LAS POSAS VALLEY WATERMASTER RESPONSE REPORT

Date: March 15, 2025

To: Las Posas Valley Watermaster Board of Directors

From: Kudzai Farai Kaseke, Assistant Groundwater Manager (FCGMA)

Re: Response Report to TAC Recommendation Report – Draft Las Posas Valley Basin Groundwater Sustainability Plan 2025 Annual Report Covering Water Year 2024

The Las Posas Valley Watermaster (Watermaster) requested consultation from the Las Posas Valley Technical Advisory Committee (TAC) on the Draft Las Posas Valley Basin Groundwater Sustainability Plan (GSP) 2025 Annual Report Covering Water Year 2024. The Watermaster requested consultation in a memo to TAC dated January 15, 2025.

The TAC discussed and developed its recommendation report at January 21, February 4, and February 11, 2025, meetings. TAC's February 11, 2025, recommendation report included eight recommendations and an attachment with 84 comments by each of the TAC members on specific sections of the draft Annual Report. Each of these recommendations is listed below followed by Watermaster's response. Watermaster's responses to the 84 specific recommendations are attached.

Recommendation 1: CLARIFY THE RELATIONSHIP BETWEEN WATER LEVELS IN SPECIFIC AREAS OF THE BASIN AND SUSTAINABLE YIELD

Sustainable yield is a basin-wide, long-term metric for assessing overall groundwater basin conditions. There are two locations in the text where ongoing water level declines in the eastern part of the West Las Posas Management Area (WLPMA) and northern East Las Posas Management Area (ELPMA) are attributed to basin-wide production in excess of sustainable yield. It is overly simplistic to say that these localized declines are the result of basin-wide exceedance of sustainable yield. There must be a local reason that water levels in these specific areas are declining when they are relatively stable in other parts of the Las Posas Valley Basin (Basin).

1.1 Recommendations:

To reduce the number of model simulation iterations required to identify the volume of in lieu delivery that would achieve local sustainability the TAC recommends the following:

- Consider revising these specific statements regarding local water level declines and sustainable yield at the end of the Executive Summary and in section 3.1.1.
- Edits should at a minimum indicate that local pumping in excess of recharge is the likely cause of water level declines.
- Consider also indicating that additional information and analysis may be necessary to define the affected areas and identify projects and management actions to address the ongoing declines. Additional information could include more consistent groundwater elevation monitoring at increased geographic density and analyses could include local pumping and water level change rates.

Response to Recommendation 1:
Under the Sustainable Groundwater Management Act (SGMA), sustainable yield is defined as "the maximum quantity of water, calculated over a base period representative of long-term conditions in the basin and including any temporary surplus, that can be withdrawn annually from a groundwater supply without causing an undesirable result." The GSP (FCGMA 2019) defined minimum thresholds at key wells in the WLPMA, ELPMA, and Epworth Gravels Management Area, which may indicate an undesirable result is occurring if groundwater elevations are below one or more minimum thresholds.

Groundwater elevation declines in the eastern portion of the WLPMA are in an area of a long-term groundwater depression near the Somis Fault that forms the boundary between the ELPMA and the WLPMA. Groundwater elevations at one key well in this area are typically below the minimum threshold. Pumping in this area at a rate greater than recharge is causing depression of groundwater elevations. Groundwater modeling indicates that a proposed project to purchase imported water from Calleguas Municipal Water District for delivery in lieu of pumping in this area, that was proposed in the GSP, discussed in the First Periodic Evaluation of the GSP (FCGMA 2024), and in the draft Basin Optimization Plan (FCGMA 2024), would likely mitigate the declining groundwater elevations in this area.

Groundwater elevations have exhibited a declining trend in key wells in the northern portion of the ELPMA. Recharge to the Fox Canyon Aquifer in this area appears to be primarily from slow leakage from the overlying Upper San Pedro Formation, which exhibits little influence from precipitation or water-year type. While groundwater elevations have not yet declined below the minimum thresholds, groundwater modeling conducted for the GSP and the First Periodic Evaluation of the GSP forecast that groundwater elevations will decline below minimum thresholds unless projects are implemented and/or extractions reduced. Pumping in this area is occurring at a rate greater than recharge can support. A feasibility study to identify possible supplemental water supply sources for the northern ELPMA was added to the GSP list of projects in the 2022 Annual Report (FCGMA 2022), discussed in the First Periodic Evaluation of the GSP (FCGMA 2024), and in the draft Basin Optimization Plan (FCGMA 2024). Supply of imported water in lieu of pumping in this area should help to mitigate the long-term groundwater elevation decline in this area.

The text in section 3.1.1 of the Annual Report has been revised to better coincide with the findings in the First Periodic Evaluation:

> The Periodic Evaluation found that the depressed groundwater elevations in the eastern WLPMA and declining groundwater elevations in the northern ELPMA reflect ongoing groundwater production in areas of limited groundwater recharge. Projects identified in the Periodic Evaluation would provide imported water in lieu of pumping in these areas of the LPV Basin.

Text in the Executive Summary was similarly revised.

The analysis recommended in TAC's the third bullet is beyond the scope of the Annual Report, which is essentially a data report. This analysis was addressed in the First Periodic Evaluation of the GSP and will be in the Basin Optimization Plan. As addressed, it will be discussed in the implementation section of future annual reports.

Recommendation 2: ADD DISCUSSION AND COMPARISON OF THE REGRESSION CHANGE IN STORAGE ESTIMATION METHOD AND THE MODEL-BASED METHOD

The TAC is interested in seeing a comparison of the results of the change in storage methods referenced in the Annual Report. In the discussion of change in storage, the Annual Report indicates that previously presented change in storage estimates for the period from 2015 through 2022 were updated following extensions of the models for both the WLPMA and ELPMA completed as part of the 2025 Periodic Evaluation of the LPV GSP. However, the Annual Report does not present the difference these change in storage volume updates represent compared to those reported previously. An accounting of the difference between the changes in storage presented in previous annual reports and those in the WY Annual Report should be included along with a discussion of the differences between the model- based and regression-based methods for estimating change in storage.

2.1 Recommendations:

1. Include comparison of model-based change in storage estimates presented in the WY 2024 Annual Report to those for the same years in previous annual reports derived from the regression-based method.
2. Discuss the differences in change in storage estimates between these two methods.
3. Consider completing a thorough assessment of the differences in outcome of these two methods for estimating changes in storage and presenting it in future annual reports
4. Consider developing a plan for how future model updates and resulting differences in change in storage estimates presented in annual reports and other publications will be retroactively adjusted. This plan should be included in future annual reports (and the WY 2024 Annual Report, if possible) and summarized or referenced in other documents that include change in storage estimates.
5. Standardize the years for which changes in storage are reported for all management areas. Table 2-7a shows change in storage for 2019 through 2024 for the Lower Aquifer System of the WLPMA while Table 2-7b shows 2016 through 2024 changes in storage for all ELPMA and Epworth Gravels Management Area aquifers.

Response to Recommendation 2:

Consistent with Watermaster's current understanding of the groundwater conditions in the LPV Basin, the annual and cumulative change in storage in the LPV Basin are reported as a mix of both modeled estimates and estimates from linear regression correlations based on the United Water Conservation District (UWCD) and Calleguas Municipal Water District (CMWD) models used during development of the GSP. While the two methods do not provide the same estimate of storage change, and should not be expected to provide the same estimate of storage change, the mix of approaches reflects the best available tools available to the Watermaster at this time.

The modeled estimates, which extend through water year 2022, are taken from the updated change-in-storage estimates calculated as part of groundwater modeling for the Periodic Evaluation. These estimates are more constrained and, therefore, provide a more comprehensive assessment of storage change in the LPV Basin than the linear regression estimates. Consequently, these estimates were used where available. SGMA regulations do not, however, require groundwater

modeling to be conducted for each annual report. Therefore, in order to estimate the change in storage for water years 2023 and 2024, which were not included in the updated modeling for the Periodic Evaluation, Watermaster relied on the previously developed linear regressions to estimate change in storage for these water years. The calculation methods are provided for the reader to better understand the data presented, but a detailed comparison of model-based change in storage estimates to the linear regression-based estimates, is beyond the scope of the Annual Report.

Since the system of linear regressions was developed, UWCD has updated the numerical groundwater model for the WLPMA. In the upcoming year, Watermaster will review the need to revise and update the system of linear regressions based on the updated model to see if the correlation can be improved for future annual reports. If revisions to the 2023 and 2024 estimates of storage change are required as a result of this update, Watermaster will include these revisions in the next annual report. Historically, Watermaster has not retroactively revised previous reports, but rather treats the current annual report as the most up-to-date understanding of basin conditions. Updated values in tables that report historical data are footnoted when those values have changed from previous annual reports so that the reader is aware of the difference.

In the final TAC comment above, TAC noted that Tables 2-7a and 2-7b show different time periods. Watermaster notes that they both begin in water year 2016, although Table 2-7a spans two pages. Water years 2016, 2017, and 2018 are reported on the page above, while the table header spans both pages.

Finally, Watermaster notes that estimates of change in storage are constrained by available monitoring facilities and monitoring data. Watermaster is actively working to improve the monitoring network. These improvements will reduce data gaps and better constrain future estimates of storage change.

Recommendation 3: PROVIDE AN UPDATE ON WATER YEAR 2024 GROUNDWATER PRODUCTION MISSING FROM THE DRAFT ANNUAL REPORT

The draft WY 2024 Annual Report was submitted to the TAC for review without groundwater production records for the water year. Not having these data makes assessing groundwater sustainability conditions in the Basin challenging. We understand there were difficulties compiling groundwater use records in the first year of implementation of a new data collection system. However, comparison of groundwater use over time in to monitored water level conditions and estimated changes in storage is an important function of GSP annual reporting. The TAC anticipated the Watermaster would provide these missing data during the WY 2024 Annual Report review period, but they have not been made available to date.

3.1 Recommendations:

1. Provide groundwater use data to the TAC for review as soon as possible.
2. Review and revise groundwater use reporting and data processing procedures so that these important data are available for inclusion in future draft annual reports prior to committee review.

Response to Recommendation 3:
The Watermaster does not receive groundwater production data from pumpers in time to review, compile, and incorporate it into the draft Annual Report prior to the January 15 deadline set by the Judgment for TAC and PAC review. The extraction data will be incorporated into the Annual Report that is provided to DWR.

Recommendation 4: CONTINUE WORKING TO CONSISTENTLY COLLECT WATER LEVEL AND OTHER DATA FROM THE BASIN MONITORING NETWORK
The TAC noted that there are monitoring wells designated as Key Wells in the GSP for which sustainable management criteria (SMCs) have been established that are inconsistently monitored. The TAC acknowledges that these problems were identified and commented on in the TAC review of the first GSP periodic evaluation for the Basin and that the period reflected in the WY 2024 Annual Report is the same as that discussed in the periodic evaluation. However, the TAC also notes that previous annual reports have included statements recognizing these deficiencies and the Watermaster's efforts to address them when first discussing the missing data. The WY 2024 Annual Report does not present a similar statement or commitment to addressing the problem until discussion of the periodic evaluation in section 3.

4.1 Recommendations:

- Continue to include statements regarding Watermaster efforts to address groundwater monitoring consistency problems when presenting monitoring results.

Response to Recommendation 4:
Annual Report section 2.1 has been revised to include the following statement:

> FCGMA is working to formalize agreements with partner agencies that monitor specific wells to help ensure that timely monitoring is conducted within the two-week window to reduce ongoing data gaps. Additionally, proposed projects identified in the First Periodic Evaluation of the GSP to install new multi-depth monitoring wells and install transducers in certain existing wells to further reduce data gaps.

Recommendation 5: CONSIDER ADDING TO THE DISCUSSION AND EXPLANATION OF GROUNDWATER ELEVATION CONTOUR MAPS TO INCLUDE RATIONALE FOR CONTOURING DECISIONS
When reviewing the groundwater elevation contour maps and related discussion in the WY 2024 Annual Report, TAC members had questions regarding specific decisions to include and/or omit contour data for multiple aquifers and areas of the Basin. These questions included:

- Why were the values identified as not used in contouring omitted?
- How were the Shallow Alluvial aquifer contours upstream of 07G01 defined in both shallow alluvial aquifer maps (Figures 2-1 and 2-2) and also the contours downstream of 09Q08 in Figure 2-1? There do not appear to be wells with measured water levels up and downstream of these wells for generating contours.
- Why were contours not generated for the Epworth Gravels aquifer?
- Why was only a portion of the ELPMA contoured for the Upper San Pedro aquifer in fall

2023 when there were data for the WLPMA for that period and why were no contours created for this aquifer for spring 2024?

- Why is so little of the Fox Canyon aquifer contoured in Figures 2-7 and 2-8? Are all the omitted data really from the aquifer? Is there another way to better show the spatial distribution of groundwater elevations in this aquifer?
- How were the contours in the neighboring basins shown for the Fox Canyon Aquifer on Figures 2-7 and 2-8 developed? What is the assumed relationship between the Oxnard basin and the WLPMA and the Pleasant Valley basin and ELPMA, and how was this relationship used in the preparation of these contours?

5.1 Recommendations:

1. Consider including additional discussion regarding groundwater elevation contouring decisions in the text to help readers understand the information presented on the maps in Figures 2-1 through 2-10.
2. Consider removing groundwater elevation contours for the neighboring Oxnard and Pleasant Valley basins or explain in the text the hydraulic relationship the contours illustrate.

Response to Recommendation 5:
Responses to the bulleted questions, which were extracted from the table of specific TAC member comments, are addressed in the attached table which provides responses to each specific comment. Responses to the two recommendations are:

1. The draft groundwater contour maps were constructed consistent with the approach used in the GSP and each of the previous five annual reports. Some of the maps were revised based on TAC comments, which should provide more clarity. However, a discussion of how each map was constructed is beyond the scope of the Annual Report.
2. The draft groundwater contour maps were constructed consistent with the approach used in the GSP and each of the previous five annual reports. Figures 2-7 and 2-8, the groundwater elevation contours for the Fox Canyon Aquifer in fall 2023 and spring 2024, respectively, show elevation contours in portions of the Oxnard Subbasin and Pleasant Valley Basin adjacent to the WLPMA. When sufficient monitoring data are available in the western portion of the WLPMA, groundwater elevations are contoured across the boundary of the WLPMA and the Oxnard Subbasin for the Fox Canyon Aquifer, as there is no hydraulic barrier at this boundary. However, the Springville Fault Zone restricts groundwater flow between the WLPMA and the Pleasant Valley Basin to the south.

Watermaster notes that a new multi-depth monitoring well cluster was installed in the Oxnard Subbasin adjacent to the boundary with the WLPMA. Additionally, Watermaster is working to formalize agreements with partner agencies collecting groundwater monitoring data to help assure that these data are collected in a regular, timely manner, which will assist in preparing groundwater contour maps in the future.

Watermaster does not believe it appropriate to change the approach used to preparing the groundwater contour maps for the 2025 Annual Report Covering Water Year 2024 due to the present

time constraints of acceptance by the Watermaster Board and submittal to DWR by April 1, 2025. However, Watermaster plans to consult with TAC on the approach to preparing groundwater contour maps for future reports.

Recommendation 6: CHECK WATER LEVEL DATA FOR ACCURACY
In reviewing the WY 2024 Annual Report, TAC members had questions regarding the accuracy of multiple water level data records. These questions should be reviewed alongside the related water level data records and referenced values in the text and corrected or discussed.

6.1 Recommendations:

Review the anomalous, questionable, and/or incorrect values identified in TAC member comments BB-10, BB-12, BB-13, BB-19, TM-17, TM-18, and TM-19 in the attached tabulated comment matrix.

Response to Recommendation 6:
TAC members identified several potentially anomalous groundwater elevations in the draft Annual Report. A couple of clearly anomalous data points were removed from the hydrographs. In other cases, Watermaster does not have sufficient information regarding collection of data to justify rejection of certain data points. As discussed above, Watermaster notes that groundwater elevations are monitored by partner agencies and Watermaster is working to formalize agreements for those agencies to conduct timely monitoring. Additionally, the agreements should provide Watermaster with more detailed information regarding the monitoring methodologies and conditions observed during monitoring by the partner agencies.

Comments included suggestions to re-evaluate the aquifer designations or suitability of some of the wells for monitoring, especially in the Upper San Pedro (USP) Formation, which Watermaster agrees is a good suggestion. Watermaster notes that the USP is not identified as a primary aquifer.

Responses to each specific TAC member comment are included in the attached table.

Recommendation 7: CONSIDER REVISING GROUNDWATER ELEVATION CONTOURS TO INCLUDE SPECIFIC DATA AND BETTER EXPLAIN CONTOURING DECISIONS
In reviewing the WY 2024 Annual Report, TAC members had questions regarding the omission and inclusion of specific data for generating groundwater elevation contours of some aquifers and portions of the Basin. Individual TAC member comments in the attached tabulated comment matrix identified specific water level measurements that could have been included in contouring.

7.1 Recommendations:

Consider revising contours based on information provided in TAC member comments BB-11, BB-14, BB-15, BB-16, and BB-18 in the attached tabulated comment matrix.

Response to Recommendation 7:
Responses to specific TAC member comments are provided on the attached table and the groundwater contour maps and text have been revised, where appropriate. Please see the response to Recommendation 5 regarding the groundwater contour maps for the 2025 Annual Report Covering Water Year 2024.

Recommendation 8: CONSIDER ADDING CLARIFYING TEXT AND ADDRESSING TYPOGRAPHICAL ERRORS IN SPECIFIC SECTIONS OF THE ANNUAL REPORT

TAC members identified multiple portions of the draft Water Year 2024 Annual Report that would benefit from the addition of clarification and/or correction of apparent typographical errors. The clarifications can be generally categorized into the following groups:

- New information
- Comparison of current conditions to 2015
- Presentation of streamflow data
- General text clarification
- Headings not matching text
- Map or graph title, labels, or legend edits

Recommendations relative to each category are summarized below and presented in the tabulated TAC comments attached to this Recommendation Report.

8.1 Recommendations:

1. Consider adding text related to the following new or additional information:
    a. On page 2-4 in section 2.1.1.4 well 03N19W31D07S is identified as having shown groundwater elevation increases between fall 2022 and fall 2023. The reason for this change and difference to other local conditions may reflect the fact that Calleguas Municipal Water District (CMWD) was pumping their aquifer storage recovery (ASR) wellfield during fall 2022 and then switched to injection from February through September 2023.
    b. The list of significant new information in section 3.1.2 (page 3-1) should be expanded to note the inclusion of data from the CMWD three multi-level groundwater monitoring wells, which provided new stratigraphic data for the hydrostratigraphic model, characterization of vertical gradients, and expansion of the groundwater level monitoring network.
2. Consider adding explanation for why current and recent conditions are compared to conditions in 2015. Readers unfamiliar with SGMA may not know the significance of 2015 in the context of sustainable groundwater management policy and may be confused.
3. Consider adding additional discussion of streamflow conditions, specifically:
    a. The text in section 1.2.2 and Table 1-1 discuss and show average daily streamflow values, which are biased by peak storm flows. Median values may be more informative. Consider showing and/or discussing median daily streamflow values in addition to the average values.
    b. Consider adding text in section 1.2.2 clarifying the factors that affect streamflow volumes in Arroyo Las Posas. The text states that annual streamflow reflects precipitation, but flow in 2010 and 2011 was greater than flow in 2023 and 2024, while precipitation was greater in 2023 and 2024. This implies that other factors are also affecting streamflow.
4. Consider editing and/or adding text to increase the clarity of the text as suggested in TAC member comments BB-3, BB-4, BA-6, TM-6, TM-21, TM-22, CT-3, CT-7, and CT-

13 in the attached individual tabulated TAC comments.

5. Consider revising the heading titles for sections 2.1.1 and 2.2.2.
   a. The former is titled *Groundwater Elevation Contour Maps* but the text in the section discusses elevation changes by aquifer and specific well and does not exclusively include information relating to contour maps.
   b. The latter is titled Groundwater Elevation Hydrographs but deals more with comparison to sustainable management criteria than to discussions limited to hydrographs.
6. Consider addressing the map and graph title, label, and/or legend changes and comments in TAC member comments BB-7, BB-22, BB-24, BA-9, BA-10, BA-11, BA- 12, TM-15, TM-16, TM-20, and CT-25.
7. Consider addressing the apparent typographical errors identified in TAC member comments BB-21, BB-23, BA-5, BA-13, TM-4, TM-5, CT-1, CT-12, CT-14, CT-17, and CT-18.

Consider assessing the organization of future Annual Reports and modifying to be consistent with the October 2023 Groundwater Sustainability Plan Implementation: A Guide to Annual Reports, Periodic Evaluations, & Plan Amendments guidance document from the California Department of Water Resources (DWR).

Response to Recommendation 8:
The first draft 2025 Annual Report was provided to TAC consistent with Judgment schedule, which precluded the level of review usually conducted before releasing a draft report. The accelerated schedule, regrettably, resulted in a number of typographical errors in this draft.

The draft 2025 Annual Report text was reviewed and revised where appropriate in response to TAC's recommendations. The text and tables of the GSP 2025 Annual Report have been revised, where appropriate, in response to TAC member comments provided in the table attached to the recommendation report. Detailed responses to each of the TAC member comments are included in the attached table.