

CHINO BASIN WATERMASTER



NOTICE OF MEETING

Thursday, August 19, 2021

9:00 a.m. – Advisory Committee Meeting

***MEETING AVAILABLE BY REMOTE ACCESS ONLY
(SEE AGENDA FOR DETAILS)***

*Watermaster's function is to administer and enforce provisions of the Judgment and subsequent orders of the Court,
and to develop and implement an Optimum Basin Management Program*

CHINO BASIN WATERMASTER

Thursday, August 19, 2021

9:00 a.m. – Advisory Committee Meeting

AGENDA

**CHINO BASIN WATERMASTER
ADVISORY COMMITTEE – SPECIAL MEETING**

9:00 a.m. – August 19, 2021

Mr. Jeff Pierson, Chair

Mr. Chris Diggs, Vice-Chair

Meeting Available by Remote Access Only*

Click on this [link](#) to access by PC/Smart Device

OR

Conference Call: (253) 215-8782

Meeting ID: 863 6080 0283

Passcode: 726940

AGENDA

CALL TO ORDER

ROLL CALL

AGENDA – ADDITIONS/REORDER

I. BUSINESS ITEMS

A. FISCAL YEAR 2021/22 BUDGET AMENDMENT (FORM A-21-08-01)

Approve the Fiscal Year 2021/22 Budget Amendment for the updated scope and budget to support implementation of the Safe Yield Court Order.

II. FUTURE MEETINGS AT WATERMASTER*

08/19/21	Thu	9:00 a.m.	Advisory Committee – Special Meeting
08/XX/21	TBD		Watermaster Board – Special Meeting (If Needed)
08/24/21	Tue	9:00 a.m.	Groundwater Recharge Coordinating Committee (GRCC)
09/09/21	Thu	9:00 a.m.	Appropriative Pool Committee
09/09/21	Thu	11:00 a.m.	Non-Agricultural Pool Committee
09/09/21	Thu	1:30 p.m.	Agricultural Pool Committee
09/16/21	Thu	9:00 a.m.	Advisory Committee
09/23/21	Thu	11:00 a.m.	Watermaster Board

* Watermaster meetings are being held remotely at this time. We are continuing to monitor pandemic conditions and will hold in-person meetings when practical.

ADJOURNMENT

CHINO BASIN WATERMASTER

I. BUSINESS ITEMS

A. FISCAL YEAR 2021/22 BUDGET AMENDMENT (FORM A-21-08-01)



CHINO BASIN WATERMASTER

9641 San Bernardino Road, Rancho Cucamonga, CA 91730
Tel: 909.484.3888 Fax: 909.484.3890 www.cbwm.org

PETER KAVOUNAS, P.E.
General Manager

STAFF REPORT

DATE: August 19, 2021

TO: Advisory Committee Members

SUBJECT: Fiscal Year 2021/22 Budget Amendment (Form A-21-08-01) (Business Item I.A.)

SUMMARY:

Issue: The Watermaster FY 2021/22 "Approved" budget needs to be increased by an additional amount of \$8,247 to include the updated scope and budget to support implementation of the Safe Yield Court Order.

Recommendation: Approve the Fiscal Year 2021/22 Budget Amendment for the updated scope and budget to support implementation of the Safe Yield Court Order.

Financial Impact: This action will increase the overall "Approved" FY 2021/22 budget from \$7,700,005 to \$7,708,432, an increase of \$8,427. The Assessment calculation will be increased by the same amount when the Assessment Package is considered in November 2021.

Future Consideration

Advisory Committee – August 19, 2021: Approval

Watermaster Board – TBD: Adoption [Advisory Committee Approval Required]

ACTIONS:

Advisory Committee – August 19, 2021:

Watermaster Board – TBD

Watermaster's function is to administer and enforce provisions of the Judgment and subsequent orders of the Court, and to develop and implement an Optimum Basin Management Program

BACKGROUND

Budget Amendment Policy: If there are no budgeted funds available to transfer to the line item, the General Manager will submit a Budget Amendment request to the Pool Committees to request Advisory Committee approval, and then to the Board for formal adoption. The Budget Amendment should indicate the anticipated source of funding for the approved increase. All Budget Amendments are processed and recorded in the accounting system.

On July 22, 2021 the Watermaster Board adopted the July 22, 2021 version of FY 2021/22 budget for \$7,700,005 which included the amount of \$276,761 to Support Implementation of the Safe Yield Court Order as approved by the Advisory Committee. The Watermaster Board also directed Watermaster staff to work with the Advisory Committee to finalize within four weeks and hold a special meeting of the Board as appropriate and deemed necessary by staff.

DISCUSSION

The West Yost letter dated August 11, 2021 with regards to the Updated Scope and Budget for Fiscal Year 2021/22 Task 7614: Support implementation of the Safe Yield Court Order is attached (Attachment 1). The letter describes adjustments that have been made to the scope to respond to comments, resulting in a budget increase of \$8,427.

With approval of the Fiscal Year 2021/22 Budget Amendment (Form A-17-08-01), the "Amended" Budget for FY 2021/22 would be \$7,708,432.

ATTACHMENTS

1. West Yost letter dated August 11, 2021
2. Fiscal Year 2021/22 Budget Amendment (Form A-21-08-01)



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westyost.com

August 11, 2021

Project No.: 941-80-21-40
SENT VIA: EMAIL

Peter Kavounas, PE
General Manager
Chino Basin Watermaster
Rancho Cucamonga, CA 91730

SUBJECT: Updated Scope and Budget for Fiscal Year 2021/2022 Task 7614: Support Implementation of the Safe Yield Court Order

Dear Mr. Kavounas:

In May 2021, the Advisory Committee recommended that Watermaster extract Task 7614 (Support Implementation of the Safe Yield Court Order) from the Fiscal Year 2021/2022 Engineering budget for further review. The Appropriative Pool hired Mr. Thomas Harder of Thomas Harder and Company to review the proposed scope and budget for Task 7614 and provide feedback to the Watermaster Engineer (West Yost) and the Appropriative Pool. Mr. Harder met with West Yost staff to review the assumptions, scope, and budget for Task 7614 and submitted written comments to Chino Basin Watermaster (Watermaster) and West Yost staff via John Schatz on July 13, 2021 (Attachment 2 of Exhibit A). Watermaster staff prepared responses to these comments and submitted them to the Advisory Committee on July 15, 2021 (Attachment 3 of Exhibit A).

On July 15, 2021, the Advisory Committee recommended that the Watermaster Board adopt a budget amendment for \$276,761, which is an incremental approval and omits several subtasks pursuant to Mr. Harder's recommendations. The Advisory Committee recommended that the scope of the omitted subtasks be further refined in response to Mr. Harder's comments, and that these subtasks be reconsidered in a future budget amendment. On July 22, 2021, the Watermaster Board adopted the \$276,761 budget amendment for Task 7614. The staff report on this business item from the Watermaster Board meeting is attached as Exhibit A. The Watermaster Board also directed Watermaster staff to work with the Advisory Committee members toward resolution by the Advisory Committee of the four issues raised in Mr. Harder's letter (Exhibit A).

On August 3, 2021, Watermaster and West Yost staff met with Mr. Harder and Ron Craig, representing the Appropriative Pool, to discuss and resolve the four issues raised in Mr. Harder's letter. West Yost staff

has updated the budget narrative (Exhibit B to this letter) and budget for Task 7614 (Exhibit C¹ to this letter) to reflect the outcome of the August 3rd meeting.

THOMAS HARDER'S COMMENTS AND DISCUSSION

Mr. Harder's complete comments are included in Attachment 2 of Exhibit A. Following the discussion at the Advisory Committee, four issues raised in Mr. Harder's letter must be addressed for the complete scope of Task 7614 to move forward:

1. Work by West Yost (subtasks 3.04 – 3.06 in Attachment 2 to Exhibit A) was recommended to be performed without compensation to West Yost – total amount \$39,036.
2. Work by West Yost (subtasks 3.10 – 3.12 in Attachment 2 to Exhibit A) was recommended to be performed without compensation to West Yost – total amount \$42,970.
3. Work (subtasks 2.09 and 2.14 in Attachment 2 to Exhibit A) was recommended to be deferred to a later time – total amount \$20,044.
4. The recommendation to modify the scope of work to include technical representative(s) from the Pools earlier in the process.

The August 3rd meeting resulted in agreement on the following:

- A peer review meeting should be conducted following the effort to define the initial conceptual approaches to address the various sources of modeling uncertainty (subtasks 3.01 through 3.03 in Attachment 2 to Exhibit A). This peer review meeting will allow the technical representatives of the Parties to provide feedback on the sources of uncertainty that should be addressed and the nature of the effort necessary to address them. This initial peer review meeting resolves issue 4.
- Following the initial peer review meeting, West Yost will prepare responses to the comments in the peer review meeting and conduct a brief follow-up meeting if necessary.
- Once the peer review comments have been addressed, West Yost will develop a supplemental scope and budget for the process to define and document the proposed approaches to address model uncertainty. The supplemental scope will be outside of the approved scope and budget for the task to update the Safe Yield methodology. Watermaster will introduce this supplemental scope and budget as a budget amendment to be approved through the Watermaster process.
- The supplemental scope and budget will replace the current scope and budget in subtasks 3.04 through 3.12 in the original proposed budget (shown in Attachment 2 of Exhibit A). Therefore, the scope and budget for these tasks is not included in the revised budget proposal. The development of the supplemental scope and budget pursuant to the feedback provided in the initial peer review meeting resolves issues 1 and 2.
- The timely review and approval of the supplemental scope and budget is vital to meeting the deadline to recalculate the Safe Yield as set by the Court.
- The evaluation of land use and groundwater pumping data is necessary in the preparation of the initial data collection report. The initial report will include recommendations for the frequency

¹ Note that the task and subtask numbers in Exhibit C were rearranged to match the task numbers outlined in the Engineering budget narrative, which is different than the task and subtask numbers shown in Attachment 2 of Exhibit A.

and nature of data evaluation in future reports, which may result in a reduced or revised scope of future reporting. This clarification resolves issue 3.

REVISED NARRATIVE AND FIRST BUDGET AMENDMENT

Based on the outcome of the August 3rd meeting, West Yost has revised the scope, budget, and narrative for Task 7614. Exhibit B is the revised Engineering budget narrative of Task 7614. A breakdown of the revised subtasks and budget for Task 7614, including a comparison to the original and adopted budgets, is included as Exhibit C. The changes are summarized as follows:

- Tasks 1 and 3 were adjusted to accommodate the initial peer review meeting and to develop the supplemental scope and budget described above. This includes the development of a technical memorandum outlining the initial conceptual approaches to address the various sources of model uncertainty that West Yost will disseminate to the Parties in advance of the initial peer review meeting.
- Subtasks 1.10 through 1.12 were included in the adopted budget but will now be temporarily removed so they can be rescoped and included in the supplemental scope and budget, resulting in an overall reduction of the revised budget for Task 1.
- Task 2 (Annual data collection and evaluation) is revised to include the two subtasks that were removed in the adopted budget, representing an increase of \$20,044.
- The amount of the first budget amendment is \$8,427. A future budget amendment will be brought forth following the supplemental scope and budget developed in subtask 1.06.

In addition to the revised scope and budget, we have updated the schedule in the budget narrative (Exhibit B) to extend the date of the completion of the draft technical memorandum documenting the proposed updated Safe Yield methodology to April 30, 2022. Please don't hesitate to contact me if you have any questions on the revised scope and budget. Thank you for the opportunity to contribute to this important work.

Sincerely,
WEST YOST



Garrett Rapp, PE
Associate Engineer
RCE #86007

Exhibit A: Watermaster Staff Report from Packet for July 22, 2021 Watermaster Board Meeting

Exhibit B: Revised Engineering Budget Narrative for Task 7614

Exhibit C: Comparison of Subtasks and Budgets for Task 7614

Exhibit A

Watermaster Staff Report from Packet for July 22, 2021
Watermaster Board Meeting



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PETER KAVOUNAS, P.E.
General Manager

STAFF REPORT

DATE: July 22, 2021

TO: Watermaster Board

SUBJECT: Fiscal Year 2021/22 Scope and Budget For The Safe Yield Recalculation Methodology Evaluation (Budget Amendment Form A-21-07-02) (Business Item II.B.)

SUMMARY:

Issue: A scope and budget to perform the Safe Yield Recalculation Methodology Evaluation needs to be approved.

Recommendation: Adopt the \$276,761 budget amendment (Form A-21-07-02) approved by the Advisory Committee; direct staff to work with the Advisory Committee members toward resolution by the Advisory Committee within four weeks, or August 19, 2021; and provide direction to Legal Counsel to prepare a filing seeking the Court's direction as to the propriety of the inclusion of items [1] – [4] in the FY 2021/22 budget and to file a such a motion with the Court seeking the Court's direction if items [1] – [3] are not resolved and item [4] is not clarified and agreed to by August 19, 2021.

Financial Impact: A budget amendment for \$276,7611 will increase the approved budget.

Future Consideration

Watermaster Board – July 22, 2021: Approval

ACTIONS:

Appropriative Pool – July 8, 2021: No Action – Discussion only

Non-Agricultural Pool – July 8, 2021: No Action – Discussion only

Agricultural Pool – July 8, 2021: No Action – Discussion only

Advisory Committee – July 15, 2021: Approved FY 2021/22 Budget Amendment for the Safe Yield Reset Methodology as amended by Mr. Harder's letter dated 7/13/21 with the understanding that further dialogue will continue between the Pool Committees and Watermaster to potentially refine scope/budget as needed and brought back through the Watermaster process in September 2021. The motion was passed with 80 votes in favor.

Watermaster Board – July 22, 2021:

Watermaster's function is to administer and enforce provisions of the Judgment and subsequent orders of the Court, and to develop and implement an Optimum Basin Management Program

BACKGROUND

Administration, enforcement, and implementation of the Judgment are within the Watermaster Board's duties and powers and include making recommendations to the Court regarding Safe Yield. Watermaster maintains its model (Chino Valley Model, or CVM) for the purpose of evaluation of basin Safe Yield, among other studies.

The April 28, 2017 Court Order provides in part (pages 15-18, incorporated into the Watermaster Rules & Regulations as Section 6.5) the methodology to be used for future resets of the Safe Yield and that Watermaster may supplement the Safe Yield Reset methodology to incorporate future advances in best management practices and hydrologic science with the recommendation and advice of the Pools and Advisory Committee; additionally the Order provides for annual data collection and evaluation, an update of the CVM, and peer review of the same.

Comments have been received from parties that the CVM should incorporate advances in hydrologic science by incorporating uncertainty analyses for parameters used in calibration of the model (April 23, 2020 Comment Letter from the Appropriate Pool; June 15, 2020 City of Chino Opposition to Watermaster's Motion regarding 2020 Safe Yield Reset).

Watermaster adhered to the Court-ordered Safe Yield Reset Methodology during the recent effort. At the same time Watermaster's Engineer is of the opinion that it would be beneficial to consider "uncertainty analyses" and possibly update the Safe Yield Reset Methodology, and Watermaster proposes to proceed with these analyses in advance of the upcoming Safe Yield Reset evaluation which is to be completed by June 30, 2025 (April 28, 2017 Court Order, page 17; Watermaster Rules & Regulations, § 6.5(f)).

Watermaster staff presented the approach to evaluate uncertainty analyses to obtain any advice and recommendations from the stakeholders in August 2020 (Attachment 1) and informed the Watermaster Board. Watermaster staff included the effort in the proposed FY 2021/22 Watermaster budget, and presented the budget and schedule on March 23, 2021, and again during budget workshops in April and May.

Watermaster's proposed Engineering budget to perform the work (Task 7614) has an overall budget of \$378,811 split between three subtasks:¹

1. Update Safe Yield Methodology (pursuant to Watermaster Rules & Regulations, § 6.5(d))
2. Annual data collection and evaluation (pursuant to Watermaster Rules & Regulations, § 6.5(e))
3. Support the peer review process (pursuant to Watermaster Rules & Regulations, § 6.5(g))

The Advisory Committee approved the overall Watermaster budget in May 2021 as presented, without two items, the Safe Yield Reset Methodology Evaluation work being one of those. The Advisory Committee action requested that those two items be brought back through the Watermaster process within two months. In May, the Watermaster Board adopted the overall budget and directed staff to take amendments for the two excluded items back to Advisory Committee in June.

In June, the Appropriate Pool hired Mr. Thomas Harder to review the proposed scope and budget for Task 7614 and provide feedback to the Watermaster Engineer (West Yost). On July 13, 2021, the Appropriate Pool legal counsel transmitted to Watermaster the written comments from Mr. Harder (Attachment 2).

After carefully reviewing the written comments from the Appropriate Pool's consultant, Watermaster has concluded that no changes to the scope and budget (\$378,811) of Task 7614 are advisable. Watermaster responses to comments were prepared, distributed, and discussed with the Advisory Committee on July 15, 2021 (Attachment 3.)

¹ A more detailed description of Task 7614 and the subtask descriptions can be found in Watermaster's latest Engineering budget narrative.

Since Task 7614 was not approved as part of the overall budget approved by the Advisory Committee in May 2021, a budget amendment is necessary for the work to be funded. The Advisory Committee voted to approve the FY 2021/22 Budget Amendment for the Safe Yield Reset Methodology as amended by the comments in Mr. Harder's letter dated 7/13/21, with the understanding that the approval is an incremental approval so some of the work can begin, and a commitment to further dialogue to refine scope/budget as needed and the disputed subtasks be brought back through the Watermaster process in September 2021. The budget amendment approved by the Advisory Committee is \$276,761.

DISCUSSION

Watermaster staff's opinion is that the uncertainty analyses need to be evaluated to potentially supplement the Safe Yield Reset Methodology, and this work should be done in advance of the required 2025 Safe Yield evaluation. The schedule to successfully complete the evaluation of the Safe Yield Reset Methodology (Attachment 4) indicates that the work needs to begin in July 2021, to conclude the effort in time for the timely undertaking of the 2025 Safe Yield evaluation effort.

The incremental approval of the budget for Task 7614 means that some work (Annual Data Collection and Evaluation) can begin at this time, while the remainder is on hold. Following the discussion at the Advisory Committee there are four issues that need to be addressed for the full scope to begin in earnest. These correspond to the issues raised in Mr. Harder's letter:

[1] Work by West Yost (subtasks 3.04 – 3.06) was recommended to be performed without compensation to West Yost – total amount \$39,036. Watermaster staff disagrees with the recommendation for reasons shown in Attachment 3.

[2] Work by West Yost (subtasks 3.10 – 3.12) was recommended to be performed without compensation to West Yost – total amount \$42,970. Watermaster staff disagrees with the recommendation for reasons shown in Attachment 3.

[3] Work (subtasks 2.09 and 2.14) was recommended to be deferred to a later time – total amount \$20,044. Watermaster staff disagrees with the recommendation for reasons shown in Attachment 3.

[4] The recommendation to modify the scope of work to include technical representative(s) from the Pools earlier in the process. Advisory Committee needs to clarify the comment, or to work with West Yost to modify the scope and develop modified budget to accommodate.

Some data collection tasks responsive to Watermaster Rules & Regulations, § 6.5(e) can begin right away. Work on the Safe Yield Reset Methodology Evaluation, responsive to Watermaster Rules & Regulations, § 6.5(d), needs to wait until items [1], [2], and [4] are addressed.

Staff appreciates the partial approval of the budget by the Advisory Committee and the intention to continue the dialog. At the same time, given the time sensitivity of beginning the entire body of work, staff believes that an earlier and certain date to resolve the outstanding issues above is warranted, and strongly prefers to reach conclusion in August. Staff is open to, and invites, all parties to offer their thoughts and suggestions to inform their respective Pools and their vote at the Advisory Committee. Staff plans to hold a workshop in early August to discuss any further perspectives and opinions on the outstanding items.

Staff's recommendation is for the Watermaster Board to adopt the \$276,761 budget amendment (Form A-21-07-02) approved by the Advisory Committee; and to direct staff to work with the Advisory Committee members toward resolution by the Advisory Committee within four weeks, or August 19, 2021; and to

provide direction to Legal Counsel to prepare a filing seeking the Court's direction as to the propriety of the inclusion of items [1]-[4] in the FY 2021/22 budget and to file a such a motion with the Court seeking the Court's direction if items [1] – [3] are not resolved and item [4] is not clarified and agreed to by August 19, 2021.

ATTACHMENTS

1. August 20, 2020 Advisory Committee staff report on the proposed process to comply with the April 28, 2017 Court Order
2. Thomas Harder & Co. comments dated July 13, 2021 on Task 7614 transmitted by Appropriative Pool Legal Counsel
3. Watermaster's Response to Comments made by Appropriative Pool's consultant
4. Schedule to complete the evaluation of the Safe Yield Reset Methodology
5. Budget Amendment Form A-21-07-02



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PETER KAVOUNAS, P.E.
General Manager

STAFF REPORT

DATE: August 20, 2020

TO: Advisory Committee

SUBJECT: Data and Modeling Review of the Chino Valley Model (Business Item II.D.)

SUMMARY:

Issue: The Court Ordered Safe Yield Methodology requires that Watermaster conduct an annual review of the data used in the Chino Valley Model, as well as incorporate future advances and best management practices for the model. Additionally, the parties have requested periodic review of the modeling methods.

Recommendation: Offer advice and assistance toward the proposed process.

Financial Impact: None at this time.

Future Consideration

Advisory Committee – August 20, 2020: Advice and assistance.

Watermaster Board – August 25, 2020: Discussion only.

ACTIONS:

Appropriative Pool – August 13, 2020: Offered advice and assistance.

Agricultural Pool – August 13, 2020: Offered advice and assistance.

Non-Agricultural Pool – August 14, 2020: Offered advice and assistance.

Advisory Committee – August 20, 2020:

Watermaster Board – August 25, 2020:

Watermaster's function is to administer and enforce provisions of the Judgment and subsequent orders of the Court, and to develop and implement an Optimum Basin Management Program

BACKGROUND

On April 28, 2017, the Court ordered the reset of the Safe Yield of the Basin to 135,000 AF/year and with it, also ordered the methodology to be followed by Watermaster to subsequently calculate the Safe Yield in future iterations. The methodology described in the Court Order has been incorporated in sections 6.5(d) – 6.5(g) of the Watermaster Rules and Regulations, and details the process to be followed for the calculation as well as for the data collection and includes provisions to enhance the transparency of the process.

Section 6.5 (d) establishes that: “[...]In furtherance of the goal of maximizing the beneficial use of the waters of the Chino Basin, Watermaster, with the recommendation and advice of the Pools and Advisory Committee, may supplement the Reset Technical Memorandum’s methodology to incorporate future advances in best management practices and hydrologic science as they evolve over the term of this order.”

And section 6.5 (g) “Peer Review. The Pools shall be provided with reasonable opportunity, no less frequently than annually, for peer review of the collection of data and the application of the data collected in regard to the activities described in Section 6.5(d), (e), and (f).”

With this directive, Watermaster is developing a process for implementing the Court ordered data collection and modeling review with input from the parties.

The item was presented to the three Pools for advice and assistance.

DISCUSSION

The attached Draft Implementation Process is Watermaster’s process concept to comply with sections 6.5(d) through 6.5(g) and details the scope of work to follow to implement those sections of the Rules and Regulations. The document presents the involvement of Watermaster and the parties in the review of the model as well as the data collected and applied.

At this time, Watermaster is requesting input from the parties regarding the implementation of sections 6.5(d) through 6.5(g) of the Watermaster Rules and Regulations as they relate to peer review and input from the parties for modeling and data collection and use.

ATTACHMENTS

1. Draft Process to Comply with the Watermaster Rules and Regulations, Section 6.5(d) through 6.5(g).

Draft Process to Comply with the Watermaster Rules and Regulations (R&R) Sections 6.5(d) through 6.5(g).

The Court's April 28, 2017 order regarding the 2011 Safe Yield reset (Court Order) contains the Safe Yield methodology and certain requirements regarding future Safe Yield Recalculation (SYR) and reset evaluations. The requirements as to the technical work are included in pages 15-18 of the Court Order and later incorporated in the Watermaster Rules and Regulations Sections 6.5(d) through 6.5(g). The following is Watermaster staff's proposed approach to implement these requirements of the Court Order.

6.5(d) Safe Yield Reset Methodology

This requirement provides specific direction to Watermaster to "supplement" the methodology to "incorporate future advances in in best management practices and hydrologic science as they evolve over the term of this order." Several suggestions to update the methodology were suggested late in the 2020 SYR and reset effort that should be considered in a future update of the methodology.

Watermaster will conduct the following work to supplement and update the SYR and reset methodology.

- 1) Watermaster's Engineer will develop an updated methodology based on the state-of-the-art and comments provided during the 2020 SYR and reset process. The deliverable will be a draft technical memorandum that that describes the proposed methodology and associated technical work, include the steps, cost, and schedule to implement it.
- 2) Watermaster Staff will conduct a review process to with the Parties. The review will be done in a series of meetings to present the proposed methodology and receive comments and suggestions, and to respond to the comments and suggestions.
- 3) Watermaster's Engineer will develop the final methodology documentation.
- 4) Watermaster staff will submit the final documentation for Court approval and direction to implement the updated SYR and reset methodology.

Watermaster will begin to implement this process in fiscal year 2021/22 and expect that it will take 18 to 21 months to complete through Court approval: nine months to complete the technical work (step 1 above), six months for review and finalizing the methodology (steps 2 and 3 above) and three to six months to get it approved by the Court.

6.5(e) Annual data collection and evaluation

Watermaster will prepare an annual report for review by the Parties that documents data that is collected and used in Watermaster modeling work in the SYR and reset process. The data types and proposed documentation process are described below.

A. Groundwater pumping records and estimates. Initially, Watermaster will document its process to ensure that all active wells are metered, and if wells cannot be metered, explain why and describe the alternative methodology used to estimate pumping at these wells. This documentation will include exhibits that, for every known pumping well in the Basin, characterize its attributes (owner, location, well construction, pumping capacity, other information) and the pumping estimate method (metering or other methods). Annually, the document will be updated with tables and charts that characterize: existing and new wells added during the reporting year (owner, location, start of service, well construction, pumping capacity, other information); wells that went out of service (owner, end of service, abandoned or destroyed, other information); pumping estimates developed from meters and other methods; and a list of challenges in obtaining information on wells (access to well site for inspection and meter testing, failure by Parties to report pumping, others).

B. Cultural conditions: This includes:

- i. **Land use.** The basin is almost completely developed and the agricultural and vacant lands that remain will convert slowly over the next few decades to urban uses. Historically, Watermaster has relied upon land use maps developed by the DWR, SCAG, Counties and land use control agencies. Other than the DWR maps, these maps were prepared for non-water management purposes (transportation, energy, land development, etc.). Projected changes in land use are based on the most historical land use maps combined with land use plans provided by the land use control agencies.

Watermaster staff will collect available land use data annually. To the extent that some of the Parties adopt water-budget-based billing systems that rely on characterizations of land use, Watermaster staff will collect this data. Most land use control agencies will not have annual updates to current land use maps and projected land use is infrequently updated, the implication being that Watermaster will not be able to produce consistent annual land use change assessments based on these maps alone. Other sources of data, such as recent aerial photographs and development records will need to be collected and reviewed.

Initially, Watermaster's Engineer will prepare a technical memorandum that characterizes the history of available land use data, the time history of land use change, and the associated changes in total and connected imperviousness. The initial documentation will also include the development of a "current" land use map based on new data collected, that can be updated annually thereafter. Each new land use map will be compared to the land use projection used in the SYR and Watermaster's Engineer will provide an opinion on the significance of the difference between actual current land use and the projected land use on which Safe Yield was calculated and use conditions on net recharge and Safe Yield.

- ii. **Water use practices.** This corresponds to water use projections and practices for urban, agricultural irrigation, and dairy water users and the fate of these waters after use. For the urban, commercial, and industrial uses, Watermaster uses the total historical and projected water use by the retail agencies, measured dry-weather discharge, and wastewater inflow to treatment plants to estimate historical and projected water use. These data are readily available and can be collected and analyzed annually. Agricultural and dairy water uses are estimated based on historical and projected land use and livestock counts. Projected land use will be available based on item B, above, and the livestock counts are reported to Regional Board. Annually, Watermaster's Engineer will collect the new data and prepare exhibits to characterize: water use projections and practices; compare the water use projections and practices used in the SYR to actual water use projections and practices and updated projections as updates become available; and provide an opinion on the significance of the difference between projected and actual water use practices on net recharge and Safe Yield.
- iii. **Groundwater pumping.** This corresponds to the location and magnitude of historical and projected groundwater pumping, which effects net recharge and Safe Yield. Annually, Watermaster's Engineer will prepare exhibits to compare the annual groundwater pumping projection used in the SYR to actual estimates of groundwater pumping (as estimated by Watermaster using the records described in item A. above) and revised groundwater pumping projections provided by the Parties. Based on the comparison, Watermaster's Engineer will provide an opinion on the significance of the difference between projected and actual groundwater pumping on net recharge and Safe Yield.
- iv. **Facilities for pumping, generation, storage, treatment and transmission (regional water infrastructure).** The impacts on net recharge and Safe Yield from regional water infrastructure will mostly be captured in groundwater pumping and water use practices [(ii) and (iii) above]. Annually, Watermaster's Engineer will prepare exhibits to: describe regional water infrastructure, compare the assumed use of this infrastructure in the SYR to actual use and revised, and provide an opinion on the significance of the difference between projected and actual infrastructure use on net recharge and Safe Yield.

The initial annual report prepared to comply with Section 6.5(e) of the R&R will be prepared in fiscal year 2021/22. Watermaster staff will start data collection on July 1, 2021 and submit a draft report for peer review by March 31, 2022 (the peer review process is discussed further in Section 6.5(g) below). The first annual report will be finalized as soon as practical following peer review of the draft. Any refinements to the process and schedule to complete this effort in subsequent years will be determined as an outcome of the initial Annual Report.

6.5(f) Modeling

The R&R requirement to update and apply the model consistent with the SYR and reset methodology requires the model to be recalibrated and used to estimate Safe Yield by June 30, 2025 and the subsequent SYR and reset to be completed by June 2030. The updated SYR methodology completed pursuant to paragraph 6.5(d), as described above, should be used for the 2025 SYR evaluation.

Watermaster assumes that it will take two years to complete the technical work to estimate net recharge and Safe Yield and prepare a final report pursuant to the updated methodology, plus six months to complete the peer review process (see section 6.5(g) below) for the pools and other stakeholders. The technical work for the 2025 SYR should start in fiscal year 22/23 for completion by June 30, 2025.

6.5(g) Peer Review

This requirement provides the Parties reasonable opportunity to annually review the collection and application of data collected and used in the activities described in paragraphs 6.5(d) through 6.5(f) of the R&R.

To accomplish this, Watermaster plans the formation of a standing committee for the purpose of conducting peer reviews for the benefit of the Watermaster and the Parties. This committee would meet at least semi-annually to review the status of all model-related efforts and proposed modeling work for Watermaster's budget process. The committee could also meet at a higher frequency, as required, to review the modeling work performed for: formal SYR and reset processes pursuant to 6.5(d) and 6.5(f) above, evaluation of proposed Chino Basin project impacts pursuant to the Peace Agreement, and evaluation of upstream projects to assess the impacts on the Chino Basin and the Santa Ana River riparian resources within the Chino Basin.

Watermaster plans to convene the peer review committee as early as January 2021 to begin to review the cost and schedule to implement the processes described herein to comply with the R&R.

July 13, 2021

Mr. John Schatz, Esq.
P.O. Box 7775
Laguna Niguel, CA 92607

Re: Review of West Yost 2021/22 Scope of Work Regarding the Chino Basin Watermaster Safe Yield Reset Methodology and Recommended Modifications

Dear Mr. Schatz,

At the request of the Chino Basin Watermaster Appropriative Pool (AP), I have prepared this letter summarizing my review of the Chino Basin Watermaster's (Watermaster's) scope of work to support implementation of the San Bernardino County Superior Court's (the Court's) Order for the Safe Yield Reset process. The draft scope of work, as developed by Watermaster's engineer West Yost, is described in "*Account 7614 – PE8/9: Storage Management/Conjunctive Use - Support Implementation of the Safe Yield Court Order*" of the Watermaster 2021/22 Fiscal Year budget. This scope of work includes three tasks:

1. Update the Safe Yield Methodology
2. Annual Data Collection and Evaluation
3. Support Peer Review Process

The AP has asked me to review the proposed scope of work and render an opinion as to whether it is consistent with the Court's Order for the Safe Yield Reset Process.¹ To that end, my opinions presented herein are based on a review of the following documents:

- Section 4.4 Safe Yield Reset Methodology of the Court's Order for the Safe Yield Reset Process¹
- Draft Watermaster Summary of Proposed Engineering Services and Cost Estimates for Fiscal Year 2021/22; Account 7614 – PE8/9: Storage Management/Conjunctive Use - Support Implementation of the Safe Yield Court Order

¹ Chino Basin Municipal Water District v. City of Chino et al., San Bernardino Superior Court Case No. RCV 51010. Notice of Rulings after Hearing on Watermaster's Motion Regarding 2015 Safe Yield Reset Agreement, Amendment of Restated Judgment, Paragraph 6. Dated April 28, 2017.

- West Yost’s detailed Draft Work Breakdown describing the individual tasks for updating the Safe Yield Reset Methodology
- TH&Co’s Technical Review of the Models and Methodology Used as a Basis for the 2020 Safe Yield Reset (letter to John Schatz dated April 23, 2020)

I have also had two phone conversations with Garrett Rapp of West Yost to get additional detail and clarity regarding their initial draft proposed scope of work.

Conclusion Regarding Scope of Work Consistency with Court Order

In evaluating whether the West Yost scope of work is consistent with the Court’s Order for the Safe Yield Reset process, my primary frame of reference is Section 4.4 of the Court’s Order, which states, *“In furtherance of the goal of maximizing the beneficial use of the waters of the Chino Basin, Watermaster, with the recommendation and advice of the Pools and Advisory Committee, may supplement the Reset Technical Memorandum’s methodology to incorporate future advances in best management practices and hydrologic science as they evolve over the term of this order.”* By use of the term “may,” the Order suggests that modifications to the Safe Yield Reset Methodology are optional. Supplemental changes to the methodology deemed appropriate or necessary could include any of several “best management practices” or advances in “hydrologic science,” which could encompass a broad range of topics.

Based on my review of West Yost’s proposed scope of work in support of implementing the Safe Yield Court Order, and specifically Task 1 (Task 3 in the detailed work breakdown), it appears that they have developed it, at least in part, in response to recommendations I made on behalf of the AP after reviewing the models and methodology used to reset the Safe Yield in 2020.² One of the recommendations I made in that letter was that the Watermaster should conduct a predictive uncertainty analysis on the Safe Yield estimate to “provide the basin managers a sense as to the potential variability in the estimate, for use in making decisions” (pg. 4, 2nd paragraph). Watermaster’s Task 1 scope of work includes (in part):

- The Consultant will define proposed approaches to apply the state-of-the-art practice to address model uncertainty in updating the Safe Yield and perform a preliminary assessment of their applicability to the Chino Basin.
- The Consultant will quantify the computational tractability of performing up to three proposed approaches to modeling uncertainty. This includes estimating the time and resources necessary to automate the creation and implementation of model ensembles, perturbing model parameters, and post-processing data for each of the proposed approaches.

² TH&Co, 2020. Technical Review of the Models and Methodology Used as a Basis for the 2020 Safe Yield Reset. Letter Report Submitted to John Schatz on April 23, 2020.



In the sense that this scope of work is in response to the recommendation of the AP and reflects future advances in best management practices and hydrologic science, it is consistent with Section 4.4 of the Court Order for the Safe Yield Reset Process.

Recommended Modifications to the Draft Scope of Work

The detailed scope of work for Task 1, as provided by West Yost, includes several tasks that are, in my opinion, the responsibility of the consultant and should not be included. The detailed breakdown for Task 1 (which is Task 3 in the detailed breakdown) is as follows:

Task 3	Update Safe Yield Reset Methodology (CO Paragraph 4.4)
3.01	Define initial conceptual approaches to address modeling uncertainty
3.02	Prepare internal TM based on findings in 3.01
3.03	Review TM with WM staff
3.04	Review literature to assess state-of-the-art modeling methods
3.05	Prepare internal TM documenting and comparing state-of-the-art methods
3.06	Review TM with WM staff
3.07	Develop alternatives for addressing uncertainty and implementation approaches
3.08	Prepare internal TM documenting alternatives developed in 3.07
3.09	Review TM with WM staff
3.10	Quantify computational tractability
3.11	Prepare internal TM documenting computational cost and time estimates developed in 3.08
3.12	Review TM with WM staff
3.13	Prepare draft methodology TM #1 for peer review
3.14	Review TM with WM staff
3.15	Revise and finalize TM, send to Watermaster parties
3.16	Prepare powerpoint presentation and agenda for first peer review workshops
3.17	Review powerpoint with WM staff
3.18	Revise and finalize powerpoint
3.19	Conduct peer review workshops #1/2
3.20	Prepare draft responses to peer review comments
3.21	Review responses with WM staff
3.22	Finalize responses to peer review comments

COMMENT 1 Subtasks 3.04 through 3.06 (yellow highlighted tasks) involve research into state-of-the-art modeling methods, tasks that would typically be conducted by the consultant outside the formal scope of work as part of their own internal research and development. Subtasks 3.10 **COMMENT 2** through 3.12 involve the consultant testing analysis approaches with their equipment to develop computational costs and schedules, a process that should also be the responsibility of the consultant. In my opinion, these research and development tasks should not be included in the Task 1 (Task 3) scope of work. Based on the detailed draft scope of work/cost estimate provided to TH&Co, removal of these tasks would reduce the Task 1 budget by \$82,006.



Regarding the scope of work in Task 2, all of the subtasks shown below will eventually be needed and/or beneficial to update the groundwater flow model for reevaluating the Safe Yield:

2	<i>Collect data and prepare initial data collection report for FY2020/21 data (CO Paragraph 4.5)</i>
2.01	Inventory existing data and typical data needs from Parties
2.02	Collect and tabulate data from AP Parties' 2020 UWMPs
2.03	Coordinate with WM staff for stakeholder meetings
2.04	Prepare materials for stakeholder meetings
2.05	Conduct stakeholder meetings/workshops
2.06	Debrief with WM staff after stakeholder meetings
2.07	Coordinate with WM to develop documentation on groundwater pumping records and estimates
2.08	Collect current land use data and associated supporting data and information
2.09	Compare current land use data to projections from 2020 SYR
2.10	Prepare technical memorandum characterizing land use data
2.11	Collect data on water use practices
2.12	Prepare exhibits and text characterizing water use data
2.13	Collect groundwater pumping data
2.14	Prepare exhibits and text comparing historical groundwater pumping to past projections
2.15	Collect data to update status of regional water infrastructure
2.16	Prepare exhibits and text to describe regional infrastructure
2.17	Develop draft report
2.18	Prepare for and conduct peer review meetings on report
2.19	Respond to comments on report
2.20	Complete final report

COMMENT 3 While the Court Order specifies annual data collection for many of the Task 2 Subtasks proposed by West Yost (e.g. groundwater pumping and cultural conditions), Subtasks 2.09 and 2.14 (yellow highlighted) are analysis tasks that, based on the description above, do not appear to be necessary now to advise “prudent management discretion.”³ Further, it will be more meaningful to conduct these analyses closer to model calibration for the next Safe Yield Reset when more data are available for comparison. I recommend Subtasks 2.09 and 2.14 be removed from the scope of work.

Regarding Task 3 Support Peer Review Process, the scope of work with respect to level of effort provided by West Yost is consistent with previous peer review efforts and typical of Watermaster process. While I don’t have any comments regarding the hours, the current plan to develop the scope of work internally within Watermaster, then present it to the Appropriative Pool via a series of workshops in the Spring of 2022 after the methodology has been developed is problematic. By

³ Chino Basin Municipal Water District v. City of Chino et al., San Bernardino Superior Court Case No. RCV 51010. Notice of Rulings after Hearing on Watermaster’s Motion Regarding 2015 Safe Yield Reset Agreement, Amendment of Restated Judgment, Paragraph 6. Dated April 28, 2017. Section 4.5 (c).



limiting outside technical input until after the methodology is drafted could result in peer review input that requires significant additional work, and cost, that can be avoided if technical input is provided throughout the development. I'm sensitive to Watermaster's concern that having too many representatives involved in the process can slow it down. **My recommendation is that COMMENT 4 the Watermaster include one technical representative from the Pools to participate in the development of the Safe Yield Reset methodology from the beginning to ensure that the APs concerns are addressed and to avoid delays during the peer review process prior to implementation.**

In summary, I recommend removing the following subtasks from the Watermaster 2021/22 scope of work for Account 7614 to Support Implementation of the Safe Yield Court Order:

Task 1 (Task 3 of West Yost Detail) Update Safe Yield Methodology

3.04 Review literature to assess state-of-the-art modeling methods	\$26,024
3.05 Prepare internal TM documenting and comparing state of the art Methods	\$13,012
3.10 Quantify computational tractability	\$34,204
3.11 Prepare internal TM documenting computational cost and time estimates developed in 3.08	<u>\$8,766</u>
Subtotal Task 1:	\$82,006

Task 2 Annual Data Collection and Evaluation

2.09 Compare current land use data to projections from 2020 SYR	\$11,008
2.14 Prepare exhibits and text comparing historical groundwater pumping to past projections	<u>\$9,036</u>
Subtotal Task 2:	\$20,044

I appreciate the opportunity to provide consulting services to the Chino Basin Watermaster Appropriative Pool. If you have any questions, don't hesitate to contact me at (714) 394-4449.

Sincerely,



Thomas Harder, P.G., C.HG.
Principal Hydrogeologist



Watermaster's Response to Tom Harder Comments sent by John Schatz on 7/13/21

Comment 1: "Subtasks 3.04 through 3.06 [effort to assess state-of-the-art modeling methods] involve research into state-of-the-art modeling methods, tasks that would typically be conducted by the consultant outside the formal scope of work as part of their own internal research and development."

Response to Comment 1:

Initially, this comment does not pertain to the scope of the technical approach necessary for the Task, rather it addresses Watermaster's contract administration and the associated budget.

As to the inclusion of the subtasks as necessary to the Task, it is prudent and necessary to research and review the various "uncertainty analysis" methods applied in other groundwater basins to recommend a suitable technical approach in the Chino Basin. This type of survey and evaluation is a common task in similar technical studies. The costs to perform this work should not be borne by the Watermaster Engineer for the following reasons:

1. The application of uncertainty analyses to groundwater modeling and management is a relatively new and evolving field. The state of the art is evolving as much new work is being performed in California in the development of Groundwater Sustainability Plans to comply with SGMA.
2. The physical setting of the Chino Basin, the Watermaster's current modeling tools, and the current method to recalculate and reset the Safe Yield, are all unique to the Chino Basin. There will be pros and cons to each modeling approach to address uncertainty in the Chino Basin, and all methods may not be suitable.
3. The Watermaster Engineer is well versed in existing techniques to account for model uncertainty in the parameters related to the physical representation of the basin. However, the Safe Yield recalculation is prospective, hence, uncertainty in climate variability and cultural conditions (e.g., pumping projections, storage, outdoor water use, and land use changes) should also be considered and addressed. Understanding the new work that considers these prospective uncertainties in climate and cultural conditions will benefit this effort in the Chino Basin.
4. The technical work to recalculate the Safe Yield is subject to scrutiny and peer review; it is necessary to support all of the Watermaster's technical recommendations with thorough research and documentation before presenting to the Court.

Comment 2: "Subtasks 3.10 through 3.12 [effort to quantify computational tractability of proposed approaches to address uncertainty] involve the consultant testing analysis approaches with their

equipment to develop computational costs and schedules, a process that should also be the responsibility of the consultant.”

Response to Comment 2:

Initially, this comment does not pertain to the scope of the technical approach necessary for the Task, rather it addresses Watermaster’s contract administration and the associated budget.

As to the inclusion of the subtasks as necessary to the Task, evaluating the computational tractability of proposed approaches to address uncertainty will: (i) determine the technical feasibility of performing the work; (ii) determine the temporal feasibility of conducting the work within the required timeframe of the Safe Yield Reset; and (iii) determine the cost feasibility for the Watermaster Parties. This type of feasibility work is a common task in similar technical studies and will inform the Safe Yield recalculation and reset process.

Comment 3: “While the Court Order specifies annual data collection for many of the Task 2 Subtasks proposed by West Yost (e.g., groundwater pumping and cultural conditions), Subtasks 2.09 and 2.14 (yellow highlighted) are analysis tasks that, based on the description above, do not appear to be necessary now to advise “prudent management discretion. Further, it will be more meaningful to conduct these analyses closer to model calibration for the next Safe Yield Reset when more data are available for comparison. I recommend Subtasks 2.09 and 2.14 be removed from the scope of work.”

Response to Comment 3:

Initially, this comment does not pertain to the scope of the technical approach necessary for the Task, , rather it presents the reviewer’s perspective on how Watermaster should perform its function of implementing the Restated Judgment and the Court’s orders.

The comment is suggesting that current land use and pumping data should not be compared to land use and pumping that was assumed in the prior Safe Yield Reset. Paragraph 4.5(c) of the April 2017 Court Order (p. 16) requires that Watermaster must annually analyze the collected data to “[e]valuate the potential need for prudent management discretion to avoid or mitigate undesirable results... Where evaluation of available data suggests that there has been or will be a material change from existing and projected conditions or threatened undesirable results, then a more significant evaluation, including modeling, as described in the Reset Technical Memorandum, will be undertaken...” Without the proposed evaluations in subtasks 2.09 and 2.14, Watermaster cannot, during FY2021/22, make a determination of “material change from existing and projected conditions or threatened undesirable results.”

Comment 4: “My recommendation is that the Watermaster include one technical representative from the Pools to participate in the development of the Safe Yield Reset methodology from the beginning to ensure that the APs concerns are addressed and to avoid delays during the peer review process prior to implementation.”

Response to Comment 4:

Initially, this comment does not pertain to the scope of the technical approach necessary for the Task, rather it presents this reviewer’s perspective. The approach was presented for comment to all Pools in August 2020.

Stakeholder participation is beneficial in the potential supplement of the Safe Yield Reset methodology to incorporate advances in best management practices and hydrologic science. The scope of work was proposed to minimize costs and be time efficient. However, if the Watermaster Parties want a more robust stakeholder process, the scope and budget can be revised to include more stakeholder participation and meetings.

Schedule through March 2023

Task 1 - Update Safe Yield Reset methodology (CO Paragraph 4.4)

Jul 1  Mar 31

Task 1(a) - Internal research and development of proposal to update Safe Yield Reset methodology

Jul 1  Mar 31

Task 1(b)/3 - Peer review process and workshops

Apr 1  Sep 30

Task 1(c) - Submittal of updated Safe Yield Reset methodology to Court for approval and approval process

Oct 1  Mar 31

Task 2 – Annual data collection and evaluation (CO Paragraph 4.5)

Jun 1  Mar 31

Collect data and prepare data collection report for FY2021/22 data (CO Paragraph 4.5)

Jul 1  Dec 31

Task 3 – Support peer review process (CO Paragraph 4.7)

Jul 1  Mar 31



2023

◆ Major deliverable



**CHINO BASIN WATERMASTER
BUDGET AMENDMENT FORM A-21-07-02**

To: **All Parties**

Fiscal Year 2021/22

From : Joseph S. Joswiak, CFO Date: _____

July 15, 2021

Describe reason for the budget amendment here: During the May 20, 2021 Advisory Committee meeting, two items from the budget were excluded. The action by the Advisory Committee was to approve the Fiscal Year 2021/22 budget as presented without the GLMC and SY Methodology work which will be brought back through the Watermaster process for reconsideration within the next two months. During the Advisory Committee meeting on July 15, 2021, a budget amendment was approved in the amount of \$276,761 for the Safe Yield Reset Methodology Evaluation, account 7614. The other budget item for the OBMP-Northwest MZ-1 Area Project in the amount of \$147,031 under account 7402.10 is being presented under Budget Amendment Form A-21-07-01. This Budget Amendment Form is proposed to increase the total Watermaster budget from \$7,423,244 (excluding any Carry-Over funding) to \$7,700,005, an increase of \$276,761. The additional funding will come from the Assessment Process when the Assessment Package is approved in November 2021, and invoices generated.

Expenditure Amendment				
<i>Line Item Description</i>	<i>Account Number</i>	<i>Approved Budget</i>	<i>Amended Budget</i>	<i>Amendment Amount</i>
Safe Yield Reset Methodology Evaluation	7614	\$0	\$276,761	\$276,761
TOTAL:				\$ 276,761

Revenue Source				
<i>Line Item Description</i>	<i>Account Number</i>	<i>Approved Budget</i>	<i>Amended Budget</i>	<i>Amendment Amount</i>
Assessment Package	9999	\$7,423,244	\$7,700,005	\$276,761
TOTAL:				\$ 276,761

<p align="center">Amendment Procedure</p> <ol style="list-style-type: none"> 1. Staff takes amendment requests to the Pools, Advisory Committee & Board for approval. 2. The Chief Financial Officer will prepare and process the budget entry. 4. A log will be maintained by the Finance Department detailing the adjustment. 5. A fiscal year file will also be kept to hold all budget amendment forms for auditor review. 	<p align="center">Finance Use Only</p> <p>Date Board Approved _____</p> <p>Entered into System By _____</p> <p>Finance Log # _____</p> <p>Date Posted _____</p> <p>Approved By _____</p> <p>Date Approved _____</p>
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Exhibit B

Revised Engineering Budget Narrative for Task 7614

7614²³ – PE8/9: Storage Management/Conjunctive Use

Support Implementation of the Safe Yield Court Order²⁴

	Cost Estimate
Consultant Labor	\$282,988
Other Direct Costs	<u>\$2,200</u>
Total	\$285,188

Rationale

The Safe Yield of the Chino Basin was recalculated in May 2020 pursuant to the methodology approved by the Court on April 28, 2017. The Court adopted a Safe Yield of 131,000 acre-feet per year for the period of fiscal year 2020/21 through 2029/30. The Court-approved methodology was outlined in a Court Order from April 28, 2017. The Court Order also included the following requirements, listed below verbatim:

- 4.4 – Safe Yield Reset Methodology. The Safe Yield has been reset effective July 1, 2010 and shall be subsequently evaluated pursuant to the methodology set forth in the Reset Technical Memorandum [2013 Chino Basin Groundwater Model Update and Recalculation of Safe Yield Pursuant to the Peace Agreement (WEI, 2015)]. [...] In furtherance of the goal of maximizing the beneficial use of the waters of the Chino Basin, Watermaster, with the recommendation and advice of the Pools and Advisory Committee, may supplement the Reset Technical Memorandum’s methodology to incorporate future advances in best management practices and hydrologic science as they evolve over the term of this order.
- 4.5 – Annual Data Collection and Evaluation. In support of its obligations to undertake the reset in accordance with the Reset Technical Memorandum and this order, Watermaster shall annually undertake the following actions:
 - a. Ensure that, unless a Party to the Judgment is excluded from reporting, all production by all Parties to the Judgment is metered, reported, and reflected in Watermaster’s approved Assessment Packages;
 - b. Collect data concerning cultural conditions annually with cultural conditions including, but not limited to, land use, water use practices, production, and facilities for the production, generation, storage, recharge, treatment, or transmission of water;
 - c. Evaluate potential need for prudent management discretion to avoid or mitigate undesirable results including, but not limited to, subsidence, water quality degradation, and unreasonable pump lifts. Where evaluation of available data suggests that there has been or will be a material change from existing and projected conditions or threatened undesirable results, then a more significant evaluation, including modeling, as described in the Reset Technical Memorandum, will be undertaken; and,
 - d. As part of its regular budgeting process, develop a budget for the annual data collection, data evaluation, and any scheduled modeling efforts, including the methodology for the allocation of expenses among the Parties to the Judgment. Such budget development shall be consistent with section 5.4(a) of the Peace Agreement.
- 4.6 – Modeling. Watermaster shall use the Basin Model to be updated and a model evaluation of the Safe Yield, in a manner consistent with the Reset Technical Memorandum, to be initiated no later than January 1, 2024, in order to ensure that the same may be completed by June 30, 2025.

²³ New Watermaster account for FY 2021/22

²⁴ Exclusion identified at May 20, 2021 Advisory Committee meeting. Task to be reconsidered in June/July 2021.



- 4.7 – Peer Review. The Pools shall be provided with reasonable opportunity, no less frequently than annually, for peer review of the collection of data and the application of data collected in regard to the activities described in Paragraphs 4.4, 4.5, and 4.6 above.

Scope of Work

The Consultant drafted a proposed process to comply with Paragraphs 4.4 through 4.7 of the Court Order, which was presented for comment to the Pools and Advisory Committee in August 2020. Following the tasks and schedule outlined in this process, the following work will be performed in fiscal year 2021/22:

- Task 1 – Update Safe Yield methodology. Pursuant to Paragraph 4.4 of the Court Order, the Consultant will update the methodology based on the state-of-the-art and comments provided during the 2020 SYR and reset process. This is assumed to take place from September 1, 2021 through April 30, 2022. The scope of Task 1 assumes the following:
 - The Consultant will define various sources of modeling uncertainty that should be considered and addressed in the updated Safe Yield methodology. The Consultant will develop a technical memorandum (TM) outlining these sources and related questions necessary to answer when updating the Safe Yield methodology. The Consultant will submit the TM to the Parties for review and comment.
 - The Consultant will conduct a peer review meeting (included in Task 3) to discuss the content of the TM described above. The Consultant will gather feedback from the peer review committee to inform the development of a process to define the proposed approaches to address the sources of model uncertainty in the Safe Yield methodology update. The Consultant will prepare responses to the comments from the peer review meeting and conduct a brief follow-up meeting if necessary.
 - After the comments from the first peer review meeting have been addressed, the Consultant will develop a supplemental scope and budget for the process to define and document the proposed approaches to address model uncertainty. The supplemental scope will be outside of the approved scope and budget for Task 1. Watermaster will introduce this supplemental scope and budget as a budget amendment to be approved through the Watermaster process.
 - Pursuant to the findings of the work conducted within the supplemental scope, the Consultant will prepare a draft and final TM describing the proposed methodology and associated technical work, including the steps, cost, and schedule to implement it. It is assumed that responding to comments will not involve additional computational experiments or any significant changes to the initial proposed methodology. The draft TM will be completed by April 30, 2022, and the TM is expected to be finalized in fiscal year 2022/23 after Task 3 is complete.
 - Feedback on the methodology will be obtained through the Peer Review process in Task 3.
- Task 2 – Annual data collection and evaluation. Pursuant to Paragraph 4.5 of the Court Order, Task 2 includes collecting data from the Parties and other sources and analyzing the data in the context of the Consultant’s groundwater modeling. Data collection will begin on July 1, 2021 for fiscal year 2020/21. The scope of Task 2 assumes the following:
 - Existing data collection efforts (e.g., groundwater pumping measurements) will be collected via other Watermaster efforts and are not included in this scope.
 - The consultant will follow the data collection and evaluation process described in the proposed process to comply with Paragraphs 4.4 through 4.7 of the Court Order that was presented to the Pools and Advisory Committee in August 2020.
 - The Consultant will develop exhibits to compare the collected data to previous historical and modeling data as necessary to document the data collection in an annual report and present the data to the Peer Review committee as part of Task 3.



- The Consultant will prepare a draft and final data collection report. The draft report will be reviewed with the Peer Review committee, comments will be incorporated, and the final report will be submitted to the Court no later than June 30, 2022.
- Task 3 – Support Peer Review Process. Pursuant to Paragraph 4.7 of the Court Order, Task 3 includes support to Watermaster staff in conducting peer review meetings. The scope of Task 3 assumes the following:
 - The Safe Yield methodology review will be conducted pursuant to Paragraph 4.7 of the Court Order and the steps outlined in Task 1.
 - One half-day peer review meeting will be conducted within the first several months of fiscal year 2021/22 to gather feedback on the sources of uncertainty that should be considered in the updated Safe Yield methodology. This will assist the developing a scope and budget to refine the proposed updated methodology.
 - The review of the draft updated methodology will be done in multiple half-day technical workshops to present the proposed methodology and receive comments and suggestions, and to respond to the comments and suggestions.
 - The Consultant will coordinate with Watermaster staff to organize the technical workshops.
 - It is assumed that three half-day workshops will take place in fiscal year 2021/22.
 - The Consultant will organize and conduct four meetings with the Parties to present the results of the data collection and interpretation. These meetings are assumed to last one to two hours.

Deliverables

- The Consultant’s primary deliverables will be four draft technical memoranda/reports:
 - A draft and final TM defining the initial conceptual approaches to address the sources of modeling uncertainty that should be addressed in the updated Safe Yield methodology. The final TM will be disseminated to the Parties in advance of the first peer review workshop.
 - A draft and final TM documenting the comments provided in the first peer review workshop and the supplemental scope and budget to develop a proposed update of the Safe Yield methodology.
 - A draft TM describing one or more proposed methodologies and associated technical work, including the steps, cost, and schedule to implement it. The draft TM describing the proposed methodology will be refined and finalized in fiscal year 2022/23.
 - A draft and final report documenting the data collection process and the data collected for fiscal year 2020/21.
- The Consultant will prepare other deliverables as needed to support the technical workshops and meetings in Task 3.

Comparison of Subtasks and Budgets for Task 7614

Exhibit C. Comparison of Subtasks and Budgets for Task 7614: Support Implementation of the Safe Yield Court Order

Subtask Number	Subtask Description	Estimated Fee			Potential Second Budget Amendment ¹
		Original Budget	July 22, 2021 Adopted Budget	First Budget Amendment	
1.01	Define initial conceptual approaches to address modeling uncertainty	\$ 16,136	\$ 16,136	\$ 2,904	
1.02	Prepare internal TM based on findings in previous subtask	\$ 7,038	\$ 7,038	\$ 780	
1.03	Review TM with WM staff	\$ 1,778	\$ 1,778		
1.04	Revise and finalize TM, send to Watermaster Parties			\$ 4,280	
3.01	Prepare powerpoint presentation and agenda for peer review scoping workshop			\$ 3,014	
3.02	Review powerpoint with WM staff			\$ 1,778	
3.03	Revise and finalize powerpoint			\$ 1,507	
3.04	Conduct peer review scoping workshop			\$ 3,656	
1.05	Prepare responses to peer review comments and develop supplemental scope and budget			\$ 5,594	
3.05	Review responses to peer review comments and proposed supplemental scope and budget with WM staff			\$ 1,778	
1.06	Finalize responses to comments and supplemental scope/budget for refining the proposed methodology in a TM			\$ 3,280	
1.07	Complete survey of state-of-the-art approaches to address sources of uncertainty identified in TM	\$ 26,024			TBD
1.08	Prepare internal TM documenting survey and comparison of approaches as they relate to the Chino Basin Safe Yield	\$ 13,012			TBD
1.09	Review TM with WM staff	\$ 1,778	\$ 1,778	\$ (1,778)	TBD
1.10	Develop alternatives for addressing uncertainty and implementation approaches	\$ 21,080	\$ 21,080	\$ (21,080)	TBD
1.11	Prepare internal TM documenting alternatives developed in previous subtask	\$ 10,218	\$ 10,218	\$ (10,218)	TBD
1.12	Review TM with WM staff	\$ 3,556	\$ 3,556	\$ (3,556)	TBD
1.13	Quantify computational tractability (cost, staff time, computer time) of proposed approaches	\$ 34,204			TBD
1.14	Prepare internal TM documenting computational cost and time estimates developed in prior subtask	\$ 8,766			TBD
1.15	Review TM with WM staff	\$ 1,778	\$ 1,778	\$ (1,778)	TBD
1.16	Prepare draft methodology TM #1 for peer review	\$ 15,408	\$ 15,408		
1.17	Review TM with WM staff	\$ 3,556	\$ 3,556		
1.18	Revise and finalize TM, send to Watermaster Parties	\$ 4,582	\$ 4,582		
3.06	Prepare powerpoint presentation and agenda for first peer review workshops	\$ 6,028	\$ 6,028		
3.07	Review powerpoints with WM staff	\$ 1,778	\$ 1,778		
3.08	Revise and finalize powerpoint	\$ 2,743	\$ 2,743		
3.09	Conduct peer review workshops #1/2	\$ 7,612	\$ 7,612		
1.19	Prepare draft responses to peer review comments	\$ 4,034	\$ 4,034		
1.20	Review responses with WM staff ²	\$ 3,556	\$ 3,556	\$ (1,778)	
1.21	Finalize responses to peer review comments	\$ 3,014	\$ 3,014		
2.01	Inventory existing data and typical data needs from Parties	\$ 1,962	\$ 1,962		
2.02	Collect and tabulate data from AP Parties' 2020 UWMs	\$ 15,016	\$ 15,016		
3.10	Coordinate with WM staff for stakeholder meetings	\$ 5,634	\$ 5,634		
3.11	Prepare materials for stakeholder meetings	\$ 14,643	\$ 14,643		
3.12	Conduct stakeholder meetings/workshops	\$ 16,216	\$ 16,216		
3.13	Debrief with WM staff after stakeholder meetings	\$ 4,487	\$ 4,487		
2.03	Coordinate with WM to develop documentation on groundwater pumping records and estimates				
2.04	Collect current land use data and associated supporting data and information	\$ 11,960	\$ 11,960		
2.05	Compare current land use data to projections from 2020 SYR	\$ 11,008		\$ 11,008	
2.06	Prepare technical memorandum characterizing land use data	\$ 10,816	\$ 10,816		
2.07	Collect data on water use practices	\$ 9,448	\$ 9,448		
2.08	Prepare exhibits and text characterizing water use data	\$ 6,828	\$ 6,828		
2.09	Collect groundwater pumping data				
2.10	Prepare exhibits and text comparing historical groundwater pumping to past projections	\$ 9,036		\$ 9,036	
2.11	Collect data to update status of regional water infrastructure	\$ 6,760	\$ 6,760		
2.12	Prepare exhibits and text to describe regional infrastructure	\$ 6,318	\$ 6,318		
2.13	Develop draft report	\$ 24,128	\$ 24,128		
3.14	Prepare for and conduct peer review meetings on report	\$ 5,782	\$ 5,782		
2.14	Respond to comments on report	\$ 3,956	\$ 3,956		
2.15	Complete final report	\$ 5,216	\$ 5,216		
4.01	Project management	\$ 11,918	\$ 11,918		
Total		\$ 378,811	\$ 276,761	\$ 8,427	\$ -

¹ TBD = To be determined during rescoping process that will occur during subtasks 1.07 through 1.15.

² An arithmetic error in the original budget resulted in an overestimate of the original budget for this subtask. The first budget amendment includes an adjustment for the error.



CHINO BASIN WATERMASTER
BUDGET AMENDMENT FORM A-21-08-01

To: **All Parties**

Fiscal Year 2021/22

From : Joseph S. Joswiak, CFO

Date: August 19, 2021

Describe reason for the budget amendment here: The current "Amended" Budget for FY 2021/22 is \$7,700,005. This "Amended" budget is the July 22, 2021 version adopted by the Board on July 22, 2021. This Budget Amendment Form is proposed to increase the total Watermaster "Amended" budget from \$7,700,005 (excluding any Carry-Over funding) to \$7,708,432, an increase of \$8,427. The additional funding will come from the Assessment Process when the Assessment Package is approved in November 2021, and invoices generated.

Expenditure Amendment				
<i>Line Item Description</i>	<i>Account Number</i>	<i>Approved Budget</i>	<i>Amended Budget</i>	<i>Amendment Amount</i>
Safe Yield Reset Methodology Evaluation	7614	\$276,761	\$285,188	\$8,427
TOTAL:				\$ 8,427

Revenue Source				
<i>Line Item Description</i>	<i>Account Number</i>	<i>Approved Budget</i>	<i>Amended Budget</i>	<i>Amendment Amount</i>
Assessment Package	9999	\$7,700,005	\$7,708,432	\$8,427
TOTAL:				\$ 8,427

<p align="center">Amendment Procedure</p> <ol style="list-style-type: none"> 1. Staff takes amendment requests to the Pools, Advisory Committee & Board for approval. 2. The Chief Financial Officer will prepare and process the budget entry. 4. A log will be maintained by the Finance Department detailing the adjustment. 5. A fiscal year file will also be kept to hold all budget amendment forms for auditor review. 	<p align="center">Finance Use Only</p> <p>Date Board Approved _____</p> <p>Entered into System By _____</p> <p>Finance Log # _____</p> <p>Date Posted _____</p> <p>Approved By _____</p> <p>Date Approved _____</p>
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