Board Responsibilities section. An abbreviated version will be also present in the PAC responsibilities.
 - h. Section 1.3.2.1 “policy advisory committee” should be capitalized
 - i. **The new GA Board Responsibilities section will be invaluable in emphasizing the management intent of the IWVGSP.**
5. **TAC agenda item 4b, Modeling Scenario suggestions**
- a. Slide 1, scenario 1 **objectives should include calculation of groundwater in storage changes as a function of time as the scenario unfolds.** It would be useful to show total groundwater in storage for the entire basin and separately to show changes perhaps in the several “management areas” we have defined.
 - b. The scenarios outlined are appropriate in detail for initial model runs.
 - c. Scenario 1 option A and B should both be run for the purpose of documentation of the differences in groundwater in storage effects. However, I submit that no surprises will be demonstrated between A and B.

As a final statement: This TAC member is willing to add comment detail on any of the topics above as may be required for complete documentation.