CAMROSA WATER DISTRICT
BUILDING WATER SELF-RELIANCE

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Board of Directors
Fox Canyon Groundwater Management Agency
800 South Victoria Avenue
Ventura, CA 93004

September 23, 2019

FCGMA Board of Directors:

We appreciate the opportunity to comment on the Preliminary Draft (Subject to Change) Groundwater Sustainability Plan (GSP) for the Las Posas Basin. The comments in this cover letter will be general and brief; more detailed comments from Terry Foreman, Camrosa Water District Board member and the FCGMA Special Districts' appointee to the GSP technical advisory group (TAG), are attached for your review.

1. This year, DWR implemented a new naming convention to standardize GSA names. As of July 26, 2019, the official name for the Camrosa GSA is "Camrosa Water District GSA – Las Posas Valley."
2. p. 2-39 notes: "Imported water supplies consist of imported Metropolitan Water District of Southern California water provided by the CMWD, and pumped groundwater supplied by the Camrosa Water District from the PVB and Arroyo Santa Rosa Valley Basin." The potable water Camrosa delivers to its customers overlying the Las Posas Basin is a blend of water purchased from Calleguas (mostly, but not exclusively, State Water Project water, supplemented during periods of drought or maintenance of the SWP system, with Colorado River water) and pumped groundwater from PVB and ASRVB. The nonpotable water Camrosa delivers is a blend of Conejo Creek water, pumped groundwater, and Calleguas water.

Thank you for considering these comments. Should you have any questions, please do not hesitate to contact me. Sincerely,

Tony Stafford,

Tony Stafford

General Manager

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Due to the technical complexity of groundwater sustainability plans, Camrosa is relying on the expertise of Terry Foreman, the Special Districts' appointee to the FCGMA TAG and Vice President of the Arroyo Santa Rosa Groundwater Sustainability Agency Board, for specific comments on the Preliminary Draft (Subject to Change) of the Las Posas Groundwater Sustainability Plan.

Comments on Draft (Subject to Change) Groundwater Sustainability Plan for the Las Posas Valley Basin, dated July 2019
By Terry L Foreman, PG 4020, HG 155
September 23, 2019

GENERAL COMMENTS

1. There is not a specific plan to achieve Sustainability. Subarticle 5. Projects and Management Actions of the SGMA regulations, specifically Sections 354.44 (b) (1) (A) and (B), (2), (3), (4), (6), (7), and (8) require specific projects, costs, sources of funding, schedule and milestones be provided to demonstrate how sustainability will be achieved by the GSP. It appears much of these requirements are left to later determinations; however, these items are expected to be part of the Plan. The set of simulations of various future scenarios, from which the sustainable yield (SY) was estimated included annual reductions in pumping over the 20-year implementation period. However, throughout the document and in Chapter 5, there is no specific plan proposed to achieve sustainability, only that fallowing and pumping reductions are tools that could be used to achieve sustainability. This vague discussion will likely not meet DWR's requirements for a specific plan. The plan can change in the future as new projects or management actions are further assessed and adopted, but there should be a plan in place in this GSP.

2. There is less emphasis on pumping in the West Las Posas Basin (WLPB) and its impacts on seawater intrusion in the Oxnard Basin (OxB) in this GSP than in the PVB GSP, but there is not enough analysis of what pumping quantities are reasonable. Why are WLPB pumpers responsible for limiting seawater intrusion into Oxnard? What is the fair and reasonable flow to be provided from WLPB to OxB? There is no limit to OxB pumping that WLPB might be required to support in order to avoid seawater intrusion in the OxB. As presented in the GSP, it seems that WLPB pumpers are expected to make an unfair contribution to avoid seawater intrusion in OxB.

3. There is no documentation of future scenarios presented in the GSP. Sustainable Yields of each basin cannot be reviewed critically because of the gaps in documentation. Groundwater models used for simulation of future scenarios have not been documented. Documentation, similar to that prepared for groundwater models of historical conditions, is required for the following: boundary conditions, projected stream flows including stream leakage (e.g., Santa Clara River, Arroyo Las Posas, and Arroyo Simi), operations (including rules) of diversion of surface water for direct deliveries and managed recharge, location and timing of applied waters (e.g., imported water, surface water, recycled water, and groundwater), mountain front recharge, recharge from precipitation, groundwater flow between basins, location (including aquifer) and timing of groundwater pumping and location of discharge to streams, seawater (coastal groundwater) intrusion/outflow, conjunctive use operations, etc. All water budget components simulated in the models, including assumptions and methods used need to be documented. Such

documentation has not been presented for stakeholder review and understanding of the basis of presented Sustainable Yields.

There needs to be a clear presentation of all projected water supplies and their uses, especially conjunctive use expectations: timing and amounts of surface water and groundwater use. Conjunctive use operations are buried within the estimates of SY for the OxB and PVB. For example, the modeling of future scenarios varies groundwater pumping over 1000s of AFY depending on availability of surface water and the SY value is the average of pumping over the 50-year simulation period. For example, the 2015 through 2017 average pumping in the Oxnard and Pleasant Valley Basins is 76,834 and 17,181 AFY respectively, which is stated as the pumping rates used in the Base Case scenarios. However, average pumping in each basin over the 50-year simulation period is reported as 68,000 AFY and 14,000 AFY, respectively, with annual values varying significantly (e.g., between about 9,000 to 21,000 AFY in the Pleasant Valley Basin). These differences are due to conjunctive use operations and represent average pumping over the 50-year simulation period. So, it is important that these conjunctive use operations are fully disclosed and clearly documented in order to understand the basis of the SY estimates and expected variations of pumping and surface water deliveries under different hydrologic conditions (e.g., wet, dry, or average). This understanding will be important in determining impacts of allocation decisions on allowed year-to-year pumping variations.

4. The derivation of the SY value from the series of future simulations is not clearly documented. The calculations of SY should be presented so the reader understands the exact methodology used to obtain the values presented in the GSP. There was some additional information on the methodology presented at the August 21/22 workshops, but this information is still insufficient. The calculations used to arrive at the SY values presented in the report should be shown in the GSP, especially given the values in the GSP are new and have not been reviewed at TAG.

5. The uncertainty analysis approach used in the GSP is not the conventional approach used in the groundwater community. The uncertainty analysis presented in the GSPs are at best gross approximations, what may change significantly using more conventional approaches. The UWCD and CMWD models peer review reports provided by Dudek as appendices in the GSPs present "uncertainty analysis" of potential SYs based on Global Sensitivity Analysis (GSA). The GSA approach limits the analysis to small sets of parameters and does not maintain calibration of the groundwater flow models in assessing uncertainty of model parameters to model outputs, which leads to serious questions of the validity of the uncertainty bounds presented (both in the peer review reports and GSPs). Use of GSA in the groundwater models peer review is a significant departure from the scope of work approved by the FCGMA Board. The peer review scope of work called for uncertainty analysis based on the following process described by USGS in ***Approaches to Highly Parameterized Inversion: A Guide to Using PEST for Model-Parameter and Predictive Uncertainty Analysis***, by John Doherty, Randall J. Hunt, and Matthew J. Tonkin, 2010. Use of GSA is not a conventional approach being used as an industry standard for uncertainty analysis in surface water and groundwater studies. GSA has been introduced relatively recently as a means to assess relative importance of parameters in groundwater modeling (see for example, ***Approaches in Highly Parameterized Inversion: PEST++ Version 3, A Parameter ESTimation and Uncertainty Analysis Software Suite Optimized for Large***

Environmental Models *by* David E. Welter, Jeremy T. White, Randall J. Hunt, and John E. Doherty, 2015.*)*. GSA is not the industry standard being used to assess uncertainty and as such has not undergone extensive scrutiny and peer review by groundwater professionals. Review of popular modeling software platforms such as GMS, Groundwater Vistas, and Visual MODFLOW typically integrate the PEST suite of programs for model calibration and uncertainty analysis. The USGS has focused their efforts on uncertainty analysis through the use of and further development of the PEST suite of programs in cooperation with Dr. John Doherty. It is recommended that the approach used by the USGS, as in the original scope of work, be considered in further assessing uncertainty. In addition, these approaches can be used to assess the worth of data of future monitoring programs to focus expensive data collection programs (such as installation of new groundwater monitoring wells).

6. Use of groundwater level thresholds as surrogates for water quality and land subsidence is not supported. There is no analysis showing how proposed groundwater level thresholds will not result in undesirable results in water quality or subsidence. The use of groundwater levels as surrogate threshold levels for various sustainability indicators is not supported in any substantial manner. Specifically, historical low groundwater levels are stated as minimum thresholds protective of degraded water quality and land subsidence. In order to use surrogates, such groundwater levels, for these sustainability indicators, there needs to be a demonstration that there is a direct relation between the sustainability indicator and the surrogate indicator, i.e., groundwater levels that will protect against an undesirable result. Presently, there is no analysis presented in the GSPs to support the selection of the surrogate indicator and its relation to the sustainability indicator to demonstrate that the minimum threshold will not be exceeded if groundwater levels are maintained above historical low levels. For example, subsidence is a slow process where consolidation of fine-grained sediments occurs in response to a decrease in groundwater levels. Subsidence may be initiated upon a drop in groundwater levels below a specific threshold value, where consolidation of fine-grained sediments is initiated, but may not go to completion (i.e., full potential subsidence) as groundwater levels recover. So, additional consolidation may be reinitiated as a groundwater levels decline below threshold levels. There has been no analysis of the potential subsidence under varying groundwater level declines except references to previous USGS analysis of subsidence in the basins. Given the observations of subsidence, including those of the USGS, Farr (2017) and UNAVCO's monitoring stations (especially Station P729 in the West Las Posas Basin), these issues need to be further explored for all the basins.

7. The bases for defining Basin-wide Undesirable results appear to be somewhat arbitrary. The basis for claiming that a certain number of wells, or timing sequences, exceeding local minimum thresholds will create a basin-wide undesirable result is not supported by any analysis or demonstrations. Such analysis and demonstration should be provided and reviewed by stakeholders to support the recommendations.

8. There needs to be clear objectives stated for proposed monitoring program and a more rigorous analysis of the cost-benefits of each monitoring element. There should be, a) clearer explanations of data being collected to address data gaps and, b) data collected to assess progress of sustainability attainment. Future monitoring will add hundreds of thousands of

dollars to GSP implementation and new monitoring features, such as monitoring wells, potentially will cost millions of dollars, so the monitoring program should be optimized to avoid collection of data of limited value. Optimization techniques as described in the USGS report identified in General Comment No. 5 above should be considered for use in evaluating data worth.

SPECIFIC COMMENTS

Specific comments are not provided due to the limitations of time given for review of the three extensive draft GSP documents. However, many of the issues identified in the draft PVB and OxB GSP are issues in this GSP, which have been folded into the General Comments on this GSP.

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