Las Posas Valley Groundwater Basin
Technical Advisory Committee Regular Meeting

Tuesday April 15, 2025, 2:00 PM

Via Zoom:
https://us02web.zoom.us/j/84168071218?pwd=Kv42H0XegH4TthbvJUgzTrzACgXM8b.1
Webinar ID: 841 6807 1218
Passcode: 150451

NOTICE OF MEETING

NOTICE IS HEREBY GIVEN that the Las Posas Basin Technical Advisory Committee (TAC) will hold a regular meeting via Zoom at **2 PM on Tuesday April 15, 2025**.

AGENDA

A. Call to Order

B. Roll Call

C. Agenda Review

D. Public Comments

E. TAC Member Comments

F. Regular Agenda

1. **Approve Minutes from March 18, 2025 TAC Regular Meeting** (attached, agenda page 4)
2. **Committee Consultation Request – Basin Optimization Yield Study Preferred Modeling Alternative and Impacts to Schedule**

The Watermaster requested TAC consultation on a preferred alternative method to assess basin yield optimization in the Basin Optimization Yield Study. The Las Posas Valley Adjudication judgment requires preparation of a Basin Optimization Yield Study (BOYS) to evaluate Basin Optimization Yield, set the Operating Yield, and identify the need for and quantification of the rate of pumping rampdown to achieve sustainable groundwater management by 2040. The Watermaster originally planned to use the two groundwater models to simulate conditions related to optimization in the east and west management areas of the Las Posas Valley Basin (LPVB). However, the model for the West Las Posas Management Area (WLPMA) is owned and maintained by United Water Conservation District (UWCD). The Watermaster attempted to develop an agreement with UWCD to facilitate UWCD's services in applying their model to simulate yield optimization scenarios. The Watermaster has reported that an agreement for this purpose could not be reached and alternatives to the original approach must be implemented.

The Watermaster informed the TAC in a December 23, 2024 memorandum that another technical approach may be required. That memorandum also identified three potential alternatives, which were:

(i) Estimating the Basin Optimization Yield and Rampdown using Groundwater Sustainability Plan (GSP) periodic evaluation model simulations

(ii) Estimating the Basin Optimization Yield and Rampdown using historical groundwater elevation measurements and extraction reports

(iii) Developing a new numerical groundwater flow model for the WLPMA.

Since December 2024, the Watermaster has removed the new numerical model development alternative from consideration due to the associated schedule impacts. The Watermaster and its consultant, Dudek, have also identified an additional alternative, described as estimating the Basin Optimization Yield using the model scenario simulations UWCD completed as part of the LPVB GSP Periodic Evaluation completed in 2025.

The Watermaster Board of Directors asked Dudek to review and select its preferred modeling alternative and submit its analysis to the LPV Policy Advisory Committee (PAC) and TAC for consultation. Dudek's analyzed the modeling alternatives and their respective impacts to the BOYS schedule and identified the recently developed alternative that would use the model scenario simulations UWCD completed as part of the Periodic Evaluation as the preferred alternative. They have estimated inclusion of this alternative would result in the BOYS being completed in April 2026 for adoption at the May 2026 Watermaster Board of Directors meeting.

The Watermaster has requested the TAC specifically consider and provide consultation on the following topics:

1. Should the Watermaster use the UWCD Periodic Evaluation model files to run scenarios for preparation of the Basin Optimization Yield Study rather than estimating the Basin Optimization Yield and Rampdown (i) using GSP periodic evaluation model simulations or (ii) using historical groundwater elevation measurements and extraction reports?

2. Is the schedule to implement the alternative in (1) and complete the Basin Optimization Yield Study in April 2026 for adoption at the May 2026 Watermaster Board of Directors meeting, approximately four months before the start of Water Year 2026 (October 1, 2026 through September 30, 2027), a reasonable alternative for timely completion of the Basin Optimization Yield Study?

The TAC will discuss this consultation request and the proposed preferred alternative for assessing basin optimization, Operational Yield, and Rampdown Rate in the WLPMA and plan for future discussions on this topic and preparation of comments and recommendations for submittal to the Watermaster by the requested due date of May 9, 2025.

The TAC consultation request memorandum is on agenda page 8. The December 23, 2024 Watermaster memorandum to the TAC regarding the development of alternative technical approaches for yield optimization analysis in WLPMA is on agenda page 10 and Dudek's memorandum presenting assessment of the alternatives is on agenda page 13.

3. Update on Committee Consultation Review Schedule

The TAC will receive an update on the schedule for upcoming committee consultations from the Watermaster Representative. Known current and upcoming consultation are summarized in the table below:

Consultation Description	Expected Request Date	Expected Review Due Date
Presentation of Basin Optimization Yield Study Model Scenario Results by Dudek	4/3/25	5/9/25
Presentation of Basin Optimization Yield Study Model Scenario Results by Dudek	TBD	TBD
Calleguas ASR Project Operations Plan	TBD	TBD

4. Schedule for Completing Committee Consultations and Related Recommendation Reports

The TAC will discuss the schedule for completing consultation requests from the Watermaster.

G. Items for Future Agenda

Potential items for future agenda will be considered by the TAC

H. Adjourn

Attachment 1

Minutes of the March 18, 2025 TAC Regular Meeting

Las Posas Valley Groundwater Basin
Technical Advisory Committee Regular Meeting

Meeting Minutes
for
March 18, 2025

A. Call to Order

The meeting was called to order by Chair Chad Taylor at 2:01 pm.

B. Roll Call

All voting TAC members present (via Zoom):

- Vice Chair Tony Morgan - Present
- Chair Chad Taylor – Present
- Dr. Bob Abrams – Absent

All non-voting TAC members were present (via Zoom):

- Kim Loeb – Present
- Bryan Bondy – Present

Chair Taylor reported a quorum with two of the three voting members of the Las Posas Valley Technical Advisory Committee (TAC) present.

C. Agenda Review

Chair Taylor noted that the agenda for the meeting was published and notified on March 14th and asked if TAC members or the public had comments on the agenda; none were presented.

D. Public Comments

There were no public comments on items not on the agenda.

E. TAC Member Comments

TAC members did not have comments on items not on the agenda.

F. Regular Agenda

1. Approve the Minutes of the February 18, 2025 Regular Meeting

Mr. Taylor asked TAC members for comments on the minutes from the February 18, 2025 regular meeting, which were included in the agenda packet. No TAC member or public comments were submitted.

MOTION: Vice Chair Morgan moved to approve the February 18, 2025 TAC Meeting minutes
SECOND: Mr. Taylor seconded the motion
VOTE: Unanimously approved

2. Committee Consultation Request – Las Posas Valley Basin Annual Audit for period ending June 30, 2024

Chair Taylor summarized the Watermaster request for consultation on the annual audit for the TAC and public attendees. He indicated that the audit was completed as part of the 2025 Las

Posas Valley Basin Groundwater Sustainability Plan (GSP) Annual Report Covering Water Year 2024 (Water Year 2024 Annual Report). The audit was not available at the time the TAC was asked to review the draft Water Year 2024 Annual Report so it was submitted to the TAC separately.

Mr. Taylor expressed the opinion that the TAC had no expertise in this matter and therefore no review by the TAC was warranted. Mr. Morgan and Mr. Bondy agreed.

Mr. Taylor indicated that he would convey this information to the Watermaster in an email and that no Recommendation Report would be prepared.

No public comments were provided.

3. Update on Committee Consultation Review Schedule

Mr. Taylor asked Mr. Loeb for an update on upcoming committee consultation requests. Mr. Loeb reported that the Watermaster was unable to reach an agreement with United Water Conservation District (UWCD) to have UWCD run the Coastal Plain groundwater model to assess basin optimization, operational yield, and rampdown requirements for the West Las Posas Management Area (WLPMA) as part of the Basin Optimization Yield Study (BOYS). The Watermaster was working on expanding descriptions of alternatives to this original modeling approach for the WLPMA BOYS analyses. Mr. Loeb was unsure when the expanded alternatives description memorandum would be available, but indicated the TAC would be asked to review and provide recommendations within a few weeks, potentially as early as the week of March 24th.

Mr. Bondy reported that formation of the Calleguas ASR study group is progressing. The Policy Advisory Committee (PAC) identified Dr. Bob Abrams as the landowner representative and Robert Hampson was identified as the Watermaster representative. That process may require Watermaster Board approval, but neither Mr. Loeb, Mr. Bondy, nor Mr. Hampson were certain about the process for appointment.

No public comments were received.

4. Schedule for Completing Committee Consultations and Related Recommendation Reports

Mr. Taylor confirmed with the TAC and public attendees that no other committee consultations were outstanding. As TAC members have requested regular meetings not be held unnecessarily, the next regular meeting, scheduled for April 1, 2025, would be canceled if no agenda topics arise in consultation with the Watermaster by March 28th.

No public comments were received.

G. Items for Future Agenda

Mr. Taylor asked for recommendations for items to consider including in future agendas from the TAC and public; none were identified.

H. Adjourn

MOTION: Mr. Taylor moved to adjourn the meeting at 2:21 pm
SECOND: Mr. Morgan seconded the motion
VOTE: Unanimously approved

Attachment 2

Committee Consultation Request – Basin Optimization Yield Study Preferred Modeling Alternative and Impacts to Schedule

FOX CANYON GROUNDWATER MANAGEMENT AGENCY
LAS POSAS VALLEY WATERMASTER

MEMORANDUM

To: Las Posas Valley Technical Advisory Committee

From: Kudzai F. Kaseke, Assistant Groundwater Manager

Date: April 03, 2025

RE: Basin Optimization Yield Study – Preferred Modeling Alternative and Impacts to Schedule

Dear Las Posas Valley Policy Advisory Committee Members:

The LPV Adjudication judgment requires preparation of a Basin Optimization Yield Study, which will set the Basin Optimization Yield, and in turn set the Operating Yield and Rampdown Rate, so that by Water Year 2040 the LPV Basin's Operating Yield is equal to its Sustainable Yield and Sustainable Groundwater Management is achieved. (Judgment, §§ 1.22, 4.10.)

In a December 23, 2024 memorandum to this committee, Watermaster explained that the Basin Optimization Yield Study could be completed by the end of December 2025; this schedule assumed Watermaster would obtain access to UWCD model(s) and/or modeling services. However, if it was unable to obtain access to UWCD model files(s) and/or modeling services, then Watermaster explained that it must develop alternatives to using UWCD model(s) and/or modeling services to complete the Basin Optimization Yield Study. (Exhibit A.) Those alternatives included (i) estimating the Basin Optimization Yield and Rampdown using GSP periodic evaluation model simulations; (ii) estimating the Basin Optimization Yield and Rampdown using historical groundwater elevation measurements and extraction reports; and (iii) developing a new numerical groundwater flow model for the West Las Posas Management Area. These alternatives would add approximately three to six months, three to six months, and 18 to 24 months, respectively, to the schedule for completing the Basin Optimization Yield Study. (Exhibit A.)

Since December 2024, Watermaster and its consultant, Dudek, have identified an additional alternative: estimating the Basin Optimization Yield using the UWCD Periodic Evaluation model files to run new scenarios. Watermaster and Dudek estimate that this alternative would result in the Basin Optimization Yield Study being completed in April 2026 for adoption at the May 2026 Watermaster Board of Directors meeting.

The Watermaster Board of Directors asked Dudek to review and select its preferred modeling alternative, after removing from consideration the alternative of developing a new numerical groundwater flow model for the West Las Posas Management Area (which would

add 18 to 24 months to the schedule), and submit its analysis to the LPV Policy Advisory Committee (PAC) and Technical Advisory Committee (TAC) for consultation. Dudek's analysis of modeling alternatives, and their respective impacts to the schedule, for preparing the Basin Optimization Yield Study is attached as Exhibit B.

CONSULTATION REQUEST

Pursuant to Section 6.3 of the LPV Adjudication judgment, Watermaster requests the TAC provide its recommendations on the following:

1. Preferred Alternative. Whether Watermaster should use the UWCD Periodic Evaluation model files to run scenarios for preparation of the Basin Optimization Yield Study rather than estimating the Basin Optimization Yield and Rampdown (i) using GSP periodic evaluation model simulations or (ii) using historical groundwater elevation measurements and extraction reports?

2. Schedule Impact. Whether using the UWCD Periodic Evaluation model files to complete the Basin Optimization Yield Study in April 2026 for adoption at the May 2026 Watermaster Board of Directors meeting, approximately four months before the start of Water Year 2026 (October 1, 2026 through September 30, 2027), is a reasonable alternative for timely completion of the Basin Optimization Yield Study?

Watermaster requests TAC's Recommendation Report, including its technical recommendations and comments, on the consultation requests discussed in this memorandum by May 09, 2025.

Please contact me at (805) 654-2010 or LPV.Watermaster@ventura.org with any questions or concerns.

FOX CANYON GROUNDWATER MANAGEMENT AGENCY

LAS POSAS VALLEY WATERMASTER

MEMORANDUM

To: Las Posas Valley Technical Advisory Committee

From: Kudzai F. Kaseke, Assistant Groundwater Manager

Date: December 23, 2024

RE: Basin Optimization Yield Study Schedule

Dear Las Posas Valley Technical Advisory Committee Members:

Section 4.10 of the judgment entered in *Las Posas Valley Water Rights Coalition, et al. v. Fox Canyon Groundwater Management Agency, et al.*, Santa Barbara Sup. Ct. Case No. VENCI000509700 (Judgment) requires the Watermaster to prepare a Basin Optimization Yield Study (BOYS), which will set the Basin Optimization Yield for the Las Posas Valley Basin (LPV Basin), and in turn the Operating Yield and the Rampdown Rate for Water Years through Water Year 2039. (Judgment, § 4.10.1.4.)

Exigent circumstances necessitate an extension of the schedule included in the Judgment, originally and as amended, for preparation of the BOYS. Currently, Watermaster estimates completion of the BOYS, consistent with the committee consultation required by the Judgment and inclusive of additional consultation requested by the LPV Technical Advisory Committee, by the end of December 2025. Watermaster's revised schedule for completion of the BOYS, including dates for completion of specific tasks and work, is attached as Exhibit A. Pursuant to Section 6.3 of the Judgment, Watermaster requests Committee Consultation with the Las Posas Valley Technical Advisory Committee (TAC), including specifically TAC's technical recommendations and comments, on the revised schedule for preparation of the BOYS as set forth in Exhibit A.

The revised schedule for preparation of the BOYS assumes United Water Conservation District (UWCD) provides Watermaster access to certain model(s) and/or modeling services. If Watermaster is unable to obtain access to UWCD's model(s) and/or modeling services, Watermaster must rely on alternative model(s) and/or technical services to characterize future groundwater conditions within the West Las Posas Management Area (WLPMA) and complete preparation of the BOYS. Watermaster has asked its professional consultant, Dudek, to identify options for developing or obtaining replacement model(s) and/or modeling services. Dudek has prepared the following alternatives to obtaining UWCD model(s) and/or modeling services:

1. **Estimation of Basin Optimization Yield and Rampdown Using GSP Evaluation Model Simulations**
    a. This alternative would utilize model results presented in the LPV Groundwater Sustainability Plan (GSP) Periodic Evaluation and may require additional technical analyses to characterize the impacts of allocation distributions on the WLPMA yield.
    b. Estimated Schedule Impacts: Additional 3 to 6 months to the schedule set forth in Exhibit A.

2. **Estimation of Basin Optimization Yield and Rampdown Using Historical Groundwater Elevation Measurements and Extraction Reports**
    a. This alternative would consider the relationship between groundwater levels and pumping to estimate the WLPMA yield.
    b. Estimated Schedule Impacts: Additional 3 to 6 months to the schedule set forth in Exhibit A.

3. **Development of a New Numerical Groundwater Flow Model for the West Las Posas Management Area**
    a. This approach would cover the development of a new model for the WLPMA that is distinct from UWCD's Updated Coastal Plain Model. The model would be developed and maintained by FCGMA.
    b. Estimated Schedule Impacts: Additional 18 to 24 months to the schedule set forth in Exhibit A.

Pursuant to Section 6.3 of the Judgment, Watermaster requests Committee Consultation with TAC, including specifically TAC's technical recommendations and comments, on each of the above alternatives and the additional amounts of time to be added to the revised schedule for preparation of the BOYS as set forth in Exhibit A.

Watermaster requests TAC's Recommendation Report, including its technical recommendations and comments, on the Committee Consultation requests discussed in this memorandum by January 31, 2025.

Please contact me at (805) 654-2010 or LPV.Watermaster@ventura.org with any questions or concerns.

Basin Optimization Yield Study Schedule

Description	Duration (days)	Date
Draft scope of work & budget for study referred to TAC		7/16/2024
PAC & TAC Recommendation Reports to Watermaster	42	8/27/2024
Watermaster Board direction on TAC recommendations / response reports & approval of SOW and budget	57	10/23/2024
Draft Basin Optimization Plan completed	47	12/9/2024
Development of the draft BOY Study[1]		
UWCD Model File Submittal[2]		1/1/2025
Task 1 - Model Scenario Development[3]	29	1/7/2025
TAC Recommendation Report	14	1/21/2025
Watermaster Response Report	14	2/4/2025
Recommendation & Response Reports discussed by WM Board at special meeting.	10	2/14/2025
Task 2 - Numerical Modeling		
Task 2.1 - Baseline Scenario	21	2/25/2025
Task 2.2 - Projects Scenario	28	3/25/2025
TAC review of Baseline and Projects for 4/1/25 TAC meeting	7	4/1/2025
TAC Recommendation Report	21	4/22/2025
Watermaster Response Report	21	5/13/2025
Recommendation & Response Reports discussed by WM Board	15	5/28/2025
Task 2.3 - Model Alternative Pumping Scenarios	30	6/27/2025
Task 4 - Basin Optimization Yield Study		
Task 4.1 - Draft BOY Study	45	8/11/2025
PAC & TAC Recommendation Reports	60	10/10/2025
Watermaster Response Report & revised draft BOY Study	21	10/31/2025
Recommendation & Response Reports discussed by WM Board, Board provides direction on revised draft BOY Study	8	11/8/2025
Task 4.2 - Final BOY Study development following Watermaster Board review	28	12/6/2025
Watermaster Board approval of final BOY Study	6	12/12/2025
Total Days from Authorization to Proceed:	415	

March 31, 2025

Dr. Farai Kaseke, Ph.D., P.H., PMP, CSM
Assistant Groundwater Manager
Fox Canyon Groundwater Management Agency
800 South Victoria Avenue
Ventura, California

Subject: Basin Optimization Yield Study Alternative Approach, Scope, and Schedule Impacts

Dear Dr. Kaseke:

In October 2024, the Fox Canyon Groundwater Management Agency (FCGMA) Board of Directors, acting in their role as Watermaster for the Las Posas Valley (LPV) Basin, contracted Dudek to prepare the 2025 Basin Optimization Yield (BOY) Study for the LPV Basin. The purpose of this study, which is a requirement under the Judgment[1], is to quantify the BOY and determine the Rampdown Rate. The definitions of and requirements for determining the BOY and the Rampdown Rate are listed in the Judgment. Dudek's original scope of work assumed that the numerical groundwater models that cover the East Las Posas Management Area (ELPMA) and the West Las Posas Management Area (WLPMA) would be used to determine the BOY. Dudek used the model that covers the ELPMA during development of the Periodic Evaluation of the LPV Basin Groundwater Sustainability Plan and proposed using this model to conduct the required analyses for the BOY Study. In contrast, the model that covers the WLPMA was constructed by and has been operated by United Water Conservation District (UWCD) staff. Consequently, Dudek and the Watermaster assumed that the Watermaster would contract with UWCD separately to conduct the numerical model analyses of the WLPMA for the BOY Study.

Since October, the Watermaster has been unable to reach an agreement with UWCD to conduct the numerical model analyses of the WLPMA for the BOY Study. In December 2024, Watermaster staff requested that Dudek prepare potential alternative approaches to calculating the BOY for the WLPMA if UWCD were unable to perform the numerical model analyses under the approved schedule. The alternatives Dudek developed are:

- Estimation of the BOY using the GSP evaluation model simulations.
- Estimation of the BOY using historical groundwater elevation measurements and extraction reporting.
- Development of a new numerical groundwater flow model for the WLPMA.

[1] *Las Posas Valley Water Rights Coalition v. Fox Canyon Groundwater Management Agency. Case No. VENCI00509700* (Judgment) defines the Basin Optimization Yield as, "the estimated yield that is projected to be available to achieve sustainable groundwater management by 2040.[…] The Basin Optimization Yield will take into account: (i) water available from native groundwater inflows; (ii) Return Flows; (iii) reasonably anticipated enhanced yield (*i.e.,* managed replenishment excluding water stored and dedicated to the Calleguas ASR Project) projected to be available by Water Year 2040 consistent with the projected Basin Optimization Plan; and (iv) opportunities for optimization of the Sustainable Yield achieved by relocating Extraction and transmission of water to avoid Undesirable Results. The Basin Optimization Yield will also, through Adaptive Management, take into account circumstances including: (a) improved understanding of Basin conditions and hydrogeologic parameters as a result of new data over time; (b) the current status of Basin Optimization Projects; and (c) changing hydrological conditions".

The first two alternate approaches were estimated to have a 3- to 6-month impact on the schedule, resulting in a completion date for the BOY Study in spring or summer of 2026. The third alternative was estimated to impact the study completion by 18- to 24-months. These potential alternatives were reviewed by the Technical Advisory Committee (TAC), which agreed with the general estimates of the schedule impacts for each alternative. TAC noted that the third alternative would cost the most and that the schedule impact was likely conservative. However, TAC communicated to the Watermaster that additional information regarding the three alternatives was necessary to provide recommendations regarding the preferred alternative.

The Watermaster requested additional information on the alternatives outlined above, as well as a recommendation from Dudek on the preferred approach to completing the BOY Study. The Watermaster also requested a revised schedule based on the preferred approach. This memo provides the information requested by the Watermaster, with one notable substitution. Dudek does not recommend further pursuit of constructing a new model for this BOY Study because of the high cost and substantial impacts to the schedule. Therefore, construction of a new model has been replaced by an alternative in which Dudek conducts the numerical groundwater modeling of the WLPMA using model files provided to the Watermaster by UWCD. These model files were used to evaluate future conditions in the LPV Basin as part of the Periodic Evaluation of the LPV Basin Groundwater Sustainability Plan and submitted to Watermaster by UWCD as a deliverable in accordance with the contract between Watermaster and UWCD.

The alternative approaches, the preferred approach, and the revised schedule are discussed below.

Alternative Approaches

Alternative 1: Estimation of the BOY Using the GSP Evaluation Model Runs

The Periodic Evaluation of the GSP included five model scenarios that used UWCD's Updated Coastal Plain Model that covers the entirety of the WLPMA, Oxnard Subbasin, and Pleasant Valley Basin. These model scenarios provide a range of estimates of the sustainable yield. UWCD provided the Watermaster with the output files from the model scenarios. These files contain the detailed information on the calculated water budget components and change in storage during the model run. They also contain the simulated groundwater elevations at each model cell for each stress period of the model run.

Under this alternative, Dudek would use the output files provided by UWCD to develop correlations between the water budget components and the groundwater elevations simulated in the various scenarios. These correlations would then be used to estimate the anticipated groundwater elevations at individual wells in the WLPMA under the Operating Yield of 40,000 AFY, based on the distribution of groundwater production in the allocation schedule. The impact of projects would be evaluated by changing the pumping distribution in the WLPMA from the Future Baseline with Projects Scenario modeled in the Periodic Evaluation of the LPV Basin GSP. The correlations would be mapped onto the spatial change in pumping distribution and the resulting predicted groundwater elevations would be compared to those in the baseline analysis. If the estimated groundwater elevations in the project pumping scenario are below the minimum threshold groundwater elevations, up to three additional reduced pumping scenarios would be evaluated using this method, with the goal of estimating the BOY through predicted final groundwater levels that remain above the minimum thresholds. The difference between the operating yield and the highest estimated groundwater production rate that avoids undesirable results will be used as the basis for the Rampdown Rate calculation set forth in the Judgment.

We note that this alternative does not involve running the UWCD model. The intent of this alternative was to provide a method of estimating the BOY if UWCD did not contract with the Watermaster to run the model and did not provide the model files to the Watermaster under its contract with the FCGMA for the GSP evaluation. There are several notable limitations of this proposed alternative, three of which are listed below:

- There is no guarantee that the variables would be correlated well enough to allow for estimation of the BOY beyond what was already done for the Periodic Evaluation of the LPV Basin GSP. Therefore, this analysis may not yield results that the Watermaster would be able to use to calculate the Rampdown Rate with certainty.
- Even if the correlations are strong, these correlations of the model outputs are farther removed from the actual groundwater conditions than the numerical model.
- This method is not well suited to capturing spatial variability in groundwater conditions, particularly when projects are implemented because the correlations include built in assumptions on groundwater flow direction and storage change from the specific numerical model runs on which they are based. The basis for the correlations with projects, would be the Future Baseline with Projects Scenario. However, changing the pumping distribution will impact groundwater flow in ways that may not be captured in this alternative.

Because UWCD, under its contract with the FCGMA for the GSP evaluation, provided the Watermaster with the model files necessary to run scenarios with UWCD's Updated Coastal Plain Model and because of the limitations listed above, Dudek does not recommend that the Watermaster use this alternative to proceed with development of the BOY and the determination of the Rampdown Rate.

Alternative 2: Estimation of the BOY Using Historical Groundwater Elevation Measurements and Extraction Reports

Similar to Alternative 1, this alternative involves correlating groundwater elevations to components of the water budget. The primary difference between these two alternatives, however, is that this alternative would use observed historical data to develop these correlations, not the results of the numerical groundwater model simulations. Under this alternative, Dudek would review historical changes in groundwater elevations across the monitoring network of groundwater wells in the WLPMA. Observed groundwater elevation changes would be compared to historical water budget inputs (e.g., precipitation, UWCD diversions and recharge operations) and outputs (e.g., groundwater production, and subsurface flows estimated by groundwater gradient) quantified in the GSP for the LPV Basin. Depending on the complexity of the observed relationships, additional statistical reduction of the number of controlling factors may be applied via principal component analysis.

As with Alternative 1, the correlations developed from the historical data would be used to estimate the groundwater elevations at individual wells in the WLPMA under the Operating Yield of 40,000 AFY, based on the distribution of groundwater production in the allocation schedule, and the impact of projects would be evaluated by changing the pumping distribution in the WLPMA. Up to three additional reduced pumping scenarios would be evaluated, with the goal of estimating the BOY through predicted final groundwater levels that remain above the minimum thresholds. The difference between the operating yield and the highest estimated groundwater production rate that avoids undesirable results will be used as the basis for the Rampdown Rate calculation set forth in the Judgment.

The benefit of this alternative relative to alternative 1 is that the correlations are developed from observed data, rather than simulated data. This means there is one less step in the abstraction from the actual groundwater conditions. However, in addition to the limitations listed in alternative 1, which this alternative shares, the distribution of wells with historical observations that can be used to develop correlations is likely to be sparser in this alternative. Consequently, estimating the impacts of projects on groundwater elevations throughout the WLPMA would be challenging.

Because the Watermaster now has the model files necessary to run scenarios with UWCD's Updated Coastal Plain Model and the limitations listed above, Dudek does not recommend that the Watermaster use this alternative to proceed with development of the BOY and the determination of the Rampdown Rate.

Alternative 3: Estimation of the BOY Using the UWCD Periodic Evaluation Model Files to Run New Scenarios

UWCD provided the Watermaster with the numerical groundwater model files developed for the Periodic Evaluation as a deliverable under the contract between FCGMA and UWCD to conduct the numerical modeling for the Periodic Evaluation of the LPV Basin GSP. Under this alternative, Dudek would use those files to prepare, run, and analyze up to five model scenarios for the WLPMA using the version of UWCD's Updated Coastal Plain Model used for the Periodic Evaluation. The five model scenarios are:

1. A baseline scenario
2. A projects scenario
3. Up to three alternative pumping scenarios

The baseline scenario would simulate groundwater conditions in the WLPMA through water year 2069 using the hydrologic period from 1930-1979, modified by DWR's 2070 central tendency climate change factors. Groundwater withdrawals in the baseline model scenario would be set equal to the allocations in the Groundwater Allocation Schedule prepared in accordance with the Water Right Holders in the WLPMA. The baseline model scenario would not include projects identified in the Basin Optimization Plan.

To evaluate the benefits of implementing basin optimization projects, the projects scenario would integrate projects that were identified in the Draft Basin Optimization Plan as being practical, reasonable, and cost-effective to implement prior to 2040 using the same hydrology and groundwater pumping as the baseline scenario. Projects would be simulated according to the schedules and scales defined in the Draft Basin Optimization Plan. Groundwater budgets, the change in groundwater in storage, and groundwater levels at key wells simulated in the projects scenario would be compared to those simulated in the baseline scenario in order to provide a quantitative estimate of Basin Optimization Project benefits.

If the Basin Optimization Projects do not avoid undesirable results in the WLPMA, up to three additional model scenarios would be evaluated to define a groundwater production rate that avoids undesirable results. These model runs would incorporate the same Basin Optimization Projects as the Projects scenario. The difference between the operating yield and the highest simulated groundwater production rate that avoids undesirable results would be used as the basis for the Rampdown Rate calculation set forth in the Judgment.

This alternative also has several limitations that the Board, TAC, and Water Right Holders should be aware of. Four critical limitations are:

- UWCD has not yet published documentation for the Updated Coastal Plain model at this time. The last model documentation was published in 2019 at the time the LPV Basin GSP was prepared. Therefore, without updated information, Dudek is unable to assess the totality of the changes that were made to the model since the last model documentation was published in 2019. Consequently, Dudek would be able to run the model and analyze the output files but has not been provided with sufficient background information to fully understand all the model behavior with respect to the LPV Basin. There may be questions that arise from the results of the model simulations that Dudek is unable to answer without additional information.
- UWCD's Surface Water Distribution Model is not publicly available. Therefore, Dudek would not be able to update the representation of conjunctive use and groundwater pumping within the Oxnard Subbasin and Pleasant Valley Basin. If UWCD were running the Updated Coastal Plain model directly, it would be able to update the Surface Water Distribution Model.
- During development of the Periodic Evaluation of the LPV Basin GSP, Dudek identified that UWCD had changed the representation of the Somis Fault on the eastern boundary of the WLPMA from a no-flow boundary to a general head boundary. As a result, the Updated Coastal Plain Model simulated subsurface flows from the WLPMA to the ELPMA in the Periodic Evaluation of the LPV Basin GSP. These flows may increase as projects are implemented or groundwater production is reduced in the model. However, changes to this model boundary would require a re-calibration of the model. Without the complete model documentation and given the timeframe for completing the BOY Study before the start of the LPVB 2026 Water Year in October 2026, Dudek would be unable to change any parameters that would result in the need to recalibrate the Updated Coastal Plain model.
- Without the complete model documentation for changes made since 2019, andp given the timeframe for completing the BOY Study before the start of the LPVB 2026 Water Year in October 2026, Dudek would also be unable to conduct a model validation or uncertainty quantification for the BOY Study.

Although the limitations of this alternative are serious, and Dudek would have preferred that the UWCD staff who built and calibrated Updated Coastal Plain Model conduct the modeling for the BOY, Dudek believes that this alternative uses the best available tool for evaluating the impact of changes to groundwater production rates on groundwater conditions in the WLPMA. Therefore, this is Dudek's recommended alternative.

Revised Schedule

Watermaster Board approved Dudek's scope and schedule for the preparation of the BOY Study at its October 23, 2024, meeting. The schedule, which ended with completion of the BOY Study in December 2025, assumed that UWCD would conduct the numerical groundwater modeling for the WLPMA. The initial tasks that did not rely on UWCD modeling are well underway or have been completed. However, modeling of the baseline scenario was supposed to begin on February 25, 2025, and be completed by March 25, 2025. This modeling has not yet begun because of the ongoing uncertainty surrounding the numerical groundwater modeling of the WLPMA.

The delay in starting the baseline model impacts the entire BOY Study schedule, as the remaining tasks depend on completion of this task. Dudek has prepared a revised schedule (Table 1) that assumes PAC and TAC will require time to review the proposed alternatives and prepare recommendation reports. Under this schedule, the recommendation reports and the Watermaster response report will be presented to the Watermaster Board for consideration at the May 28, 2025 meeting. If the Watermaster Board approves the recommended approach for Dudek to conduct the numerical groundwater analysis of the WLPMA using UWCD's Updated Coastal Plain model,

Dudek will begin the baseline modeling beginning on June 2, 2025, the Monday following the May 28 Board meeting. This schedule is longer than the previously approved schedule primarily because of the timing of consultations with the TAC and the Watermaster Board. Under this schedule, the BOY Study will be completed in May 2026, assuming that the data needed to conduct each task in the study are provided by the start date of the task and that the meeting dates for committee consultation and Board review are met. Changes to the consultation dates or the length of time required for committee review will impact the schedule.

Table 1. Revised Schedule for Preparation of the BOY Study

Description	Duration	Original Schedule Date	Revised Schedule Date
Task 1 - Model Scenario Development			
Presentation of Proposed Model Scenarios to TAC	6	1/7/2025	-
TAC Recommendation Report	14	1/21/2025	-
Watermaster Response Report	14	2/4/2025	-
Recommendation & Response Reports discussed by WM Board at special meeting.	10	2/14/2025	-
Task 2 - Numerical Modeling[1]			
Task 2.1 - Baseline Scenario	21	2/25/2025	6/2/2025 (s)
Task 2.2 - Projects Scenario	28	3/25/2025	6/23/2025 (s)
TAC review of Baseline and Projects	7	4/1/2025	8/5/2025 (m)
TAC Recommendation Report	21	4/22/2025	8/26/2025 (d)
Watermaster Response Report	21	5/13/2025	9/16/2025 (d)
Recommendation & Response Reports discussed by WM Board	15	5/28/2025	9/24/2025 (m)
Task 2.3 - Model Alternative Pumping Scenarios	30	6/27/2025	10/25/2025 (d)
Task 4 - Basin Optimization Yield Study			
Task 4.1 - Draft BOY Study	45	8/11/2025	12/9/2025 (d)
PAC & TAC Recommendation Reports	60	10/10/2025	2/7/2026 (d)
Watermaster Response Report & revised draft BOY Study	21	10/31/2025	2/28/2026 (d)
Recommendation & Response Reports discussed by Watermaster Board; Board provides direction on revised draft BOY Study	26	11/8/2025	3/25/2026 (m)
Task 4.2 - Final BOY Study development following Watermaster Board review	28	12/6/2025	4/22/2026 (d)
Watermaster Board Approval of Final BOY Study	28	12/12/2025	5/27/2026 (m)

1) Task 3 is now part of Task 2 since UWCD declined to conduct WLPMA modeling under contract with the Watermaster.
2) '-' No need for revised schedule because the event has already occurred.
3) Gray text dates can no longer be achieved under the delayed schedule.
4) (s) Start date
5) (d) Deliverable date
6) (m) Meeting date

Dudek understands that Water Right Holders in the LPV Basin require as much advance notice as possible to prepare for allocation rampdowns. This schedule provides the final Rampdown Rate calculation to the Watermaster Board for approval four months before the start of the LPVB 2026 water year.

Conclusions

UWCD's inability to conduct the numerical model simulations for the WLPMA has forced the Watermaster to explore alternative methods for calculating the BOY and has impacted the schedule for calculating the Rampdown Rate and completing the BOY Study. Of the three alternatives discussed in this memo, Dudek recommends running the UWCD Updated Coastal Plain model using the model files used for the Periodic Evaluation of the GSP provided by UWCD as deliverable required under the contract with FCGMA. While this approach has limitations that are discussed above, it will provide the most quantitative estimate of the BOY and uses the best available tool for investigating impacts to groundwater conditions under different groundwater production scenarios. If the Watermaster chooses to proceed with this alternative, and the deadlines provided in Table 1 for task completion and committee consultation are met, the BOY Study should be completed by May 2026, four months before the start of the LPVB 2026 water year.

Please do not hesitate to contact me (760-479-4116) if you have questions or would like to discuss Dudek's recommended approach further.

Sincerely,

Jill Weinberger, PhD, PG
Principal Hydrogeologist