Las Virgenes – Triunfo Joint Powers Authority
4232 Las Virgenes Road, Calabasas, CA 91302
818.251.2100

THIS MEETING WILL BE CONDUCTED PURSUANT TO THE PROVISIONS OF THE GOVERNOR'S EXECUTIVE ORDER, N-29-20, WHICH SUSPENDS CERTAIN REQUIREMENTS OF THE RALPH M. BROWN ACT TO SUPPORT SOCIAL DISTANCING GUIDELINES ASSOCIATED WITH RESPONSE TO THE CORONAVIRUS (COVID-19) PANDEMIC. BOARD MEMBERS AND STAFF MAY PARTICIPATE IN THE MEETING BY TELECONFERENCE. THE PUBLIC IS STRONGLY ENCOURAGED TO PARTICIPATE ELECTRONICALLY AT www.lvmwd.com/JPALiveStream.

TO JOIN THE WEBINAR VIA COMPUTER, PLEASE USE THE FOLLOWING ZOOM WEBINAR ID: https://us06web.zoom.us/j/86905075178

TO JOIN BY TELEPHONE, PLEASE DIAL (669) 900-6833 OR (346) 248-7799 AND ENTER WEBINAR ID: 869 0507 5178

Call and Notice of Special Meeting of the Governing Board of the Las Virgenes – Triunfo Joint Powers Authority

A Special Meeting of the Governing Board of the Las Virgenes – Triunfo Joint Powers Authority (JPA) is hereby called, and notice of said Special Meeting is hereby given for **5:00 p.m. on Monday, September 13, 2021**, at Las Virgenes Municipal Water District, 4232 Las Virgenes Road, Calabasas, California 91302, to consider the following:

PLEDGE OF ALLEGIANCE

1. Call to Order and Roll Call
2. Special Meeting of September 13, 2021 (Agenda attached)
3. Adjourn

By Order of the Board of Directors
RAY TJULANDER, Chair

David W. Pedersen, P.E.
Administering Agent/General Manager

Dated: September 8, 2021

Ray Tjulander
Chair, Las Virgenes-Triunfo
Joint Powers Authority
Chair, Triunfo Water & Sanitation District
Board of Directors

Jay Lewitt
Vice Chair, Las Virgenes-Triunfo
Joint Powers Authority
President, Las Virgenes Municipal Water District
Board of Directors

LAS VIRGENES - TRIUNFO
JOINT POWERS AUTHORITY
AGENDA

4232 Las Virgenes Road, Calabasas, CA 91302

September 13, 2021, 5:00 PM

Public Participation for Meetings of Las Virgenes - Triunfo Joint Powers Authority in Response to COVID-19

On March 4, 2020, Governor Newsom proclaimed a State of Emergency in California as a result of the threat of COVID-19. On March 17, 2020, Governor Newsom issued Executive Order N-29-20 (superseding the Brown Act-related provisions of Executive Order N-25-20 issued on March 12, 2020), which allows a local legislative body to hold public meetings via teleconferencing and to make public meetings accessible telephonically or otherwise electronically to all members of the public seeking to observe and to address the local legislative body. Pursuant to Executive Order N-29-20, please be advised that members of the Las Virgenes - Triunfo Joint Powers Authority Board of Directors will participate in meetings via teleconferencing.

PUBLIC PARTICIPATION: Pursuant to Executive Order N-29-20 and given the current health concerns, this meeting is being conducted via Zoom Webinar and all attendees are muted by default. To join via computer, please use the following Zoom Webinar ID:

Webinar ID: **https://us06web.zoom.us/j/86905075178**
To join by telephone, please dial (669) 900-6833 or (346) 248-7799 and enter Webinar ID: **869 0507 5178**

For members of the public wishing to address the Board during Public Comment or during a specific agenda item, please press "Raise Hand" if you are joining via computer, or press *9 if you are joining via phone.

Members of the public can also access and request to speak at meetings live on-line, with audio and limited video, at www.LVMWD.com/JPALiveStream. In addition, members of the public can submit written comments electronically for consideration at www.LVMWD.com/JPALiveStream. To ensure distribution to the members of the Las Virgenes - Triunfo Joint Powers Authority Board of Directors prior to consideration of the agenda, please submit comments 24 hours prior to the day of the meeting. Those comments, as well as any comments received after 5:00 P.M., will be distributed to the members of the Board of Directors and will be made part of the official public record of the meeting. Contact Josie Guzman, Executive Assistant/Clerk of the Board at (818) 251-2123 or jguzman@lvmwd.com with any questions.

ACCESSIBILITY: If requested, the agenda and backup materials will be made available in appropriate alternative formats to persons with a disability, as required by Section 202 of the Americans with Disabilities Act of 1990 (42 U.S.C. Sec. 12132), and the federal rules and regulations adopted in implementation thereof. Any person who requires a disability-related modification or accommodation, in order to observe and/or offer public comment may request such reasonable modification, accommodation, aid, or service by contacting the Executive Assistant/Clerk of the Board by telephone at (818) 251-2123 or via email to jguzman@lvmwd.com no later than 8:00 AM on the day of the scheduled meeting.

Members of the public wishing to address the Las Virgenes-Triunfo Joint Powers Authority (JPA) Board of Directors are advised that a statement of Public Comment Protocols is available from the Clerk of the Board. Prior to speaking, each speaker is asked to review these protocols, complete a speakers' card, and hand it to the Clerk of the Board. Speakers will be recognized in the order the cards are received.

The Public Comments agenda item is presented to allow the public to address the Board on matters not on the agenda. The public may also present comments on matters on the agenda; speakers for agendized items will be recognized at the time the item is called up for discussion.

Materials prepared by the JPA in connection with the subject matter on the agenda are available for public inspection at 4232 Las Virgenes Road, Calabasas, CA 91302. Materials prepared by the JPA and distributed to the Board during this meeting are available for public inspection at the meeting or as soon thereafter as possible. Materials presented to the Board by the public will be maintained as part of the records of these proceedings and are available upon request to the Clerk of the Board.

PLEDGE OF ALLEGIANCE

1 CALL TO ORDER AND ROLL CALL

2 APPROVAL OF AGENDA

3 PUBLIC COMMENTS

Members of the public may now address the Board of Directors **ON MATTERS NOT APPEARING ON THE AGENDA**, but within the jurisdiction of the Board. No action shall be taken on any matter not appearing on the agenda unless authorized by Subdivision (b) of Government Code Section 54954.2

4 CONSENT CALENDAR

Matters listed under the Consent Calendar are considered to be routine, non-controversial and normally approved with one motion. If discussion is requested by a member of the Board on any Consent Calendar item, or if a member of the public wishes to comment on an item, that item will be removed from the Consent Calendar for separate action.

A Minutes: Regular Meeting of August 2, 2021 and Special Meeting of August 23, 2021 (Pg. 5)

Approve.

B Rancho Solar Generation Project Phase 2: Amendment No. 3 to Power Purchase Agreement (Pg. 14)

Authorize the Administering Agent/General Manager to execute Amendment No. 3 to Power Purchase Agreement for the Rancho Solar Generation Project Phase 2.

5 ILLUSTRATIVE AND/OR VERBAL PRESENTATION AGENDA ITEMS

A State and Federal Legislative Update (Pg. 21)

B Pure Water Project Las Virgenes-Triunfo: Update (Pg. 62)

6 ACTION ITEMS

A Pure Water Demonstration Facility: Operational Support Services (Pg. 75)

Authorize the Administering Agent/General Manager to execute a professional services agreement with Carollo Engineers, Inc., in the amount of $117,622, to provide continued operational support services for the Pure Water Demonstration Facility.

B Pure Water Project Las Virgenes-Triunfo: Public Outreach Services (Pg. 80)

Authorize the Administering Agent/General Manager to execute a professional services agreement with Water Systems Consulting, in the amount of $71,090, for public outreach services related to the Pure Water Project Las Virgenes-Triunfo.

C Pure Water Project Las Virgenes-Triunfo: Water Augmentation Study Results (Pg. 132)

Review and provide feedback on the results of the Water Augmentation Study for the Pure Water Project Las Virgenes-Triunfo.

D Tapia Water Reclamation Facility Summer Season TMDL Compliance and Meter Replacement Project: Construction Award (Pg. 164)

Accept the request from Minco Construction to withdraw its bid due to a clerical error; award a construction contract to Pacific Hydrotech Corporation, in the amount of $3,488,505; reject all remaining bids upon receipt of the duly executed contract documents; and appropriate an additional $1,660,567.50 for the Tapia Water Reclamation Facility Summer Season Total Maximum Daily Load Compliance and Meter Replacement Project.

7 BOARD COMMENTS

8 ADMINISTERING AGENT/GENERAL MANAGER REPORT

9 FUTURE AGENDA ITEMS

10 INFORMATION ITEMS

A Pure Water Project Las Virgenes-Triunfo: Final Report for Future Supply Actions Study on Artificial Intelligence (Pg. 180)

11 PUBLIC COMMENTS

Members of the public may now address the Board of Directors **ON MATTERS NOT APPEARING ON THE AGENDA**, but within the jurisdiction of the Board. No action shall be taken on any matter not appearing on the agenda unless authorized by Subdivision (b) of Government Code Section 54954.2

12 ADJOURNMENT

Pursuant to Section 202 of the Americans with Disabilities Act of 1990 (42 U.S.C. Sec. 12132), and applicable federal rules and regulations, requests for a disability-related modification or accommodation, including auxiliary aids or services, in order to attend or participate in a meeting, should be made to the Executive Assistant/Clerk of the Board in advance of the meeting to ensure availability of the requested service or accommodation. Notices, agendas, and public documents related to the Board meetings can be made available in appropriate alternative format upon request.

LAS VIRGENES – TRIUNFO
JOINT POWERS AUTHORITY
MINUTES
REGULAR MEETING

5:00 PM August 2, 2021

PLEDGE OF ALLEGIANCE

The Pledge of Allegiance to the Flag was led by Len Polan.

1. CALL TO ORDER AND ROLL CALL

The meeting was called to order at **5:00 p.m.** by Chair Tjulander via teleconference in the Board Room at Las Virgenes Municipal Water District headquarters at 4232 Las Virgenes Road, Calabasas, CA 91302. The meeting was conducted via teleconference pursuant to the provisions of the Governor's Executive Order, N-29-20, which suspended certain requirements of the Ralph M. Brown Act to support social distancing guidelines associated with response to the coronavirus (COVID-19) outbreak. Josie Guzman, Clerk of the Board, conducted the roll call.

Present: Directors Caspary, Lewitt, Lo-Hill, Nye, Orkney, Polan, Renger, Shapiro, Tjulander, and Wall.
Absent: None.

2. APPROVAL OF AGENDA

Director Orkney moved to approve the agenda. Motion seconded by Director Polan. Motion carried unanimously.

3. PUBLIC COMMENTS

None.

4. CONSENT CALENDAR

A Minutes: Regular Meeting of July 6, 2021: Approve

Director Renger moved to approve the Consent Calendar. Motion seconded by Director Polan. Motion carried unanimously.

5. ILLUSTRATIVE AND/OR VERBAL PRESENTATION AGENDA ITEMS

A State and Federal Legislative Update

Ana Schwab, federal lobbyist for the JPA with Best Best & Krieger LLP (BBK), presented the federal legislative update. She noted that the Senate introduced its infrastructure package, which included funding for water, wastewater, and large scale water recycling projects. She stated that the infrastructure package would have Title XVI programs available for projects such as the Pure Water Project Las Virgenes-Triunfo. She also stated that the Senate would likely pass the infrastructure package and subsequently negotiate with the House of Representatives. She noted that the House would return in September to consider increasing the debt ceiling, passing all 12 appropriations bills, and passing an infrastructure package. She stated that BBK would monitor whether Title XVI Water Infrastructure Improvements for the Nation (WIIN) would be included in an infrastructure package. She noted that the WIIN Program would expire on September 30th, and unless reauthorized, Title XVI would revert to the traditional Title XVI in which every program would need Congressional authorization to be eligible. She noted that Congresswoman Grace Napolitano released her plans to reauthorize Title XVI; however, Senator Dianne Feinstein's plan was not yet released. She provided an update regarding H.R. 2467, the Per- and Polyfluoroalkyl Substances (PFAS) in Action Act, and stated that this bill would make PFAS/Perfluorooctanoic Acid (PFOA) hazardous substances under the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA), which would include responsibility for cleanup by all responsible parties under the superfund program. She stated that MWD, the Association of California Water Agencies (ACWA), and other agencies expressed concern that should a PFAS issue arise in an area, agencies could potentially be considered responsible parties and the ratepayers would be subsidizing manufacturers' cleanup. She noted that airports received an exemption from being a responsible party under CERCLA if they use the fire-fighting foam agent in a Federal Aviation Administration (FAA) regulated manner under FAA orders and within FAA code; therefore, a precedent had been set for an exemption under CERCLA. She stated that BBK would monitor this bill to protect water and wastewater agencies, together with their respective ratepayers, from having to pay for PFAS/PFOA cleanup. She addressed a question regarding an article in the *Los Angeles Times* regarding San Diego receiving federal funding for desalination and whether San Diego would recycle water and capture and treat stormwater by stating that she would follow-up and provide additional information. She also responded to a question regarding whether the JPA could alert all ratepayers regarding concerns with H.R. 2467 by stating that BBK could continue voice concerns regarding this bill.

Syrus Devers, state lobbyist for the JPA with Best Best & Krieger LLP (BBK), presented the state legislative update. He stated that BBK was continuing to pursue meetings with legislators to discuss the need to increase funding for recycled water projects. He also stated that BBK prepared a letter requesting $500

million for recycled water projects and received commitments from legislators to sign the letter; however, BBK was experiencing difficulties in circulating the letter for signatures due to social distancing restrictions at the State Capitol.

Ms. Schwab noted that she reviewed the article in the *Los Angeles Times* and noted that the article addressed new legislation introduced by Congressman Mike Levin that would create a new program to support desalination projects over five years.

B Pure Water Project Las Virgenes-Triunfo: Update

Eric Schlageter, Principal Engineer, presented the report. He responded to a question regarding the status of the Agoura Road property by stating that the two alternative sites would need to go through a California Environmental Quality Act (CEQA) process before the JPA could select a site. He stated that staff was looking at completing the CEQA process over the next 18 months, as well as developing all of the bridging documents for alternative delivery.

6. ACTION ITEMS

A Pump Replacement for Westlake Well No. 1: Authorization

Authorize the Administering Agent/General Manager to approve a change order to General Pump Company, in the amount of $33,302.10, for pump replacement at Westlake Well No. 1.

Administering Agent/General Manager David Pedersen presented the report.

Director Polan moved to approve Item 6A. Motion seconded by Director Caspary.

A discussion ensued regarding identifying the typical life cycle for pumps.

Motion carried unanimously.

B Bioassessment Monitoring Report: Approval of Contract and Purchase Order

Authorize the Administering Agent/General Manager to execute a four-year contract with Aquatic Bioassay Consulting Laboratories, Inc., in the annual amount of $50,487 with one-time 2% escalator after the second year, for Bioassessment monitoring and reporting, and approve an annual purchase order, in the amount of $155,000, for toxicity testing and reporting.

Brett Dingman, Water Reclamation Manager, presented the report and responded to questions regarding the toxicity testing process.

Director Orkney moved to approve Item 6B. Motion seconded by Director Caspary. Motion carried unanimously.

C Rancho Las Virgenes Composting Facility Woolsey Fire Repairs: Approval of Change Order

Authorize the Administering Agent/General Manager to approve Change Order No. 5 to Pacific Hydrotech Corporation, in the amount of $33,046.29, for additional electrical and structural repairs at the Rancho Las Virgenes Composting Facility.

Mercedes Acevedo, Assistant Engineer, presented the report.

Director Polan moved to approve Item 6C. Motion seconded by Director Renger.

A discussion ensued regarding damages sustained to the rain gutter, downspouts, fascia board, and stucco, and expected reimbursement from the JPA's insurance carrier for costs related to the damages caused by the Woolsey Fire.

Motion carried unanimously.

D Rancho Solar Generation Project Phase I: Amendment to Performance Guarantee

Authorize the Administering Agent/General Manager to execute amendments to Solar Power Purchase Agreement and Performance Guarantee Agreement with Tesla, Inc., to update the guaranteed kilowatt hour production values based on the final as-built configuration of the Rancho Solar Generation Project Phase I.

John Zhao, Director of Facilities and Operations, presented the report.

A discussion ensued regarding the shortfall in the guaranteed kilowatt-hours production levels due to the reduction in the number of solar panels during final construction approval, and reduction to the guaranteed performance payment to the JPA over the 20-year period.

Director Caspary moved to approve Item 6D. Motion seconded by Director Polan. Motion carried unanimously.

E Centrate Treatment 24-inch Pump Suction Header and Valve Replacement Project: Final Acceptance

Approve Change Order No. 1 to J.R. Filanc Construction Company, Inc., in the amount of $5,699.99, for additional work needed to complete construction; approve the execution of a Notice of Completion and have the

same recorded by the Los Angeles County Clerk; and, in the absence of claims from subcontractors and others, release the retention, in the amount of $5,050.00, 30-calendar days after filing the Notice of Completion for the Centrate Treatment 24-inch Pump Suction Header and Valve Replacement Project.

Mercedes Acevedo, Assistant Engineer, presented the report.

Director Orkney moved to approve Item 6E. Motion seconded by Director Caspary. Motion carried unanimously.

F Digester No. 2 Rehabilitation Project: Final Acceptance

Approve the execution of a Notice of Completion and have the same recorded; waive liquidated damages associated with delays during construction; and, in the absence of claims from subcontractors and others, release the retention, in the amount of $105,424.50, 30-calendar days after filing the Notice of Completion for the Digester No. 2 Rehabilitation Project.

Mercedes Acevedo, Assistant Engineer, presented the report and responded to questions regarding the depth of the temporary flooring and replacing the couplings for the sludge gas line with stainless steel couplings.

Director Polan moved to approve Item 6F. Motion seconded by Director Renger. Motion carried unanimously.

7. BOARD COMMENTS

Director Lo-Hill reported that she attended the WateReuse Multi-Agency Water Reuse Programs Insights in Interagency Collaboration webcast on July 7th regarding the National Water Reuse Action Plan and interagency collaboration.

Director Polan reported that he also attended the WateReuse webcast.

8. ADMINISTERING AGENT/GENERAL MANAGER REPORT

Administering Agent/General Manager David Pedersen reported that the flow in Malibu Creek was measuring 4.15 cubic feet per second, and there was no need for water augmentation. He noted that work on Centrifuge No. 1 was completed, and the centrifuge was placed back in operation on July 28th. He also noted that the facility's dewatered cake was 35 to 40 percent lower in moisture content. He provided an update regarding the JPA's participation in the on-going wastewater epidemiological study, and noted that staff was taking weekly samples of wastewater influent for COVID-19 testing as part of the study funded by the U.S. Department of Health and Human Services. He stated that values for COVID-19 were currently showing approximately 18 people per 100,000 at the time of the

sample, and staff was monitoring the trend. He also stated that he would share the data with the JPA Board. He noted that the trends were very reliable and good leading indicators of infections. He responded to a question regarding whether the JPA should share its participation in the study with the community by stating that the JPA could share that it was participating in a study and share the results. He noted that staff recognized that there were some limitations with the meaning of the data, and staff could follow how the Sanitation Districts of Los Angeles County shared its data on its website.

9. FUTURE AGENDA ITEMS

Director Polan requested a future agenda item regarding evaluation of technological advances on filtration and reverse osmosis for the Pure Water Project Las Virgenes-Triunfo.

Director Caspary noted that the Santa Monica Bay Restoration Commission Governing Board would receive a presentation at its August 19th meeting regarding the Hyperion Water Reclamation Plant sewage spill. He stated that he would share the meeting link with the JPA Board.

10. PUBLIC COMMENTS

There were no Public Comments.

Chair Tjulander stated that it was a pleasure having all of the Board Members present in the Board Room.

11. ADJOURNMENT

Seeing no further business to come before the Board, the meeting was duly adjourned at **6:19 p.m**.

Ray Tjulander, Chair

ATTEST:

Jay Lewitt, Vice Chair

LAS VIRGENES – TRIUNFO
JOINT POWERS AUTHORITY
MINUTES
SPECIAL MEETING

10:00 AM August 23, 2021

1. CALL TO ORDER AND ROLL CALL

The meeting was called to order at **10:02 a.m.** by Chair Tjulander at Las Virgenes Municipal Water District headquarters at 4232 Las Virgenes Road, Calabasas, CA 91302. Josie Guzman, Clerk of the Board, conducted the roll call.

Present: Directors Lo-Hill, Nye, Orkney, Polan, Renger, Tjulander, and Wall.
Absent: Directors Caspary, Lewitt, and Shapiro.

2. TOUR OF PURE WATER DEMONSTRATION FACILITY WITH CALLEGUAS MUNICIPAL WATER DISTRICT BOARD OF DIRECTORS AND STAFF

Following introductory remarks by Administering Agent/General Manager David Pedersen and a video presentation by Public Affairs Associate II Riki Clark, a tour was conducted of the Pure Water Demonstration Facility.

No actions were taken by the JPA Board.

3. ADJOURNMENT

The special meeting was adjourned at **11:15 a.m**.

Ray Tjulander, Chair

ATTEST:

Jay Lewitt, Vice Chair

September 13, 2021 JPA Board Meeting

TO: JPA Board of Directors

FROM: Facilities & Operations

Subject : Rancho Solar Generation Project Phase 2: Amendment No. 3 to Power Purchase Agreement

SUMMARY:

On April 10, 2019, the JPA and Las Virgenes Solar 1, LLC (LV Solar 1) executed a Power Purchase Agreement (PPA) for the Rancho Solar Generation Project Phase 2. The PPA provides for LV Solar 1 to own and operate the solar facility, and the JPA to purchase the power generated at pre-determined rates. Subsequent to execution of the original PPA and Amendments Nos. 1 and 2, a third party acquired all of the ownership interests and obligations for the facility.

Staff recommends authorization to execute Amendment No. 3 to the PPA to reflect Greenbacker Renewable Energy Corporation and its subsidiary, Trillium Holdco, LLS, as the new as owner/operator of the Rancho Solar Generation Project Phase 2. Once executed, Greenbacker Renewable Energy Corporation will issue invoices and receive payment for solar energy generated by the facility in accordance with the existing terms of the PPA, which otherwise remain unchanged.

RECOMMENDATION(S):

Authorize the Administering Agent/General Manager to execute Amendment No. 3 to Power Purchase Agreement for the Rancho Solar Generation Project Phase 2.

FISCAL IMPACT:

No

ITEM BUDGETED:

Yes

FINANCIAL IMPACT:

There is no financial impact associated with this action.

DISCUSSION:

Trillium Holdco, LLC, a subsidiary of Greenbacker Renewable Energy Corporation, acquired the interests and obligations of Las Virgenes Solar 1, LLC, for the Rancho Solar Generation Project Phase 2. Amendment No. 3 to the Power Purchase Agreement is recommended to allow staff to process invoices issued by Greenbacker Renewable Energy Corporation. The proposed amendment does not change the pricing, site termination values or any other financial terms of the PPA.

Prepared by: Doug Anders, Administrative Services Coordinator

ATTACHMENTS:

Proposed Amendment No. 3 to Power Purchase Agreement

AMENDMENT NO. 3 TO SOLAR POWER PURCHASE AGREEMENT

This Amendment No. 3 to the Solar Power Purchase Agreement ("Amendment") is entered into as of August 2, 2021 ("Effective Date"), by and between LAS VIRGENES-TRIUNFO JOINT POWERS AUTHORITY ("JPA"), a Joint Powers Authority formed under the laws of the State of California, and LAS VIRGENES SOLAR 1, LLC ("Provider"), with its principal place of business located at 230 Park Avenue, Suite 1560, New York, NY 10169. JPA and Provider are sometimes hereinafter referred to individually as a "Party" and collectively as the "Parties."

RECITALS

A. On April 10, 2019, JPA and Provider executed a Solar Power Purchase Agreement wherein Provider agreed to sell the output from the Solar Facility to JPA; as amended by that certain Amendment No. 1 to Solar Power Purchase Agreement dated September 6, 2019; and that certain Amendment No. 2 to Solar Power Purchase Agreement dated December 30, 2019 (as amended, the "Master Agreement"), a copy of which is attached hereto as **Exhibit "A"**.

B. Section 22 of the Master Agreement provides for written modifications approved by both parties.

C. JPA and Provider now desire to amend the Master Agreement to, among other things, (1) substitute Greenbacker Renewable Energy Corporation and its subsidiary, Trillium Holdco, LLC, the sole member of the Provider, as the issuer of all invoices and recipient of all payments and written notice due under the Master Agreement, and (2) make such other changes as are necessary or appropriate in light of the foregoing amendments, as hereinafter provided. Capitalized terms not otherwise defined herein shall have the meanings assigned to them in the Master Agreement.

A G R E E M E N T

NOW, THEREFORE, in consideration of the foregoing Recitals and for other good and valuable consideration, the receipt and sufficiency of which are hereby acknowledged, JPA and Provider hereby agree to amend the Master Agreement by this Amendment No. 3 as follows:

1. **Payment of Monthly Invoices.**

The first sentence of Section 8, subsection (A) of the Master Agreement, as amended, shall be modified as follows:

> "Greenbacker Renewable Energy Corporation, the parent company of Trillium Holdco, LLC, the sole member of Provider, shall provide an invoice for the Solar Facility to JPA on a monthly basis, by the 15th business day of each calendar month following the Commercial Operation Date of the Solar Facility.
>
> Trillium Holdco, LLC, a subsidiary of Greenbacker Renewable Energy Corporation, hereby warrants that it has lawfully acquired all of the issued and outstanding membership

interests in Provider, is/are now the sole member of Provider, and is/are lawfully authorized to issue invoices on behalf of Provider pursuant to this Agreement.

Greenbacker Renewable Energy Corporation hereby warrants that it is the parent company of Trillium Holdco, LLC, and is lawfully authorized to issue invoices on behalf of Provider and Trillium Holdco, LLC."

2. **Due Date of Monthly Invoices.**

Section 8, subsection (B) of the Master Agreement, as amended, shall be modified as follows:

"The Power Price and all other payments shall be in U.S. Dollars and paid by wire transfer, check, or automated check handling (ACH) payment delivered to Greenbacker Renewable Energy Corporation and/or Trillium Holdco, LLC at the address specified herein within thirty (30) Days of the date the invoice is received by the JPA ("Due Date"). If the Due Date is a weekend or a bank holiday, payment will be due the next following business day.

Trillium Holdco, LLC, a subsidiary of Greenbacker Renewable Energy Corporation, hereby warrants that it has lawfully acquired all of the issued and outstanding membership interests in Provider, is now the sole member of Provider, and is lawfully authorized to receive payments made by JPA under this Agreement."

Greenbacker Renewable Energy Corporation hereby warrants that it is the parent company of Trillium Holdco, LLC, and is lawfully authorized to receive payments made by JPA under this Agreement."

3. **Notice.**

Section 22, subsection (B) of the Master Agreement, as amended, shall be modified to include the following:

"If to Trillium Holdco, LLC:

Trillium Holdco, LLC
230 Park Avenue, Suite 1560
New York, NY 10169

"If to Greenbacker Renewable Energy Corporation:

Greenbacker Renewable Energy Corporation
230 Park Avenue, Suite 1560
New York, NY 10169"

4. Miscellaneous

(a) Effect of Amendment. The term "**Agreement**" when used in this Amendment No. 3 or the Master Agreement shall mean the Master Agreement as amended,

modified, and supplemented by this Amendment unless the context would require otherwise. Except to the extent the Master Agreement is modified by this Amendment, the remaining terms and conditions of the Master Agreement shall remain unmodified and in full force and effect. In the event of conflict, between the terms and conditions of the Master Agreement and the terms and conditions of this Amendment, the terms and conditions of this Amendment shall prevail and control.

(b) Entire Agreement. The Master Agreement, together with this Amendment No. 3, embodies the entire understanding between JPA and Provider with respect to its subject matter and can be changed only by an instrument in writing signed by JPA and Provider.

(c) Counterparts. This Amendment may be executed in one or more counterparts, including facsimile counterparts or electronic-mail counterparts, each of which shall be deemed an original but all of which, taken together, shall constitute one in the same Amendment.

[SIGNATURES ON FOLLOWING PAGE]

IN WITNESS WHEREOF, this Amendment has been executed as of the day and year first set forth above.

JPA

Las Virgenes-Triunfo Joint Powers Authority,

By:_____
Name: David W. Pedersen
Title: General Manager

Date: _____

PROVIDER

Las Virgenes Solar 1, LLC

DocuSigned by:
Richard Butt
482FAFC0339C4C5...

By:_____
Name: Richard Butt
Title: Chief Financial Officer

Date: August 2, 2021

EXHIBIT "A"

(Master Agreement)

BEST BEST & KRIEGER LLP
ATTORNEYS AT LAW

To:	Las Virgenes -Triunfo JPA
From:	Syrus Devers, Best Best & Krieger
Date:	September 13th, 2021
Re:	State Legislative Report

The Legislature returned on August 16th without a great deal of progress on Budget Trailer Bills over the Summer Recess, or at least none that the public is privy to. The largest outstanding item is the plan for the Drought and Water Resilience funding. A well-coordinated lobbying effort has now concluded to advocate for equitable funding for drought relief for Southern California. The funds allotted in the budget so far have gone to those counties where a drought emergency has been declared, which excludes every county south of Santa Barbara. Although the talking points are all stated in the positive, the underlying message is that Southern California is not in an emergency at this moment because of past investments in conservation and alternative supplies. In other words, don't exclude us just because we did the right thing.

The other major lobbying campaign was to advocate for increased funding for recycling projects. As previously reported, recycling projects received very little funding except for San Diego County. BB&K worked alongside WateReuse to lobby for $500 million to be set aside for recycling projects. The Budget Trailers Bills were not available at the time this report was prepared so BB&K will have to report on the final results during its oral presentation to the JPA.

BB&K has also been reaching out to key members with the message that a command-and-control style approach to the drought where the state calls for cuts in water use across the board will do more harm than good. Although it has been a mere three years since the Conservation as a Way of Life bill package, it has come as news to some legislators that public water systems have drought contingency plans in place right now and already know how to react to drought conditions. These outreach efforts will continue even after the legislative session concludes on September 10th since there are members who were not in office at the time. And because after this drought ends there will be another one in a few years.

The one item that has moved forward is the process for dealing with delinquent water bills. As called for in the natural resources Budget Trailer Bill that was passed in June, The State Water Resources Control Board is surveying water districts to determine the scope of the problem. We also now know how wastewater arrearages will be addressed, which is to wait until January and see if there is any money left over. Although disappointing, getting wastewater covered at all was a major focus of early lobbying efforts.

These reports over the summer have been shorter than usual because this is still shaping up to be a good year as far as legislative bills are concerned. End of session, however, is sometimes called the “silly season” due to surprise amendments to bills that were never discussed in policy committees, but BB&K is pleased to say there is nothing to be alarmed about...yet.

Las Virgenes-Triunfo JPA

Bill Matrix - September 3, 2021

Prepared by Best Best & Krieger

A. Priority Support/Oppose

Measure	Author	Topic	Status	Location	Brief Summary	Position	Notes 1
AB 59	Gabriel D	Mitigation Fee Act: fees: notice and timelines.	4/30/2021-Failed Deadline pursuant to Rule 61(a)(2). (Last location was L. GOV. on 1/11/2021) (May be acted upon Jan 2022)	4/30/2021-A. 2 YEAR	Current law authorizes any party to protest the imposition of a fee, dedication, reservation, or other exactions imposed on a development project within 90 or 120 days of the imposition of the fee, as applicable, and specifies procedures for those protests and actions. The Mitigation Fee Act imposes the same requirements on a local agency for a new or increased fee for public facilities. Current law, for specified fees, requires any judicial action or proceeding to attack, review, set aside, void, or annul an ordinance, resolution, or motion adopting a new fee or service charge or modifying an existing fee or service charge to be commenced within 120 days of the effective date of the ordinance, resolution, or motion. Current law also provides that, if an ordinance, resolution, or motion provides for an automatic adjustment in a fee or service charge and the adjustment results in an increase in the fee or service charge, that any action to attack, review, set aside, void, or annul the increase to be commenced within 120 days of the increase. This bill would increase, for fees and service charges and for fees for specified public facilities, the time for mailing the notice of the time and place of the meeting to at least 45 days before the meeting.	Opposition	
AB 377	Rivas, Robert D	Water quality: impaired waters.	5/25/2021-Failed Deadline pursuant to Rule 61(a)(5). (Last location was APPR. SUSPENSE FILE on 5/19/2021) (May be acted upon Jan 2022)	5/25/2021-A. 2 YEAR	Would require, by January 1, 2023, the State Water Resources Control Board and regional boards to prioritize enforcement of all water quality standard violations that are causing or contributing to an exceedance of a water quality standard in a surface water of the state. The bill would require the state board and regional boards, by January 1, 2025, to evaluate impaired state surface waters and report to the Legislature a plan to bring all water segments into attainment by January 1, 2050. The bill would require the state board and regional boards to update the report with a progress summary to the Legislature every 5	Opposition	Amended March 8th.

					years. The bill would create the Waterway Recovery Account in the Waste Discharge Permit Fund and would make moneys in the Waterway Recovery Account available for the state board to expend, upon appropriation by the Legislature, to bring impaired water segments into attainment in accordance with the plan.		
AB 442	Mayes I	Surface Mining and Reclamation Act of 1975: exemption: Metropolitan Water District of Southern California: master reclamation plan.	9/2/2021-Assembly Rule 77 suspended. (Ayes 43. Noes 12.) Senate amendments concurred in. To Engrossing and Enrolling. (Ayes 77. Noes 0.).	9/2/2021-A. ENROLLMENT	The Surface Mining and Reclamation Act of 1975 prohibits a person, with exceptions, from conducting surface mining operations unless, among other things, a permit is obtained from, a specified reclamation plan is submitted to and approved by, and financial assurances for reclamation have been approved by the lead agency for the operation of the surface mining operation. The act exempts certain activities from the provisions of the act, including, among others, emergency excavations or grading conducted by the Department of Water Resources or the Central Valley Flood Protection Board for the specified purposes; surface mining operations conducted on lands owned or leased, or upon which easements or rights-of-way have been obtained, by the Department of Water Resources for the purpose of the State Water Resources Development System or flood control; and surface mining operations on lands owned or leased, or upon which easements or rights-of-way have been obtained, by the Central Valley Flood Protection Board for the purpose of flood control. This bill would additionally exempt from the provisions of the act emergency excavations or grading conducted by the Metropolitan Water District of Southern California (MWD) for its own operations and infrastructure for specified purposes.	Support	
AB 818	Bloom D	Solid waste: premoistened nonwoven disposable wipes.	9/1/2021-Assembly Rule 77 suspended. (Ayes 54. Noes 16.) Senate amendments concurred in. To Engrossing and Enrolling. (Ayes 76. Noes 0.).	9/1/2021-A. ENROLLMENT	Would require, except as provided, certain premoistened nonwoven disposable wipes manufactured on or after July 1, 2022, to be labeled clearly and conspicuously with the phrase “Do Not Flush” and a related symbol, as specified. The bill would prohibit a covered entity, as defined, from making a representation about the flushable attributes, benefits, performance, or efficacy of those premoistened nonwoven disposable wipes, as provided. The bill would establish enforcement provisions, including authorizing a civil penalty not to exceed $2,500 per day, up to a maximum of $100,000 per violation, to be imposed on a covered entity who violates those provisions.	Support	

AB 1434	Friedman D	Urban water use objectives: indoor residential water use.	5/25/2021-Failed Deadline pursuant to Rule 61(a)(5). (Last location was APPR. on 4/27/2021) (May be acted upon Jan 2022)	5/25/2021-A. 2 YEAR	Would establish, beginning January 1, 2023, until January 1, 2025, the standard for indoor residential water use as 48 gallons per capita daily. The bill would establish, beginning January 1, 2025, the standard as 44 gallons per capita daily and, beginning January 1, 2030, 40 gallons per capita daily.	Opposition	
AB 1500	Garcia, Eduardo D	Safe Drinking Water, Wildfire Prevention, Drought Preparation, Flood Protection, Extreme Heat Mitigation, and Workforce Development Bond Act of 2022.	5/20/2021-Joint Rule 62(a), file notice suspended. From committee: Do pass and re-refer to Com. on RLS. (Ayes 12. Noes 3.) (May 20). Re-referred to Com. on RLS.	5/20/2021-A. RLS.	Would enact the Safe Drinking Water, Wildfire Prevention, Drought Preparation, Flood Protection, Extreme Heat Mitigation, and Workforce Development Bond Act of 2022, which, if approved by the voters, would authorize the issuance of bonds in the amount of $7,080,000,000 pursuant to the State General Obligation Bond Law to finance projects for safe drinking water, wildfire prevention, drought preparation, flood protection, extreme heat mitigation, and workforce development programs.	Support if amended	Amend to provide $1.5B for recycling
SB 45	Portantino D	Wildfire Prevention, Safe Drinking Water, Drought Preparation, and Flood Protection Bond Act of 2022.	6/1/2021-Ordered to inactive file on request of Senator Portantino.	6/1/2021-S. INACTIVE FILE	Would enact the Wildfire Prevention, Safe Drinking Water, Drought Preparation, and Flood Protection Bond Act of 2022, which, if approved by the voters, would authorize the issuance of bonds in the amount of $5,595,000,000 pursuant to the State General Obligation Bond Law to finance projects for a wildfire prevention, safe drinking water, drought preparation, and flood protection program.	Support if amended	Same as AB 1500
SB 222	Dodd D	Water Rate Assistance Program.	8/31/2021-Read second time. Ordered to third reading.	8/31/2021-A. THIRD READING	Would establish the Water Rate Assistance Fund in the State Treasury to help provide water affordability assistance, for both drinking water and wastewater services, to low-income ratepayers and ratepayers experiencing economic hardship in California. The bill would require the Department of Community Services and Development to develop and administer the Water Rate Assistance Program established by the bill.	Out for Analysis	
SB 223	Dodd D	Discontinuation of residential water service.	5/25/2021-Failed Deadline pursuant to Rule 61(a)(5). (Last location	5/25/2021-S. 2 YEAR	Current law requires an urban and community water system to have a written policy on discontinuation of residential service for nonpayment, including, among other things, specified options for addressing the nonpayment. Current law requires an urban and community water system to provide	Watch	

			was APPR. SUSPENSE FILE on 5/17/2021) (May be acted upon Jan 2022)		notice of that policy to customers, as provided. This bill would apply those provisions, on and after July 1, 2022, to a very small community water system, defined as a public water system that supplies water to 200 or fewer service connections used by year long residents.		
SB 230	Portantino D	State Water Resources Control Board: Constituents of Emerging Concern Program.	5/25/2021-Failed Deadline pursuant to Rule 61(a)(5). (Last location was APPR. on 3/15/2021) (May be acted upon Jan 2022)	5/25/2021-S. 2 YEAR	Would require the State Water Resources Control Board to establish, maintain, and direct an ongoing, dedicated program called the Constituents of Emerging Concern Program to assess the state of information and recommend areas for further study on, among other things, the occurrence of constituents of emerging concern (CEC) in drinking water sources and treated drinking water. The bill would require the state board to convene, by an unspecified date, the Science Advisory Panel to review and provide recommendations to the state board on CEC for further action, among other duties. The bill would require the state board to provide an annual report to the Legislature on the ongoing work conducted by the panel.	Support	
SB 273	Hertzberg D	Water quality: municipal wastewater agencies.	8/30/2021-Assembly amendments concurred in. (Ayes 39. Noes 0.) Ordered to engrossing and enrolling.	8/30/2021-S. ENROLLMENT	Would authorize a municipal wastewater agency, as defined, to enter into agreements with entities responsible for stormwater management for the purpose of managing stormwater and dry weather runoff, as defined, to acquire, construct, expand, operate, maintain, and provide facilities for specified purposes relating to managing stormwater and dry weather runoff, and to levy taxes, fees, and charges consistent with the municipal wastewater agency's existing authority in order to fund projects undertaken pursuant to the bill. The bill would require the exercise of any new authority granted under the bill to comply with the Cortese-Knox-Hertzberg Local Government Reorganization Act of 2000. The bill would require a municipal wastewater agency that enters into or amends one of these agreements after January 1, 2022, to file a copy of the agreement or amendment with the local agency formation commission in each county where any part of the municipal wastewater agency's territory is located, but would exempt those agreements and amendments from local agency formation commission approval except as required by the Cortese-Knox-Hertzberg Local Government Reorganization Act of	Support	CASA sponsor

					2000.		
SB 323	Caballero D	Local government: water or sewer service: legal actions.	8/23/2021-Read second time. Ordered to third reading.	8/23/2021-A. THIRD READING	Current law prohibits a local agency from imposing fees for specified purposes, including fees for water or sewer connections, as defined, that exceed the estimated reasonable cost of providing the service for which the fee is charged, unless voter approval is obtained. Existing law provides that a local agency levying a new water or sewer connection fee or increasing a fee must do so by ordinance or resolution. Current law requires, for specified fees, including water or sewer connection fees, any judicial action or proceeding to attack, review, set aside, void, or annul an ordinance, resolution, or motion adopting a new fee or service charge or modifying an existing fee or service charge to be commenced within 120 days of the effective date of the ordinance, resolution, or motion according to specified procedures for validation proceedings. Except as provided, this bill would require any judicial action or proceeding to attack, review, set aside, void, validate, or annul an ordinance, resolution, or motion adopting, modifying, or amending water or sewer service fees or charges adopted after January 1, 2022, to be commenced within 120 days of the effective date or the date of final passage, adoption, or approval of the ordinance, resolution, or motion, whichever is later.	Support	
SB 403	Gonzalez D	Drinking water: consolidation.	9/2/2021-Assembly amendments concurred in. (Ayes 30. Noes 9.) Ordered to engrossing and enrolling.	9/2/2021-S. ENROLLMENT	The California Safe Drinking Water Act authorizes the State Water Resources Control Board to order consolidation with a receiving water system where a public water system or a state small water system, serving a disadvantaged community, consistently fails to provide an adequate supply of safe drinking water or where a disadvantaged community is substantially reliant on domestic wells that consistently fail to provide an adequate supply of safe drinking water. This bill would revise those consolidation provisions, including, among other revisions, authorizing the state board to also order consolidation where a water system serving a disadvantaged community is an at-risk water system, as defined, or where a disadvantaged community is substantially reliant on at-risk domestic wells, as defined.	Out for Analysis	

B. Watch

Measure	Author	Topic	Status	Location	Brief Summary	Position	Notes 1

AB 100	Holden D	Drinking water: endpoint devices: lead content.	8/31/2021-Ordered to special consent calendar.	8/31/2021-S. CONSENT CALENDAR	The California Safe Drinking Water Act requires the State Water Resources Control Board to administer provisions relating to the regulation of drinking water to protect public health. Current law prohibits, with certain exceptions, the use of any pipe, pipe or plumbing fitting or fixture, solder, or flux that is not lead free in the installation or repair of any public water system or any plumbing in a facility providing water for human consumption. Current law defines “lead free” for purposes of conveying or dispensing water for human consumption to mean not more than 0.2% lead when used with respect to solder and flux and not more than a weighted average of 0.25% lead when used with respect to the wetted surfaces of pipes and pipe fittings, plumbing fittings, and fixtures.This bill would, commencing January 1, 2023, prohibit a person from manufacturing, and offering for sale in the state, an endpoint device, as defined, that does not meet a certain lead leaching standard. The bill would, commencing July 1, 2023, prohibit a person from introducing into commerce or offering for sale in the state an endpoint device that does not meet that lead leaching standard.	Watch	
AB 339	Lee D	Local government: open and public meetings.	8/26/2021-Read second time. Ordered to third reading.	8/26/2021-S. THIRD READING	The Ralph M. Brown Act requires, with specified exceptions, that all meetings of a legislative body of a local agency, as those terms are defined, be open and public and that all persons be permitted to attend and participate. Under existing law, a member of the legislative body who attends a meeting where action is taken in violation of this provision, with the intent to deprive the public of information that the member knows the public is entitled to, is guilty of a crime. This bill would require local agencies to conduct meetings subject to the act consistent with applicable state and federal civil rights laws, as specified.		
AB 361	Rivas, Robert D	Open meetings: local agencies: teleconferences.	8/31/2021-Read second time. Ordered to third reading.	8/31/2021-S. THIRD READING	Would, until January 1, 2024, authorize a local agency to use teleconferencing without complying with the teleconferencing requirements imposed by the Ralph M. Brown Act when a legislative body of a local agency holds a meeting during a declared state of emergency, as that term is defined, when state or local health officials have imposed or recommended measures to promote social distancing, during a proclaimed state of emergency held for the purpose of determining, by majority vote, whether meeting in person would present imminent risks to the health or safety of attendees, and during a	Watch	

					proclaimed state of emergency when the legislative body has determined that meeting in person would present imminent risks to the health or safety of attendees, as provided.		
AB 703	Rubio, Blanca D	Open meetings: local agencies: teleconferences.	5/7/2021-Failed Deadline pursuant to Rule 61(a)(3). (Last location was L. GOV. on 2/25/2021) (May be acted upon Jan 2021)	5/7/2021-A. 2 YEAR	Current law, by Executive Order N-29-20, suspends the Ralph M. Brown Act's requirements for teleconferencing during the COVID-19 pandemic, provided that notice requirements are met, the ability of the public to observe and comment is preserved, as specified, and that a local agency permitting teleconferencing have a procedure for receiving and swiftly resolving requests for reasonable accommodation for individuals with disabilities, as specified. This bill would remove the notice requirements particular to teleconferencing and would revise the requirements of the act to allow for teleconferencing subject to existing provisions regarding the posting of notice of an agenda, provided that the public is allowed to observe the meeting and address the legislative body directly both in person and remotely via a call-in option or internet-based service option, and that a quorum of members participate in person from a singular physical location clearly identified on the agenda that is open to the public and situated within the jurisdiction.	Watch	
SB 55	Stern D	Very high fire hazard severity zone: state responsibility area: development prohibition: supplemental height and density bonuses.	4/30/2021-Failed Deadline pursuant to Rule 61(a)(2). (Last location was GOV. & F. on 3/3/2021)(May be acted upon Jan 2022)	4/30/2021-S. 2 YEAR	Would, in furtherance of specified state housing production, sustainability communities strategies, greenhouse gas reduction, and wildfire mitigation goals, prohibit the creation or approval of a new development, as defined, in a very high fire hazard severity zone or a state responsibility area unless there is substantial evidence that the local agency has adopted a comprehensive, necessary, and appropriate wildfire prevention and community hardening strategy to mitigate significant risks of loss, injury, or death, as specified. By imposing new duties on local governments with respect to the approval of new developments in very high fire hazard severity zones and state responsibility areas, this bill would impose a state-mandated local program.	Watch	
SB 274	Wieckowski D	Local government meetings: agenda and documents.	8/30/2021-Enrolled and presented to the Governor at 1 p.m.	8/30/2021-S. ENROLLED	The Ralph M. Brown Act requires meetings of the legislative body of a local agency to be open and public and also requires regular and special meetings of the legislative body to be held within the boundaries of the territory over which the local agency exercises jurisdiction, with specified exceptions. Current law authorizes a	Watch	

					person to request that a copy of an agenda, or a copy of all the documents constituting the agenda packet, of any meeting of a legislative body be mailed to that person. This bill would require a local agency with an internet website, or its designee, to email a copy of, or website link to, the agenda or a copy of all the documents constituting the agenda packet if the person requests that the items be delivered by email. If a local agency determines it to be technologically infeasible to send a copy of the documents or a link to a website that contains the documents by email or by other electronic means, the bill would require the legislative body or its designee to send by mail a copy of the agenda or a website link to the agenda and to mail a copy of all other documents constituting the agenda packet, as specified.		
SB 351	Caballero D	Water Innovation Act of 2021.	5/25/2021-Failed Deadline pursuant to Rule 61(a)(5). (Last location was APPR. SUSPENSE FILE on 5/10/2021) (May be acted upon Jan 2022)	5/25/2021-S. 2 YEAR	Current law establishes the State Water Resources Control Board for the purposes of providing for the orderly and efficient administration of the water resources of the state. This bill, the Water Innovation Act of 2021, would create the Office of Water Innovation at the California Water Commission for the furtherance of new technologies and other innovative approaches in the water sector. The bill would require the office, by December 31, 2023, to take specified measures to advance innovation in the water sector. The bill would make findings and declarations regarding the need for water innovation.	Watch	
SB 552	Hertzberg D	Drought planning: small water suppliers: nontransient noncommunity water systems.	8/31/2021-Read second time. Ordered to third reading.	8/31/2021-A. THIRD READING	Current law required the Department of Water Resources, in consultation with the State Water Resources Control Board, to propose to the Governor and the Legislature, by January 1, 2020, recommendations and guidance relating to the development and implementation of countywide drought and water shortage contingency plans to address the planning needs of small water suppliers and rural communities, as provided.This bill would require small water suppliers, as defined, serving 1,000 to 2,999 service connections, inclusive, and nontransient noncommunity water systems that are schools, no later than July 1, 2023, to develop and maintain an abridged Water Shortage Contingency Plan that includes specified drought-planning elements.		
SB 559	Hurtado D	Department of Water Resources: water	8/31/2021-Read second time.	8/31/2021-A. THIRD READING	Would establish the Water Conveyance Restoration Fund in the State Treasury to be administered by the Department of Water Resources in consultation with	Watch	

		conveyance systems: Water Conveyance Restoration Fund.	Ordered to third reading.		the State Water Resources Control Board and the Department of Fish and Wildlife. The bill would require all moneys deposited in the fund to be expended, upon appropriation by the Legislature, in support of subsidence repair costs, including environmental planning, permitting, design, and construction and necessary road and bridge upgrades required to accommodate capacity improvements. The bill would require the Director of Water Resources to apportion money appropriated from the fund, subject to specified requirements, for the Friant-Kern Canal, Delta-Mendota Canal, San Luis Field Division of the California Aqueduct, and San Joaquin Division of the California Aqueduct.		

Total Measures: 22

Total Tracking Forms: 22

BEST BEST & KRIEGER
ATTORNEYS AT LAW

To: Las Virgenes-Triunfo JPA Board of Directors and Staff
From: John Freshman, Ana Schwab, and Lowry Crook
Date: September 7, 2021
RE: Federal Report

Infrastructure Package and Budget Resolution to be Addressed in September

Looking ahead, September will be a busy month for Congress as it needs to address the infrastructure package, 12 appropriation bills, and the $3.5 trillion budget resolution bill. Both chambers still need to write the details of the $3.5 trillion budget bill, the framework of which was passed by party-line votes in both chambers last month. House committees have begun drafting and holding markups of their individual reconciliation bills. Both chambers need to have the details worked out in their chambers by September 15.

Once finalized, the budget package is expected to be passed through the reconciliation process, requiring only a simple majority, which will still be difficult given distinct divisions within the Democratic party. The democratic House and Senate leadership cannot afford to lose many votes from their party members. Both chambers will return in mid-September to begin hearings, markups, and votes on these significant pieces of legislation.

Budget Reconciliation Highlights: Committee on Natural Resources

The House Committee on Natural Resources Democrats revealed their nearly $31 billion reconciliation budget bill, which was supposed to be capped at $26.5 million. The bill provides $500 million over five years for emergency drought relief for Reclamation states and $150 million over five years for tribal drought relief. For research and technology advancements, the bill provides $75 million over 10 years for water resources research and technology institutes and $50 million over 10 years for water technology investment. The Aquatic Ecosystem Restoration program within the Bureau of Reclamation is allocated $250 million over ten years. Additionally, the bill includes a section for large scale water reuse. The program is funded at $100 million over ten years.

The bill also provides $900 million over ten years for wildfire management under the Bureau of Land Management. Funding can be used for fire preparedness, fire science and research, emergency rehabilitation, rural fire assistance, fuels management activities, the renovation or construction of fire facilities, and for expenses necessary to support firefighter workforce reforms.

Infrastructure Package Highlights

Prior to leaving for August recess, the Senate passed the long-awaited infrastructure package. The package totals $1.2 trillion over five years and includes $550 billion in new spending. All Senate Democrats voted in favor of the package, along with 19 Republicans, including Senate

Minority Leader Mitch McConnell. The bill provides large increases in funding for highways, roads, and bridges, as well as investments for water infrastructure and broadband.

The House set an internal deadline to vote on the infrastructure package by September 27. It is unclear what direction the House will take, given calls from progressive members and other factions to negotiate for a larger package that includes more climate resilience and environmental protection measures. The Senate infrastructure package, which also involved negotiations with the White House, is entirely unique from the infrastructure packages passed by the House months prior. House leaders, including Transportation and Infrastructure Chair Peter DeFazio (D-OR), have expressed dissatisfaction with the Senate's solo approach to a monumental infrastructure package.

The infrastructure package includes robust funding for watersheds and western water. The package includes a huge investment for the Bureau of Reclamation: $8.3 billion over five years. The legislation would provide funding for several Bureau of Reclamation water programs including:

- $3.2 billion for aging infrastructure
- $1 billion for rural water projects
- $1.15 billion water storage, groundwater storage, and conveyance projects
- $1 billion for water recycling and reuse projects
- $250 million for water desalination projects
- $400 million for WaterSMART Grants
- $100 million for watershed management projects

The package also includes massive funding for EPA's State and Tribal Assistance Grants (STAG). The package provides $11.71 billion for Clean Water State Revolving Funds and $11.71 billion for Drinking Water State Revolving Funds over five years. A requirement of the funding is 49 percent must be provided to communities in the form of 100 percent forgiveness of principal loans or grants. There is also $5 billion for grants to address emerging contaminants, including PFAS. WIFIA is allocated $75 million in additional funding.

The package addresses wildfire disasters as well. There is $3.37 billion for wildfire forest management under the Department of Agriculture. From that funding, $500 million is designated for a new program, Community Wildfire Defense Grants, which is to be used for forest management. The Emergency Watershed Protection Program is designated $300 million over five years.

Additionally, there is a new pilot program for rural and low-income households to provide assistance for water utilities. The funding for the program would go to water providers in order to assist with direct financial assistance, lifeline rates, bill discounting, special hardship provisions, or debt relief.

Appropriations – Busy Month Ahead for Congress

Prior to leaving for August recess, the Senate Appropriations Committee passed its FY2022 Energy and Water bill. The Senate bill's appropriation numbers are similar to the House Energy and Water bill's numbers. The House passed its Energy and Water bill, along with Interior-Environment and seven other FY2022 appropriations bills, via a legislative minibus at the end of July. The Senate Appropriations Committee will release its Interior-Environment bill, which provides funding for EPA, upon returning in September. Given the busy time period for Congress, it is expected Congress will pass a continuing resolution to allow for more time to negotiate appropriations. However, some less controversial bills, such as Interior-Environment or Energy and Water, may be passed separate from a larger continuing resolution. The timeline will look clearer in mid-September once both chambers are back from recess.

FY2022 Energy and Water Bills

Overall, the House provided $1.95 billion for the Bureau Reclamation, the Senate provided $1.83 billion. Notably, there is a $30 million difference in funding for Title XVI. However, the Senate allocated double the House's number for water storage projects under the WIIN Act, funded at $134 million. Additionally, the Senate Energy-Water bill has a new added provision providing $450 million for emergency funding for severe drought. The House bill does not have this provision.

Agency/Program	FY2022 House Bill	FY2022 Senate Bill
Army Corps of Engineers	$8.66 B	$8.66 B
Investigations	$105.8 M	$153 M
Construction	$2.59 B	$3.0 B
Operations and Maintenance	$4.82 B	$4.68 B
WIFIA (Corps)	$14.20 M	$14.20 M
WIFIA (financial assistance)	$5.70 M	$5.70 M
U.S. Bureau of Reclamation	$1.95 B	$1.83 B
WaterSMART Program:		
WaterSMART grants	$75.00 M	$48.00 M
Water Conservation Field Services Program	$2.32 M	$2.32 M
Cooperative Watershed Management	$10.0 M	$2.25 M
Drought Responses & Comprehensive Drought Plans	$25.00 M	$25.00 M
Title XVI Water Reclamation and Reuse Program	$63.62 M	$32.00 M
R&D Desalination and Water Purification Program	$15.5 M	$19.85 M
Water Conservation and Delivery:		
WIIN Act Sec. 4007 Water Storage Projects	$67 M	$134 M

Aquatic Ecosystem Restoration Program	$5 M	$1 M
Emergency Funding for Severe Drought	$0	$450 M

Waters of the United States (WOTUS)

On August 30, a federal judge struck down the Trump Administration's Navigable Waters Protection Rule (NWPR). U.S. District Court Judge Rosemary Márquez ruled the NWPR needed to be both remanded and vacated due to "[t]he seriousness of the Agencies' error in enacting the NWPR, the likelihood that the Agencies will alter the NWPR's definition of "waters of the United States," and the possibility of serious environmental harm if the NWPR remains in place upon remand." Currently, the Biden Administration is in the process of creating new regulations regarding WOTUS. The EPA has provided guidance, following this decision, and has stated that it will no longer be following the Trump Administration WOTUS Rule. Currently the rule being followed is from 1986, as the Trump Administration's repeal of the Obama Administration WOTUS Rule is still in place.

86 FR 37948 Proposed Rule: Drinking Water Contaminant Candidate List 5-Draft

The EPA is publishing a draft list of contaminants that are currently not subject to any proposed or promulgated national primary drinking water regulations for public review and comment. These contaminants are known or anticipated to occur in public water systems and may require regulation under the Safe Drinking Water Act (SDWA). This draft list is the Fifth Contaminant Candidate List (CCL 5) published by the agency since the SDWA amendments of 1996. The Draft CCL 5 includes 66 chemicals, 3 chemical groups (per- and polyfluoroalkyl substances (PFAS), cyanotoxins, and disinfection byproducts) and 12 microbial contaminants. EPA seeks comment on the Draft CCL 5 and on improvements implemented in the CCL 5 process for consideration in developing future CCLs. Comments must be received on or before September 17, 2021.

LAS VIRGENES-TRIUNFO - HIGH PRIORITY LEGISLATION IN THE 117TH CONGRESS
THROUGH SEPTEMBER 1, 2021

LEGISLATION	SUMMARY	STATUS	POSITION
H.R.202 SALT Fairness Act of 2021	To amend the Internal Revenue Code of 1986 to repeal the limitation on deduction for State and local taxes, and for other purposes.	Introduced by Rep. Mike Garcia (R-CA) – January 5, 2021	
S.29 Local Water Protection Act	A bill to amend the Federal Water Pollution Control Act to reauthorize certain programs relating to nonpoint source management, and for other purposes.	Introduced by Sen. Amy Klobuchar (D-MN) – January 22, 2021	
S.Res.17 A resolution expressing the sense of the Senate that clean water is a national priority and that the April 21, 2020, Navigable Waters Protection Rule should not be withdrawn or vacated.	Expressing the sense of the Senate that clean water is a national priority and that the April 21, 2020, Navigable Waters Protection Rule should not be withdrawn or vacated.	Introduced by Sen. Joni Ernst (R-IA) – January 27, 2021	
H.R.616 Emergency Water is a Human Right Act	To prohibit water shutoffs during the COVID-19 emergency period, provide drinking and waste water assistance to households, and for other purposes.	Introduced by Rep. Rashida Tlaib (D-MI) – January 28, 2021	
S.85 SALT Deductibility Act	To amend the Internal Revenue Code of 1986 to repeal the limitation on the deduction for certain taxes, including State and local property and income taxes.	Introduced by Sen. Chuck Schumer (D-NY) – January 28, 2021	
H.R.613 SALT Deductibility Act	*(Companion bill to S.85).*	Introduced by Rep. Thomas Suozzi (R-NY) – January 28, 2021	

LEGISLATION	SUMMARY	STATUS	POSITION
S.101 Environmental Justice Mapping and Data Collection Act of 2021	To establish the Environmental Justice Mapping Committee, and for other purposes.	Introduced by Sen. Edward Markey (D-MA) – January 28, 2021	
H.R.516 Environmental Justice Mapping and Data Collection Act of 2021	*(Companion bill to S.101).*	Introduced by Rep. Cori Bush (D-MO) – January 28, 2021	
H.R.535 Special District Provide Essential Services Act	The bill would require the state's to direct at least five percent of future Coronavirus Relief Fund (CRF) allocations to special districts within their state.	Introduced by Rep. John Garamendi (D-CA) – January 28, 2021	*SUPPORT*
S.91 Special Districts Provide Essential Services Act	*(Companion bill to H.R. 535)*	Introduced by Sen. Kyrsten Sinema (D-AZ) – January 28, 2021	*SUPPORT*
H.R.737 RENEW WIIN Act	The RENEW WIIN Act would extend the general and operations provisions of Subtitle J of the WIIN Act and extend the provision requiring consultation on coordinated operations of the Central Valley Project and State Water Project. The legislation would also extend the authorization of appropriations for water storage projects that the Secretary of the Interior finds feasible.	Introduced by Rep. David Valadao (R-CA) – February 2, 2021	*SUPPORT*
H.R. 692 Recognition of Local Interests in NEPA Decision Making	To amend the National Environmental Policy Act of 1969 to provide a rule to determine venue for a proceeding for judicial review of certain agency actions.	Introduced by Rep. Liz Cheney (R-WY) – February 2, 2021	
H.R.848 GREEN Act of 2021	To amend the Internal Revenue Code of 1986 to provide incentives for renewable energy and energy efficiency, and for other purposes.	Introduced by Rep. Mike Thompson (D-CA) – February 4, 2021	

LEGISLATION	SUMMARY	STATUS	POSITION
H.Res.104 Recognizing the duty of the Federal Government to implement an agenda to Transform, Heal, and Renew by Investing in a Vibrant Economy ("THRIVE")	Recognizing the duty of the Federal Government to implement an agenda to Transform, Heal, and Renew by Investing in a Vibrant Economy ("THRIVE").	Introduced by Rep. Debbie Dingell (D-MI) – February 5, 2021	
S.Res.43 A resolution recognizing the duty of the Federal Government to implement an agenda to Transform, Heal, and Renew by Investing in a Vibrant Economy ("THRIVE")	Recognizing the duty of the Federal Government to implement an agenda to Transform, Heal, and Renew by Investing in a Vibrant Economy ("THRIVE").	Introduced by Rep. Edward Markey (D-MA) – February 8, 2021	
H.R.946 SALT Act	To amend the Internal Revenue Code of 1986 to repeal the dollar limitation on deduction of State and local taxes, and for other purposes.	Introduced by Rep. Bill Pascrell (D-NJ) – February 8, 2021	
H.R.1015 Water Recycling Investment and Improvement Act	To extend the authorization of the Bureau of Reclamation – Title XVI competitive grants program and increase the authorized funding level from $50 million to $500 million. Further, the legislation expands the geographic scope requirement that projects be located in sustained drought or disaster areas. The legislation also removes the requirement that Congress sign-off on each selected project, and modernizes the individual program funding cap from $20 million to $30 million.	Introduced by Rep. Grace Napolitano (D-CA) – February 11, 2021	*SUPPORT*
H.R.988 Recreational Lands Self-Defense Act of 2021	To protect the right of individuals to bear arms at water resources development projects administered by the Secretary of the Army, and for other purposes.	Introduced by Rep. Bob Gibbs (R-OH) – February 11, 2021	
H.R.1066 Wildfire Recovery Act	To amend the Robert T. Stafford Disaster Relief and Emergency Assistance Act to provide flexibility with the cost share for fire management assistance, and for other purposes.	Introduced by Rep. Joe Neguse (D-CO) – February 15, 2021	

LEGISLATION	SUMMARY	STATUS	POSITION
S.421 Western Tribal Water Infrastructure Act of 2021	To amend the America's Water Infrastructure Act of 2018 to expand the Indian reservation drinking water program, and for other purposes.	Introduced by Sen. Ron Wyden (D-OR) – February 24, 2021 Placed on the Senate Legislative Calendar – April 28, 2021	
H.R.1319 American Rescue Plan Act of 2021	To provide for reconciliation pursuant to title II of S. Con. Res. 5.	Introduced by Rep. John Yarmuth (D-KY) – February 24, 2021 Became Public Law No: 117-2 – March 11, 2021	*SUPPORT*
H.R.1352 Water Affordability, Transparency, Equity, and Reliability Act of 2021	To establish a trust fund to provide for adequate funding for water and sewer infrastructure, and for other purposes.	Introduced by Rep. Brenda Lawrence (D-MI) – February 25, 2021	
S.479 Lifting Our Communities through Advance Liquidity for Infrastructure (LOCAL Infrastructure) Act of 2021	A bill to amend the Internal Revenue Code of 1986 to reinstate advance refunding bonds.	Introduced by Sen. Roger Wicker (R-MS) – February 25, 2021	*SUPPORT*
H. R. 1438 FLOODS Act	To establish a national integrated flood information system within the National Oceanic and Atmospheric Administration, and for other purpose	Introduced by Rep. Mikie Sherrill (D-NJ) – February 26, 2021	

LEGISLATION	SUMMARY	STATUS	POSITION
S.498 A bill to amend title 54, United States Code, to limit the authority to reserve water rights in designating a national monument	To amend title 54, United States Code, to limit the authority to reserve water rights in designating a national monument.	Introduced by Sen. Mike Lee (R-UT) – March 1, 2021	
S.558 FLOODS Act	To establish a national integrated flood information system within the National Oceanic and Atmospheric Administration, and for other purposes.	Introduced by Sen. Roger Wicker (R-MS) – March 3, 2021 Ordered to be reported – April 28, 2021	
H.R.1563 To extend the authorities under the Water Infrastructure Improvements for the Nation Act of 2016 providing operational flexibility, drought relief, and other benefits to the State of California	To extend the authorities under the Water Infrastructure Improvements for the Nation Act of 2016 providing operational flexibility, drought relief, and other benefits to the State of California.	Introduced by Rep. Mike Garcia (R-CA) – March 3, 2021	
H.R.1679 To prohibit the Secretary of the Interior and the Secretary of Agriculture from conditioning any permit, lease, or other use agreement on the transfer of any water right to the United States, and for other purposes	To prohibit the Secretary of the Interior and the Secretary of Agriculture from conditioning any permit, lease, or other use agreement on the transfer of any water right to the United States, and for other purposes.	Introduced by Rep. Lauren Boebert (R-CO) – March 9, 2021	

LEGISLATION	SUMMARY	STATUS	POSITION
H.R.1804 Community Cleanup Act	To amend the public participation requirements of the Comprehensive Environmental Response, Compensation, and Liability Act of 1980, and for other purposes.	Introduced by Rep. Earl Carter (R-GA) – March 11, 2021	
H.R.1844 STOP CSO Act of 2021	To amend the Federal Water Pollution Control Act to ensure that publicly owned treatment works monitor for and report sewer overflows, and for other purpose.	Introduced by Rep. Seth Moulton (D-MA) – March 11, 2021	
S.715 NEPA Data Transparency and Accountability Act	To amend the National Environmental Policy Act of 1969 to require the submission of certain reports, and for other purposes.	Introduced by Sen. Mike Lee (R-UT) – March 11, 2021	
S.716 NEPA Legal Reform Act	To amend the National Environmental Policy Act of 1969 to provide for legal reform, and for other purposes.	Introduced by Sen. Mike Lee (R-UT) – March 11, 2021	
S.717 UNSHACKLE Act	To amend the National Environmental Policy Act of 1969 to impose time limits on the completion of certain required actions under the Act, and for other purposes.	Introduced by Sen. Mike Lee (R-UT) – March 11, 2021	
S.718 NEPA Agency Process Accountability Act	To amend the National Environmental Policy Act of 1969 to reform agency process requirements, and for other purposes.	Introduced by Sen. Mike Lee (R-UT) – March 11, 2021	
S.719 NEPA State Assignment Expansion Act	To amend the National Environmental Policy Act of 1969 to provide for project delivery programs, and for other purposes.	Introduced by Sen. Mike Lee (R-UT) – March 11, 2021	

LEGISLATION	SUMMARY	STATUS	POSITION
H.R.1848 Leading Infrastructure for Tomorrow's America Act	To rebuild and modernize the Nation's infrastructure to expand access to broadband and Next Generation 9-1-1, rehabilitate drinking water infrastructure, modernize the electric grid and energy supply infrastructure, redevelop brownfields, strengthen health care infrastructure, create jobs, and protect public health and the environment, and for other purposes.	Introduced by Rep. Frank Pallone (D-NJ) – March 11, 2021 Committee on Energy and Commerce held a hearing – March 22, 2021	
H.R.1820 RETROACTIVE Policy Act	To amend the Federal Water Pollution Control Act to clarify when the Administrator of the Environmental Protection Agency has the authority to prohibit the specification of a defined area, or deny or restrict the use of a defined area for specification, as a disposal site under section 404 of such Act, and for other purposes.	Introduced by Rep. Bob Gibbs (R-OH) – March 11, 2021	
H.R.1881 To amend the Federal Water Pollution Control Act with respect to permitting terms, and for other purposes	To amend the Federal Water Pollution Control Act with respect to permitting terms, and for other purposes.	Introduced by Rep. John Garamendi (D-CA) – March 12, 2021	*SUPPORT*
H.R. 1821 RURAL Act	To amend the Federal Insecticide, Fungicide, and Rodenticide Act and the Federal Water Pollution Control Act to clarify Congressional intent regarding the regulation of the use of pesticides in or near navigable waters, and for other purposes.	Introduced by Rep. Bob Gibbs (R-OH) – March 11, 2021	

LEGISLATION	SUMMARY	STATUS	POSITION
H.R.1889 Environmental Justice for Coronavirus Affected Communities Act	To require the Administrator of the Environmental Protection Agency to continue to carry out certain programs relating to environmental justice, and for other purposes.	Introduced by Rep. Raul Ruiz (D-CA) – March 12, 2021	
H.R.1915 Water Quality Protection and Job Creation Act of 2021	To amend the Federal Water Pollution Control Act to reauthorize certain water pollution control programs, and for other purposes.	Introduced by Rep. Peter DeFazio (D-OR) – March 16, 2021 Passed via legislative vehicle H.R. 3684 – July 1, 2021	
S.804 SALT Deduction Fairness Act	To amend the Internal Revenue Code of 1986 to increase the limitation on the amount individuals filing jointly can deduct for certain State and local taxes.	Introduced by Rep. Susan Collins (D-ME) – March 17, 2021	
H.R.2021 Environmental Justice For All Act	To restore, reaffirm, and reconcile environmental justice and civil rights, and for other purposes.	Introduced by Rep. Raul Grijalva (D-AZ) – March 18, 2021	
S.855 Water Rights Protection Act of 2021	To prohibit the conditioning of any permit, lease, or other use agreement on the transfer of any water right to the United States by the Secretary of the Interior and the Secretary of Agriculture, and for other purposes.	Introduced by Sen. John Barrasso (R-WY) – March 18, 2021	
S.872 Environmental Justice For All Act	*(Companion bill to H.R.2021)*	Introduced by Sen. Tammy Duckworth (D-IL) – March 18, 2021	

LEGISLATION	SUMMARY	STATUS	POSITION
H.R.2095 To require the Secretary of the Army to conduct a study to determine the costs for the Corps of Engineers to ensure that certain project activities authorized under Nationwide Permit 14 comply with public safety conditions, and for other purposes.	To require the Secretary of the Army to conduct a study to determine the costs for the Corps of Engineers to ensure that certain project activities authorized under Nationwide Permit 14 comply with public safety conditions, and for other purposes.	Introduced by Rep. Billy Long (R-MO) – March 22, 2021	
S.914 Drinking Water and Wastewater Infrastructure Act of 2021	To amend the Safe Drinking Water Act and the Federal Water Pollution Control Act to reauthorize programs under those Acts, and for other purposes.	Introduced by Sen. Tammy Duckworth (D-IL) – March 24, 2021 Passed in the Senate. Report filed by Sen. Tom Carper (D-DE) - May 10, 2021	
H.R.2008 Local Water Protection Act	To amend the Federal Water Pollution Control Act to reauthorize certain programs relating to nonpoint source management, and for other purposes.	Introduced by Rep. Angie Craig (D-MN) – March 24, 2021 Passed House. Received in the Senate – June 16, 2021	
H.R.2173 Wastewater Workforce Investment Act	To amend the Federal Water Pollution Control Act with respect to wastewater infrastructure workforce development, and for other purposes.	Introduced by Rep. Greg Stanton (D-AZ) – March 23, 2021	

LEGISLATION	SUMMARY	STATUS	POSITION
S.939 IMAGINE Act	To encourage the research and use of innovative materials and associated techniques in the construction and preservation of the domestic transportation and water infrastructure system, and for other purposes.	Introduced by Sen. Sheldon Whitehouse (D-RI) – March 24, 2021	
S.953 Water for Conservation and Farming Act	To provide for drought preparedness and improved water supply reliability.	Introduced by Sen. Ron Wyden (D-OR) – March 24, 2021	
H.R.2197 IMAGINE Act	*(Companion bill to S.939).*	Introduced by Rep. David Cicilline (D-RI) – March 26, 2021	
H.R.2288 Investing in Our Communities Act	To amend the Internal Revenue Code of 1986 to reinstate advance refunding bonds.	Introduced by Rep. Dutch Ruppersberger (D-MD) – March 29, 2021	
H.R.2397 Protection from Cumulative Emissions and Underenforcement of Environmental Law Act of 2021	To advance environmental justice by addressing cumulative impacts and underenforcement, and for other purposes.	Introduced by Diana DeGette (D-CO) – April 8, 2021	
H.R.2434 Environmental Justice Act of 2021	To require Federal agencies to address environmental justice, to require consideration of cumulative impacts in certain permitting decisions, and for other purposes.	Introduced by Rep. Raul Ruiz (D-CA) – April 8, 2021	
H.R.2442 Climate Justice Grants Act	To require the Administrator of the Environmental Protection Agency to carry out a grant program for projects and activities to address climate justice concerns of environmental justice communities, and for other purposes.	Introduced by Rep. Nanette Diaz Barragan (D-CA) – April 12, 2021	

LEGISLATION	SUMMARY	STATUS	POSITION
H.R.2467 PFAS Action Act of 2021	To require the Administrator of the Environmental Protection Agency to designate per- and polyfluoroalkyl substances as hazardous substances under the Comprehensive Environmental Response, Compensation, and Liability Act of 1980.	Introduced by Rep. Debbie Dingell (D-MI) – April 13, 2021 Passed by the House; received in the Senate – July 22, 2021	
H.R.2468 Made in America Act of 2021	To ensure that certain materials used in carrying out Federal infrastructure aid programs are made in the United States, and for other purposes.	Introduced by Rep. John Garamendi (D-CA) – April 13, 2021	
S.1094 Made in America Act of 2021	*(Companion bill to H.R.2468).*	Introduced by Sen. Tammy Baldwin (D-WI) – April 13, 2021	
H.Res.318 Expressing the sense of the House of Representatives that clean water is a national priority and that the April 21, 2020, Navigable Waters Protection Rule should not be withdrawn or vacated.	Expressing the sense of the House of Representatives that clean water is a national priority and that the April 21, 2020, Navigable Waters Protection Rule should not be withdrawn or vacated.	Introduced by Rep. Mariannette Miller-Meeks (R-IA) – April 14, 2021	
S.1121 PFAS Registry Act of 2021	To require the Secretary of Veterans Affairs to establish and maintain a registry for certain individuals who may have been exposed to per- and polyfluoroalkyl substances due to the environmental release of aqueous film-forming foam on military installations.	Introduced by Sen. Jeanne Shaheen (D-NH) – April 14, 2021	

LEGISLATION	SUMMARY	STATUS	POSITION
H.R.2660 WATER Act	To amend the Federal Water Pollution Control Act to codify the definition of the term "waters of the United States", and for other purposes.	Introduced by Rep. Robert Latta (R-OH) – April 19, 2021	
H.Res.320 Recognizing the critical importance of access to reliable, clean drinking water for Native Americans and Alaska Natives and confirming the responsibility of the Federal Government to ensure such water access.	Recognizing the critical importance of access to reliable, clean drinking water for Native Americans and Alaska Natives and confirming the responsibility of the Federal Government to ensure such water access.	Introduced by Rep. Joe Neguse (D-OH) – April 15, 2021	
S.Res.166 A resolution recognizing the duty of the Federal Government to create a Green New Deal	Recognizing the duty of the Federal Government to create a Green New Deal.	Introduced by Sen. Ed Markey (D-MA) – April 20, 2021	
H.Res.332 Recognizing the duty of the Federal Government to create a Green New Deal	Recognizing the duty of the Federal Government to create a Green New Deal.	Introduced by Rep. Alexandria Ocasio-Cortez (D-NY) – April 21, 2021	
H.R.2673 CERCLA Liability Expansion and Accountability for Negligent and Unjust Pollution Act	To amend the Comprehensive Environmental Response, Compensation, and Liability Act of 1980 to include certain landlocked releases of petroleum, and for other purposes.	Introduced by Earl Blumenauer (D-OR) – April 20, 2021	

LEGISLATION	SUMMARY	STATUS	POSITION
S.1239 A bill to amend the Internal Revenue Code of 1986 to provide an exclusion from gross income for certain waste water management subsidies	To amend the Internal Revenue Code of 1986 to provide an exclusion from gross income for certain waste water management subsidies.	Introduced by Sen. Kirsten Gillibrand (D-NY) – April 20, 2021	
H.R.2674 Superfund Reinvestment Act	To amend the Internal Revenue Code of 1986 to provide for the use of funds in the Hazardous Substance Superfund for the purposes for which they were collected, to ensure adequate resources for the cleanup of hazardous substances under the Comprehensive Environmental Response, Compensation, and Liability Act of 1980, and for other purposes.	Introduced by Rep. Earl Blumenauer (D-OR) – April 21, 2021	
H.R.2742 PFAS Registry Act of 2021	To require the Secretary of Veterans Affairs to establish and maintain a registry for certain individuals who may have been exposed to per- and polyfluoroalkyl substances due to the environmental release of aqueous film-forming foam on military installations.	Introduced by Rep. Chris Pappas (D-OH) – April 21, 2021	
S.1334 PFAS Accountability Act of 2021	A bill to amend the Toxic Substance Control Act to codify a Federal cause of action and a type of remedy available for individuals significantly exposed to per- and polyfluoroalkyl substances, to encourage research and accountability for irresponsible discharge of those substances, and for other purposes**.**	Introduced by Sen. Kirsten Gillibrand (D-NY) – April 22, 2021	
H.R.2751 PFAS Accountability Act of 2021	*(Companion legislation to S. 1334).*	Introduced by Rep. Madeleine Dean (D-PA) – April 22, 2021	

LEGISLATION	SUMMARY	STATUS	POSITION
S.1341 Water Resources Research Amendments Act	To amend the Water Resources Research Act of 1984 to reauthorize grants for and require applied water supply research regarding the water resources research and technology institutes established under that Act.	Introduced by Sen. Ben Cardin (D-MD) - April 22, 2021	
S.1303 Build America, Buy America Act	To ensure that certain Federal infrastructure programs require the use of materials produced in the United States, and for other purposes.	Introduced by Sen. Sherrod Brown (D-OH) – April 22, 2021 Ordered to be reported – May 21, 2021	
H.R.2781 Water Resources Research Amendments Act	*(Companion bill to S.1341).*	Introduced by Rep Josh Harder (D-CA) – April 22, 2021	
H.R.2810 Build America, Buy America Act	*(Companion bill to S.1303).*	Introduced by Rep. Tim Ryan (D-OH) – April 22, 2021 Committee on Natural Resources hearing – May 4, 2021	
H.R.2895 REPAIR Act	To facilitate efficient investments and financing of infrastructure projects and new, long-term job creation through the establishment of an Infrastructure Financing Authority, and for other purposes.	Introduced by Rep. Scott Peters (D-CA) – April 28, 2021	
H.R.2952 WISE Act	To amend the Federal Water Pollution Control Act to require a certain percentage of funds appropriated for revolving fund capitalization grants be used for green projects, and for other purposes.	Introduced by Rep. Nikema Williams (R-GA) – April 30, 2021	

LEGISLATION	SUMMARY	STATUS	POSITION
H.R.2979 To amend the Water Infrastructure Finance and Innovation Act of 2014 with respect to the final maturity date of certain loans, and for other purposes	To amend the Water Infrastructure Finance and Innovation Act of 2014 with respect to the final maturity date of certain loans, and for other purposes.	Introduced by Rep. John Garamendi (D-CA) – May 4, 2021	
H.R.3023 Restoring WIFIA Eligibility Act	To amend the Water Infrastructure Finance and Innovation Act of 2014 with respect to budgetary treatment of certain amounts of financial assistance, and for other purposes.	Introduced by Rep. Jim Costa (D-CA) – May 10, 2021	
H.R.3112 Western Water Recycling and Drought Relief Act of 2021	To amend the Reclamation Wastewater and Groundwater Study and Facilities Act to authorize certain recycled water projects, and for other purposes.	Introduced by Rep. Jerry McNerney (D-CA) – May 11, 2021	
H.R.3113 MAPLand Act	To require the Secretary of the Interior, the Secretary of Agriculture, and the Assistant Secretary of the Army for Civil Works to digitize and make publicly available geographic information system mapping data relating to public access to Federal land and waters for outdoor recreation, and for other purposes	Introduced by Rep. Blake Moore (R-UT) – May 11, 2021 Ordered to be Reported – July 17, 2021	

LEGISLATION	SUMMARY	STATUS	POSITION
H.R.3218 Wastewater Infrastructure Improvement Act of 2021	To amend the Federal Water Pollution Control Act to reauthorize certain water pollution control programs, and for other purposes.	Introduced by Rep. David Rouzer (R-NC) – May 13, 2021	
H.R.3267 Protect Drinking Water from PFAS Act of 2021	To amend the Safe Drinking Water Act to require the Administrator of the Environmental Protection Agency to publish a maximum contaminant level goal and promulgate a national primary drinking water regulation for total per- and polyfluoroalkyl substances, and for other purposes.	Introduced by Rep. Brendan Boyle (D-PA) – May 17, 2021	
H.R.3282 Drinking Water Funding for the Future Act of 2021	To reauthorize funding for drinking water programs under the Safe Drinking Water Act and America's Water Infrastructure Act of 2018, and for other purposes.	Introduced by Rep. David McKinley (R-WV) – May 17, 2021	
H.R.3293 Low-Income Water Customer Assistance Programs Act of 2021	To amend the Safe Drinking Water Act and the Federal Water Pollution Control Act to establish programs to assist low-income households in maintaining access to drinking water and wastewater services, and for other purposes.	Introduced by Rep. Lisa Blunt Rochester – (D-DE) – May 18, 2021 Passed via legislative vehicle H.R. 3684 – July 1, 2021	

LEGISLATION	SUMMARY	STATUS	POSITION
H.R.3291 Assistance, Quality, and Affordability Act of 2021	To amend the Safe Drinking Water Act to provide assistance for States, territories, areas affected by natural disasters, and water systems and schools affected by PFAS or lead, and to require the Environmental Protection Agency to promulgate national primary drinking water regulations for PFAS, microcystin toxin, and 1,4-dioxane, and for other purposes.	Introduced by Rep. Paul Tonko (D-NY) – May18, 2021 Passed via legislative vehicle H.R. 3684 – July 1, 2021	
H.R.3292 Water Debt Relief Act of 2021	To require the Administrator of the Environmental Protection Agency to carry out a residential emergency relief program to provide payment assistance for households to retain water service, and for other purposes.	Introduced by Rep. Debbie Dingell (D-MI) – May 18, 2021	
H.R.3339 National Infrastructure Bank Act of 2021	To facilitate efficient investments and financing of infrastructure projects and new job creation through the establishment of a National Infrastructure Bank, and for other purposes.	Introduced by Rep. Danny Davis (D-IL) – May 19, 2021	
S.1761 Water Quality Certification Improvement Act of 2021	To amend the Federal Water Pollution Control Act to make changes with respect to water quality certification, and for other purposes.	Introduced by Sen. John Barrasso (R-WY) – May 20, 2021	

LEGISLATION	SUMMARY	STATUS	POSITION
H.R.3404 FUTURE Western Water Infrastructure and Drought Resiliency Act	To provide drought preparedness and improved water supply reliability to the Nation.	Introduced by Rep. Jared Huffman (D-CA) – May 20, 2021	
H.R.3422 Water Quality Certification Improvement Act of 2021	To amend the Federal Water Pollution Control Act to make changes with respect to water quality certification, and for other purposes.	Introduced by Rep. David McKinley (R-WV) – May 20, 2021	
S.1726 21st Century Buy American Act	To amend chapter 83 of title 41, United States Code (popularly referred to as the Buy American Act) and certain other laws with respect to certain waivers under those laws, to provide greater transparency regarding exceptions to domestic sourcing requirements, and for other purposes.	Introduced by Sen. Chris Murphy (D-CT) – May 20, 2021	
H.R.3473 Build Local, Hire Local Act	*(Companion bill to S.1827).*	Introduced by Rep. Karen Bass (D-CA) – May 25, 2021	
S.1827 Build Local, Hire Local Act	To establish an expansive infrastructure program to create local jobs and raise the quality of life in every community, to launch middle class career pathways in infrastructure, and to invest in high-quality American jobs, and for other purposes.	Introduced by Sen. Kirsten Gillibrand (D-NY) – May 25, 2021	
S.1907 Clean Water Standards for PFAS Act of 2021	To require the Administrator of the Environmental Protection Agency to develop effluent limitations guidelines and standards and water quality criteria for PFAS under the Federal Water Pollution Control Act, to provide Federal grants to publicly owned treatment works to implement such guidelines and standards, and for other purposes.	Introduced by Sen. Kirsten Gillibrand (D-NY) – May 27, 2021	

LEGISLATION	SUMMARY	STATUS	POSITION
S.1855 Wildfire Emergency Act of 2021	To direct the Secretary of Agriculture to select and implement landscape-scale forest restoration projects, to assist communities in increasing their resilience to wildfire, and for other purposes.	Introduced by Sen. Dianne Feinstein (D-CA) – May 26, 2021	
H.R.3622 Clean Water Standards for PFAS Act of 2021	*(Companion bill to S.1907).*	Introduced by Rep. Chris Pappas (D-NH) – May 28, 2021	
H.R.3684 INVEST in America Act	To authorize funds for Federal-aid highways, highway safety programs, and transit programs, and for other purposes.	Introduced by Rep. Peter DeFazio (D-OR) – June 4, 2021 Passed in the Senate with an amendment; Received in the House - August 16, 2021	
H.R.3691 Wastewater Infrastructure Modernization Act	To amend the Federal Water Pollution Control Act to establish a smart wastewater infrastructure technology grant program, and for other purposes.	Introduced by Rep. Carolyn Bourdeux (D-GA) – June 4, 2021	

LEGISLATION	SUMMARY	STATUS	POSITION
H.R.3722 21st Century Infrastructure Bank Act	To establish the 21st Century American Infrastructure Bank, and for other purposes.	Introduced by Rep. Sean Maloney (D-NY) – June 4, 2021	
H.R.3701 PIPE Act	To establish water infrastructure grant programs.	Introduced by Rep. Antonio Delgado (D-NY) – June 4, 2021	
H.R.3751 Clean Water Infrastructure Resilience and Sustainability Act of 2021	To amend the Federal Water Pollution Control Act to establish a program to make grants to eligible entities to increase the resilience of publicly owned treatment works to natural disasters, and for other purposes.	Introduced by Rep. Salud Carbajal (D-CA) – June 8, 2021	
H.R.3814 UNSHACKLE Act	To amend the National Environmental Policy Act of 1969 to impose time limits on the completion of certain required actions under the Act, and for other purposes.	Introduced by Rep. Liz Cheney (R-WY) – June 11, 2021	

LEGISLATION	SUMMARY	STATUS	POSITION
H.R.4018 NEED Water Act	To amend the Federal Water Pollution Control Act to modify the definition of navigable waters, and for other purposes.	Introduced by Rep. David Valadao (R-CA) – June 17, 2021	
S.2168 Define WOTUS Act of 2021	*(Companion bill to H.R.4018).*	Introduced by Rep. Mike Braun (R-IN) – June 22, 2021	
H.R.4069 Septic Upgrade Grant Act	To amend the Federal Water Pollution Control Act to provide for additional subsidization assistance to a municipality to carry out on-site wastewater treatment system projects, and for other purposes**.**	Introduced by Thomas Suozzi (D-NY) – June 22, 2021	
H.R.4099 Large-Scale Water Recycling Project Investment Act	To direct the Secretary of the Interior to establish a grant program to provide grants on a competitive basis to eligible entities for large-scale water recycling and reuse projects, and for other purposes.	Introduced by Rep. Grace Napolitano (D-CA) – June 23, 2021 House Natural Resources Subcommittee on Water, Oceans, and Wildlife hearing held – June 29, 2021	
S.2286 Western Water, Jobs, and Infrastructure Act	To authorize the Secretary of the Interior to use designated funding to pay for construction of authorized rural water projects, and for other purposes.	Introduced by Sen. Jon Tester (D-MT) – June 24, 2021	
H.R.4224 PFAS Transparency Act	To require, pursuant to the Federal Water Pollution Control Act, disclosure of the introduction of perfluoroalkyl or polyfluoroalkyl substances into treatment works, and for other purposes.	Introduced by Rep. Antonio Delgado (D-NY) – June 29, 2021	

LEGISLATION	SUMMARY	STATUS	POSITION
H.R.4284 Clean Drinking Water Equity Act	To amend the Safe Drinking Water Act with respect to assistance for disadvantaged communities, and for other purposes.	Introduced by Rep. Raul Ruiz (D-CA) – June 30, 2021	
H.R.4336 NEPA State Assignment Expansion Act	To amend the National Environmental Policy Act of 1969 to provide for project delivery programs, and for other purposes.	Introduced by Rep. David Schweikert (R-AZ) – July 1, 2021	
H.R.4372 Department of the Interior, Environment, and Related Agencies Appropriations Act, 2022	Making appropriations for the Department of the Interior, environment, and related agencies for the fiscal year ending September 30, 2022, and for other purposes.	Introduced by Rep. Chellie Pingree (D-ME) – July 6, 2021 Passed via legislative minibus H.R.4502 – August 3, 2021	
S.2334 Large Scale Water Recycling Project and Drought Resiliency Investment Act	*(Companion bill to H.R.4099).*	Introduced by Sen. Catherine Cortez Masto (D-NV) – July 13, 2021	

LEGISLATION	SUMMARY	STATUS	POSITION
H.R.4413 National Infrastructure Development Bank Act of 2021	To facilitate efficient investments and financing of infrastructure projects and new job creation through the establishment of a National Infrastructure Development Bank, and for other purposes.	Introduced by Rep. Rosa DeLauro (D-CT) – July 13, 2021	
S.2361 Green Retrofits Act	To reauthorize the budget-neutral demonstration program for energy and water conservation at multifamily residential units, to establish a green retrofit program, and for other purposes.	Introduced by Sen. John Reed (D-RI) – July 15, 2021	
H.R.4502 Labor, Health and Human Services, Education, Agriculture, Rural Development, Energy and Water Development, Financial Services and General Government, Interior, Environment, Military Construction, Veterans Affairs, Transportation, and Housing and Urban Development Appropriations Act, 2022	Making appropriations for the Departments of Labor, Health and Human Services, and Education, and related agencies for the fiscal year ending September 30, 2022, and for other purposes.	Introduced by Rep. Rosa DeLauro (D-CT) – July 19, 2021 Passed the House; received in the Senate – August 3, 2021	
H.R.4549 Energy and Water Development and Related Agencies Appropriations Act, 2022	Making appropriations for energy and water development and related agencies for the fiscal year ending September 30, 2022, and for other purposes.	Introduced by Rep. Marcy Kaptur (D-OH) – July 20. 2021 Passed via legislative minibus H.R.4502 – August 3, 2021	

LEGISLATION	SUMMARY	STATUS	POSITION
H.R.4570 Define WOTUS Act of 2021	To amend the Federal Water Pollution Control Act to modify the definition of navigable waters, and for other purposes.	Introduced by Rep. Mary Miller (R-IL) – July 20,2021	
S.2404 Western Wildfire Support Act of 2021	To improve Federal activities relating to wildfires, and for other purposes.	Introduced by Sen. Catherine Cortez Masto (D-NV) – July 20, 2021	
S.2406 Protect Drinking Water from PFAS Act of 2021	To amend the Safe Drinking Water Act to require the Administrator of the Environmental Protection Agency to set maximum contaminant levels for certain chemicals, and for other purposes.	Introduced by Sen. Kirsten Gillibrand (D-NY) – July 21, 2021	
H.R.4597 Clean Water SRF Parity Act	To amend the Federal Water Pollution Control Act to make certain projects and activities eligible for financial assistance under a State water pollution control revolving fund, and for other purposes.	Introduced by Rep. John Garamendi (D-CA) – July 21, 2021	
H.R.4602 WIPPES Act	To direct the Federal Trade Commission to issue regulations requiring certain products to have "Do Not Flush" labeling, and for other purposes.	Introduced by Rep. Alan Lowenthal (D-CA) – July 21, 2021	
S.2454 Water Reuse and Resiliency Act of 2021	To amend the Federal Water Pollution Control Act to reauthorize the pilot program for alternative water source projects, and for other purposes.	Introduced by Sen. Alex Padilla (D-CA) – July 22, 2021	
H.R.4647 Water Conservation Rebate Tax Parity Act	To amend the Internal Revenue Code of 1986 to expand the exclusion for certain conservation subsidies to include subsidies for water conservation or efficiency measures and storm water management measures.	Introduced by Rep. Jared Huffman (D-CA) – July 22, 2021	
H.R.4712 Desalination Development Act	To promote desalination project development and drought resilience, and for other purposes.	Introduced by Rep. Mike Levin (D-CA) – July 27, 2021	

LEGISLATION	SUMMARY	STATUS	POSITION
H.R.4614 Resilient Federal Forests Act	To expedite under the National Environmental Policy Act of 1969 and improve forest management activities on National Forest System lands, on public lands under the jurisdiction of the Bureau of Land Management, and on Tribal lands to return resilience to overgrown, fire-prone forested lands, and for other purposes.	Introduced by Repl. Bruce Westerman (R-AR) – July 22, 2021	
S.2567 Navigable Waters Protection Act of 2021	To enact the definition of "waters of the United States" into law, and for other purposes.	Introduced by Sen. Shelley Capito (R-WV) – July 29, 2021	
S.2605 Energy and Water Development and Related Agencies Appropriations Act, 2022	Making appropriations for energy and water development and related agencies for the fiscal year ending September 30, 2022, and for other purposes.	Introduced by Sen. Dianne Feinstein (D-CA) – August 4, 2021 Passed the Appropriations Committee; Placed on the Senate calendar – August 4, 2021	
S.2630 Environmental Justice Act of 2021	To require Federal agencies to address environmental justice, to require consideration of cumulative impacts in certain permitting decisions, and for other purposes.	Introduced by Sen. Cory Booker (D-NJ) – August 5, 2021	

LEGISLATION	SUMMARY	STATUS	POSITION
H.R.4976 Ensuring PFAS Cleanup Meets or Exceeds Stringent Standards Act	To direct the Secretary of Defense to ensure that removal and remedial actions relating to PFAS contamination result in levels meeting or exceeding certain standards, and for other purposes.	Introduced by Rep. Elissa Slotkin (D-MI) – August 6, 2021	
H.R.4979 Maintaining Access to Essential Services Act of 2021	To provide emergency loans to maintain access to essential services during the COVID–19 pandemic, and for other purposes.	Introduced by Rep. Rashia Tlaib (D-MI) – August 6, 2021	
S.2698 Stop CATASTROPHES Act	To establish a categorical exclusion to improve or restore National Forest System land or public land or reduce the risk of wildfire, and for other purposes.	Introduced by Sen. Cynthia Lummis (R-WY) – August 10, 2021	
S.Con.Res.14 A concurrent resolution setting forth the congressional budget for the United States Government for fiscal year 2022 and setting forth the appropriate budgetary levels for fiscal years 2023 through 2031	Congress declares that this resolution is the concurrent resolution on the budget for fiscal year 2022 and that this resolution sets forth the appropriate budgetary levels for fiscal years 2023 through 2031.	Introduced by Sen. Bernie Sanders (I-VT) – August 9. 2021 Passed in the House – August 24, 2021	

ITEM 5B

INFORMATION ONLY

September 13, 2021 JPA Board Meeting

TO: JPA Board of Directors

FROM: General Manager

Subject : Pure Water Project Las Virgenes-Triunfo: Update

SUMMARY:

On August 1, 2016, the JPA Board selected Scenario No. 4, use of Las Virgenes Reservoir for indirect potable reuse, as the preferred alternative for the Recycled Water Seasonal Storage Basis of Design Report. The selected alternative was subsequently renamed the *Pure Water Project Las Virgenes-Triunfo*. Staff was also directed to report back to the Board on the next steps for implementation of the project.

Staff released a request for proposals (RFP) for Owner's Advisor/Program Manager services for the Pure Water Project Las Virgenes-Triunfo on May 8, 2020. The selection of an Owner's Advisor/Program Manager to support the effort was an important next step to begin implementation of the Pure Water Program. Utilization of an Owner's Advisor/Program Manager is consistent with the approach taken by other public agencies pursuing potable reuse projects of similar scope and complexity. Among the critical elements of the proposed scope are completion of the preliminary design and environmental documentation in support of the Pure Water Program. The scope of work under the contract includes program management, preparation of preliminary design and/or alternative delivery bridging documents, preparation of all environmental studies and documentation for compliance with the California Environmental Quality Act (CEQA) and National Environmental Policy Act (NEPA), preparation of studies and documents necessary to secure all required regulatory permits, and support of efforts to secure grant funding or low-interest loans.

On September 8, 2020, the JPA Board accepted a proposal from Jacobs Engineering Group, Inc., and authorized the Administering Agent/General Manager to execute a professional services agreement for Owner's Advisor/Program Manager services for the Pure Water Project Las Virgenes-Triunfo. This report serves to provide a summary of the progress to-date on the work performed by Jacobs Engineering Group, Inc., including major monthly milestones, key program accomplishments, key considerations and a look-ahead of upcoming activities.

FISCAL IMPACT:

No

ITEM BUDGETED:

No

Prepared by: Eric Schlageter, Principal Engineer

ATTACHMENTS:

Monthly Update on Pure Water Project Las Virgenes-Triunfo
Notice of Preparation of Programmatic Environmental Impact Report

To: Las Virgenes-Triunfo JPA Board of Directors

From: Jennifer Phillips, Jacobs Engineering Group Inc.

Date: August 31, 2021

Re: Pure Water Project JPA Board Monthly Update

Pure Water Project Overview

The Pure Water Project (PWP) is an opportunity to proactively address three major challenges facing the Las Virgenes-Triunfo JPA:

- comply with more stringent regulatory requirements for discharging to Malibu Creek,
- balance seasonal variation of recycled water demand, and
- create a valuable resource to supplement the region's water supplies, enabled by California's cutting-edge reservoir water augmentation program.

By 2030, the innovative plan is to have an operational advanced water purification facility (AWPF) to treat tertiary effluent from the Tapia Water Reclamation Facility for indirect potable reuse, and convey the product water to the Las Virgenes Reservoir, where it will be blended with Metropolitan Water District (MWD) supply. The current phase (Phase 1) of the project provides the programmatic process to manage such a large, complicated project, focusing on the technical, regulatory, environmental, financial, and procurement strategies to provide a foundation with more cost and project delivery clarity. Each month the Project team will provide a status report to communicate major milestones, accomplishments for the previous month, planned work for the next month, and potential challenges.

Monthly Major Milestones

- Met with the Los Angeles Regional Water Quality Control Board (RWQCB) to reintroduce the PWP.
- Prepared California Environmental Quality Act (CEQA) Notice of Preparation (NOP) for distribution.
- Completed and submitted final TM for the Capacity of Discharge Point 005 and a draft TM on AWPF Flow Management.
- Conducted additional AWPF site surveys and visited potential conveyance alignments.

Key Program Accomplishments Last Month

Following is a summary of the key August 2021 program accomplishments. Many PWP team meetings occurred in August to plan, coordinate and implement the following activities:

August Accomplishments:

Programmatic:

- Coordinated technical, financial, regulatory and CEQA efforts.

Technical:

- Presented results from "*Tapia Water Reclamation Facility and New AWPF Flow Management*" for overall operating considerations at a workshop on August 3rd. Submitted draft TM on August 19th.
- Presented updates for the Water Augmentation Evaluation to LVMWD staff, including non-monetary criteria evaluation and costs at workshops on August 4th and 24th.
- Participated in a review of the water quality data of the Demo Facility on August 5th.
- Continued regional brine scaling survey of 15 reverse osmosis facilities to obtain lessons learned and brine scaling mitigation strategies to consider. A summary of the results will be shared with LVMWD staff in September.
- Continued site evaluation and conveyance alignment activities by engaging geotechnical and civil disciplines, and visiting sites on August 24th and 25th with the conveyance team to explore the alignments and gather site information.
- Finalized the Discharge Point 005 Capacity TM and submitted to LVMWD.
- Continued collection and review of data for the Tapia WRF to capture key information observed during the site visit to support the flow characterization, equalization evaluation and chlorination practices review for disinfection byproduct mitigation.

Regulatory/Environmental:

- Met with RWQCB and LVMWD staff on August 19th to reintroduce the project and provide an update on progress. Initial meeting with DDW is scheduled for October.
- Met with LVMWD External Affairs group and submitted draft CEQA NOP for review and comment. Plan to advertise in local newspapers the week of September 6th.

Financial:

- Conducted finance and funding workshop with LVMWD, Triunfo Water and Sanitation District, Piper Sandler, and Raftelis on August 25th to confirm assumptions, review potential revenue increases, and identify funding scenarios to assess preliminary impacts to customer rates from the PWP.

Public Outreach:

- Conducted biweekly calls to provide clarity on CEQA focused support efforts.
- Developed and updated the logistics plan for the Public Scoping Meeting.

Look Ahead

The Project Team is preparing the technical evaluations of each site, evaluating the conveyance alignments, initiating meetings with regulators, meeting with the public through the CEQA scoping meeting, and proceeding with the strategies outlined in the Program Implementation Plan for September.

The Project Team is focused on the following work planned for September:

- CEQA Public Scoping Meeting – September 23
- Brine Scaling Survey Summary

- Tapia WRF chlorination practices review and evaluation
- Tapia WRF and Demo Facility: finalize protocols and begin setup for disinfection byproduct testing and pipe loop testing for purified water and brine conveyance
- Conveyance Alignment Study
- Initial utility letter distribution as part of alignment study and site evaluation
- AWPF Site Assessment for geotechnical, survey, and power

Upcoming JPA Board Meetings:

a. September 13, Board Meeting - Water Augmentation Update

b. October, Special Session - Finance and Funding Update

   Purpose: Present the finance and funding options for the PWP, focusing on available funding sources and impacts to rates for various funding scenarios.

LAS VIRGENES - TRIUNFO JOINT POWERS AUTHORITY
4232 LAS VIRGENES ROAD, CALABASAS, CA 91302
(818) 251-2200

NOTICE OF PREPARATION OF PROGRAMMATIC ENVIRONMENTAL IMPACT REPORT

Date: September 9, 2021

To: Responsible Agencies, Interested Parties and Organizations

Subject: Notice of Preparation (NOP) of a Program Environmental Impact Report (EIR) for the Pure Water Project Las Virgenes-Triunfo

Las Virgenes-Triunfo Joint Powers Authority (JPA), a partnership of Las Virgenes Municipal Water District and Triunfo Water and Sanitation District, proposes a series of projects that will process surplus recycled water, currently discharged to Malibu Creek from the Tapia Water Reclamation Facility, through an advanced treatment facility and store it at Las Virgenes Reservoir for later use as drinking water – collectively, the *Pure Water Project Las Virgenes-Triunfo (Pure Water Project)*. This project has the potential to impact communities within the Las Virgenes-Conejo Valley region, including Thousand Oaks. To adopt and implement the Pure Water Project, the JPA has determined that a Program EIR will be necessary pursuant to the requirements of the California Environmental Quality Act (CEQA).

The JPA requests your input on how the Pure Water Project may impact the environment. Specifically, input is being solicited relative to the scope and content of the planned environmental analysis as it pertains to your individual interests or agency statutory/regulatory responsibilities. Your input will be taken into consideration during the formulation of the environmental impacts to be addressed in the Program EIR. Attached for reference are a description of the Pure Water Project, location map, and preliminary identification of potential environmental impacts. Additional information about the Pure Water Project can be found at www.ourpureh2o.com.

Due to the time limits mandated by state law, you should submit your comments as soon as possible but no later than **October 11, 2021** or 30 days after receipt of this notice per CEQA Guidelines Section 15082(b). Please send your written responses to:

Pure Water Project Las Virgenes-Triunfo
Las Virgenes-Triunfo Joint Powers Authority
4232 Las Virgenes Road
Calabasas, CA 91302
Attention: Eric Schlageter

Responses can also be e-mailed to eschlageter@lvmwd.com.

A public Scoping Meeting will be held on September 23, 2021 at 6:00 PM, at the Las Virgenes Municipal Water District headquarters, located at 4232 Las Virgenes Road in Calabasas. The meeting will take place in the Board Room. Participants may attend in-person or can join the meeting virtually via Zoom at the following link: www.ourpureh2o.com/PureWaterLiveStream.

A virtual tour of the Pure Water Demonstration Facility will be provided as part of the meeting and can be viewed by on-line participants. Also, the virtual tour can be accessed by visiting www.ourpureh2o.com.

Pure Water Project Las Virgenes-Triunfo Description

The Pure Water Project Las Virgenes-Triunfo (Pure Water Project) will include a new advanced water purification facility (AWPF) to treat recycled water for indirect potable reuse and convey the purified water to the existing Las Virgenes Reservoir, where it will be blended with the existing drinking water supplies. Pipeline construction will be required to extend the existing recycled water system to the AWPF, convey purified water from the AWPF to Las Virgenes Reservoir located in Westlake Village, and convey the "reject" waste stream (aka brine) from the AWPF to the Calleguas Salinity Management Pipeline (SMP). While a portion of the brine pipeline will be constructed in the streets of Agoura Hills and Westlake Village, most of it will extend outside of the JPA's jurisdiction and through the City of Thousand Oaks. An overview of the program is shown on Exhibit1.

Tapia Water Reclamation Facility / Malibu Creek Discharges

The existing Tapia Water Reclamation Facility (Tapia WRF) is designed to treat approximately 12 million gallons per day (mgd) of wastewater from primarily domestic sources. The treated effluent is used as recycled water – primarily for landscape irrigation within Calabasas, Agoura Hills, and Westlake Village. Excess recycled water is either discharged to Malibu Creek, used in nearby sprayfields, or sent to the Los Angeles River.[1]

The need for the Pure Water Project is driven, in part, by regulatory obligations associated with the discharge of recycled water from the Tapia WRF to Malibu Creek. The current regulatory standards allow discharge of excess recycled water to Malibu Creek from November 15 to April 15; discharge during the remainer of the year is prohibited except under an operational emergency qualifying storm event or to maintain minimal stream flows. Regulatory standards require discharge from the Tapia WRF to Malibu Creek from April 15 to November 15 to maintain a minimum stream flow of 2.5 cubic feet per second (cfs) to help support steelhead habitat. However, new regulatory standards for discharge to Malibu Creek are being implemented and will have the effect of further restricting discharges absent significant and costly improvements to the Tapia WRF.

Indirect potable reuse through advanced treatment of the excess recycled water was selected to redirect discharges from Malibu Creek, while improving regional water supply reliability and drought resilience.

Advanced Water Purification Facility

The Tapia WRF produces recycled water of sufficient quality for landscape irrigation, but additional treatment is needed for indirect potable reuse through reservoir water augmentation. The AWPF would provide the additional purification steps needed to meet the strict regulatory

[1] The Tapia WRF has an authorized discharge point at an open-channel storm drain along U.S. 101 near the Parkway Calabasas interchange. This storm drain is part of a system that discharges to Calabasas Creek and subsequently to the Los Angeles River.

standards adopted for reservoir water augmentation.[2] These steps are expected to include membrane filtration, reverse osmosis, and ultraviolet disinfection with an advanced oxidation process.[3] Ancillary facilities are expected to include influent screening, tanks, and chemical storage and feed systems. Specific designs are still under study to determine cost-effective approaches to optimize operations and meet current and anticipated regulatory standards.

These additional treatment needs will require a new facility that can accommodate the necessary equipment and produce purified water at an amount that will optimize the overall water system on a year-round basis. The AWPF will be sized to produce 6.0 mgd of purified water, which will require a site of approximately 2 to 3. The JPA has identified two alternative sites for the AWPF:

- Agoura Road (Option 1). The Option 1 site is located at 30800 Agoura Road on an undeveloped property on the south side of the street within the City of Agoura Hills, just east of the Westlake Village city limits.[4] The site will be graded to accommodate the required facilities, with remainder areas maintained in a natural state or with added landscaping. In addition to the treatment facilities described above, the Agoura Road site will also include a pump station of sufficient size to deliver treated water to Las Virgenes Reservoir.
- Las Virgenes Reservoir (Option 2). Option 2 is located on an undeveloped site adjacent to Las Virgenes Reservoir on its eastern shore. The area is currently flat, due to prior grading to create the impoundment in the early 1970s. However, the site is not currently accessible and would require creating a new access road from Triunfo Canyon Road, within Triunfo Creek Park roughly along the alignment of Pentachaeta Trail within lands owned by the Mountains Recreation and Conservation Authority.

At this time, the JPA expects to consider both sites in the Program EIR and will select one site to advance for detailed study at the completion of the Program EIR process.

Las Virgenes Reservoir / Westlake Filtration Plant

Las Virgenes Reservoir is currently filled with treated potable water that is purchased by the Las Virgenes Municipal Water District (LVMWD) from the Metropolitan Water District of Southern California (MWD). Purified water from the AWPF would be added to the existing MWD supply. Discharges would be governed by strict regulatory standards for necessary mixing ratios for dilution and reservoir detention times. A new multi-port outfall and diffuser would be installed deep within the reservoir. Additionally, new reservoir mixing improvements may be necessary.

LVMWD would continue to withdraw water from the reservoir and treat it at its existing Westlake Filtration Plant prior to introduction into the drinking water distribution system – consistent with its current practices. In addition to bolstering supplies within the JPA service areas, the project

[2] Article 5.3, Title 22, Division 4, Chapter 3 of the California Code of Regulations.
[3] AWPF treatment processes are expected to be similar – at an industrial scale – to the Demonstration Facility that was recently opened at the Las Virgenes MWD headquarters in Calabasas.
[4] The Agoura Road site was the subject of a development application for senior apartments – The Park at Ladyface Mountain – in 2016, prior to purchase by the JPA in 2018.

will provide an opportunity for neighboring agencies to convey a blend of imported water and purified water through interconnections, albeit infrequent and at low volumes.

Pipelines

The facilities described above will require new pipelines throughout the area to create the necessary conveyance infrastructure to operate the Pure Water Project. The following new pipelines are proposed.

- Recycled Water Pipeline to AWPF. The existing recycled water conveyance system does not reach either of the AWPF sites. Therefore, a new pipeline will be installed to connect the AWPF with the existing system.
    - Agoura Road. For the Option 1 site, two recycled water system connection options are under consideration:
        - Install a pipeline to the nearest point of connection – approximately 9,200 feet away – at the intersection of Lindero Canyon Road and E. Thousand Oaks Boulevard.
        - Install a new pipeline along Agoura Road to near Palo Camado Canyon Road (14,840 feet).
    - Las Virgenes Reservoir. For the Option 2 site, the same connection points would be considered but the new recycled water pipeline would also include segments on Lindero Canyon Road, Triunfo Canyon Road, and overland to the new site.
- Purified Water Pipeline. A new pipeline would be installed to connect the AWPF with Las Virgenes Reservoir.
    - Agoura Road. For the Option 1 site, the new pipeline would be installed along Agoura Road and Lindero Canyon Road. At Triunfo Canyon Road, the new pipeline would extend a short distance to the east, and then proceed overland for approximately 0.5 miles along the Pentachaeta Trail to the reservoir discharge point. For this option, emergency discharge points would be installed to divert AWPF flows into local storm drains or sewers in case of emergency.
    - Las Virgenes Reservoir. No new pipeline would be required for the Las Virgenes Reservoir AWPF site – the AWPF would simply connect to the new Las Virgenes Reservoir outfall.
- Brine Line. Water purification at the AWPF site will result in a "reject" stream of salty water that requires disposal. The JPA will install a new brine line that will connect to the existing Calleguas Salinity Management Pipeline (SMP) in Ventura County.
    - Agoura Road. For the Option 1 site, the new brine line would extend west along Agoura Road, and then either: (1) along local roads to Norwegian Grade (Moorpark Road) to connect to the Calleguas SMP, or (2) along E. Thousand Oaks Boulevard and through Thousand Oaks to connect to the Calleguas SMP near Hill Canyon Road. The pipeline options range from 62,800 feet to 72,000 feet long.
    - Las Virgenes Reservoir. For the Option 2 site, the new brine line would follow the alignment of the purified water pipeline (with adequate separation) to Agoura

Road, and then follow one of the optional routes to connect to the Calleguas SMP as described above.

Potential Environmental Impacts to be Considered

The JPA will prepare a Program EIR to analyze the potential environmental consequences of implementing the Pure Water Project. A Program EIR provides a higher-level evaluation of the potential impacts of a program as a whole. The Program EIR will include a detailed description of the program features, identify potentially significant impacts, and recommend measures to mitigate those impacts. Potential topics that will be addressed in the Program EIR include:

- Construction Impacts to the Public. Pure Water Project construction activities will be noticeable and will require evaluation in the Program EIR. For the AWPF site, nuisance impacts to the adjacent apartments may include noise and dust from onsite construction activities. All of the pipeline projects will generate traffic, noise, and vibration during construction, including along Lindero Canyon Road. The Program EIR will describe the intensity and duration of construction impacts and focus on the processes and procedures to be used to mitigate construction impacts.
- Rare Plants and Oak Tree Removal. The Agoura Road AWPF site and the purified water pipeline alignment within Triunfo Creek Park present special challenges regarding protected resources, primarily removal of oak trees (loss of oak woodland habitat) and several species of rare plants including Lyon's pentachaeta. The Program EIR will evaluate potential impacts to these resources and other natural resources that may be affected by the project.
- Discharges to Malibu Creek. Malibu Creek discharges are currently regulated by a National Pollutant Discharge Elimination System (NPDES) Permit[5] issued by the Los Angeles Regional Water Quality Control Board (Regional Board). No significant changes to the NPDES Permit are anticipated – creek discharges are expected to remain limited during the dry season and minimal stream flows will continue to be maintained to support steelhead habitat.
- Cultural Resources. The program area is sensitive for archaeological resources, with low sensitivity for historic (built environment) resources. These resources will be evaluated in the Program EIR. In addition, outreach to Native American tribes will be performed as required by state law.
- Recreation Resources. Under both AWPF options, disruption within Triunfo Creek Park is expected with the likely loss of access to Pentachaeta Trail for a short period of time. Although pipeline and access road details are still under development, the potential impacts will be considered in the Program EIR.

The Program EIR is expected to address other resources as well, including aesthetics and visual resources, air quality and greenhouse gases, hazards and hazardous materials, hydrology and water quality, and potential wildfire impacts.

[5] NPDES No. CA0056014, Order R4-2017-0124.

Other Agencies Whose Approval May Be Required

Several other agencies may have responsibility for carrying out approvals for the Pure Water Project or for individual projects within the program. These agencies are known as CEQA Responsible Agencies. Two key agencies with important regulatory roles in permitting the Pure Water Project are:

- State Water Resources Control Board – Division of Drinking Water (DDW) and Division of Water Rights. DDW is responsible for the regulation of public drinking water systems and will review the Pure Water Project to ensure consistency with reservoir water augmentation standards for continued use of Las Virgenes Reservoir water for potable use. In addition, the Division of Water Rights consider a Wastewater Change Petition that will be submitted for a proposed change in the point of discharge of the treated effluent from the Tapia WRF.
- Los Angeles Regional Water Quality Control Board (Regional Board). The Regional Board is responsible for protecting water quality and will review the Pure Water Project for discharge of AWPF purified water into Las Virgenes Reservoir, consistent with reservoir augmentation standards.

Other CEQA Responsible Agencies are expected to include the Santa Monica Mountains Conservancy (a State of California agency) for overland access to Las Virgenes Reservoir, the California Department of Fish and Wildlife for construction activities affecting streams and other natural areas, Caltrans for construction activities across state highways, Calleguas Municipal Water District for connection and discharge to the SMP, and local governments (e.g., cities of Agoura Hills, Thousand Oaks, and Westlake Village) for construction along city streets.

In addition to the CEQA Responsible Agencies described above, federal agencies also may participate in some aspects of the Pure Water Project. The Program EIR will be prepared with these federal obligations in mind, including any potential federal obligations associated with program funding.

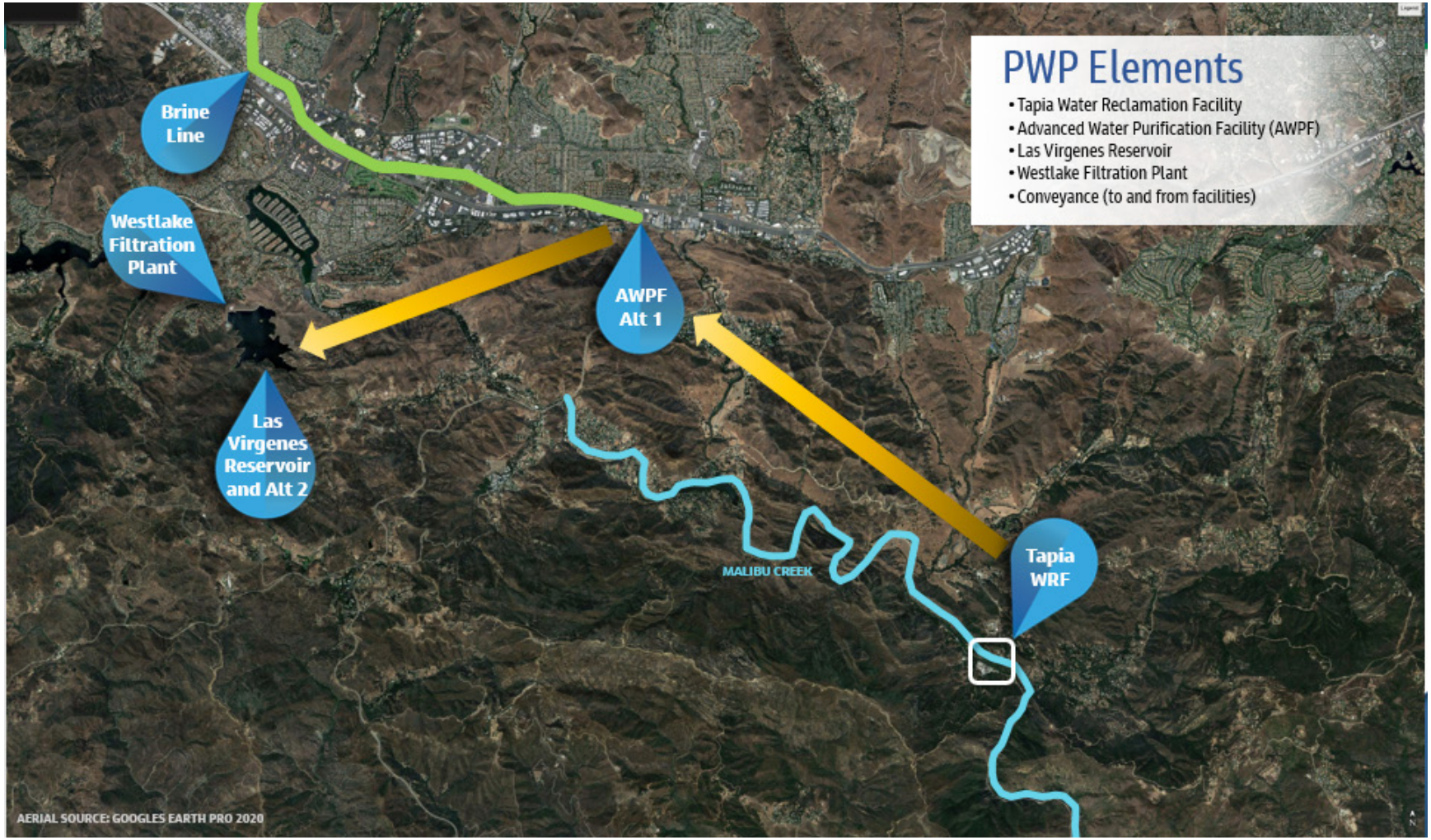


Exhibit 1. Pure Water Project Overview

September 13, 2021 JPA Board Meeting

TO: JPA Board of Directors

FROM: Facilities & Operations

Subject : Pure Water Demonstration Facility: Operational Support Services

SUMMARY:

Carollo Engineers, Inc. completed the design of the Pure Water Demonstration Facility and provided operational support and challenge testing services to the JPA over the past year. During this time, the Carollo team completed the required challenge testing of the facility's reverse osmosis and ultraviolet light disinfection systems. These services were necessary to ensure that the equipment was performing as designed and the treatment processes meet all water quality standards. In addition, Carollo successfully completed the work required for the artificial intelligence/machine learning grant awarded by the Metropolitan Water District of Southern California.

Given the value of Carollo's work to leverage the Pure Water Demonstration Facility to support the full-scale Pure Water Project Las Virgenes-Triunfo, staff proposes to continue operational support services by Carollo for another 12 months. Attached for reference is a scope of work and fee proposal submitted by Carollo. Staff recommends that the Board authorize a professional services agreement with Carollo Engineers, Inc., in the amount of $117,622, to provide operational support services for the Pure Water Demonstration Facility.

RECOMMENDATION(S):

Authorize the Administering Agent/General Manager to execute a professional services agreement with Carollo Engineers, Inc., in the amount of $117,622, to provide continued operational support services for the Pure Water Demonstration Facility.

FISCAL IMPACT:

Yes

ITEM BUDGETED:

Yes

FINANCIAL IMPACT:

Sufficient funds are available in the adopted Fiscal Year 2021-22 JPA Budget for these services.

DISCUSSION:

The Pure Water Demonstration Facility has been in operation for approximately one year. The facility has met key testing standards, but many additional tasks remain to support the future full-scale Pure Water Project Las Virgenes-Triunfo. Staff recommends a professional services agreement with Carollo Engineers, Inc., to continue providing assistance to the JPA on the more complex operational aspects of the demonstration facility, including troubleshooting, technical problem solving and fine tuning of the chemical dosages. In addition, more challenge work is required on disinfection byproducts to support future full-scale operations.

Following is a summary of the four key elements that comprise the scope of work:

1. Provide on-call operational support on technical tasks that are new to JPA staff and outside of the daily logging and operation of the equipment.

2. Complete additional disinfection byproduct evaluation and reporting to support future full-scale operations.

3. Perform additional as-needed work to implement testing and challenge work requests from JPA staff in coordination with the Program Manager/Owner's Advisor, Jacobs Engineering.

4. Provide specific technical support and participate in collaboration meetings with the Program Manager/Owner's Advisor, Jacobs Engineering, regarding demonstration facility operations and conduct presentations, as requested.

Completion of these four tasks is a high priority for operating the demonstration facility. Carollo Engineers has in-depth knowledge of the demonstration facility and can provide immediate support without the need for a prolonged learning curve. Staff recommends authorization to execute a professional services agreement with Carollo Engineers, Inc., to ensure effective operations as staff moves into the next phase of work for the Pure Water Project Las Virgenes-Triunfo. Overall, this is exciting work going forward, and staff is confident in the capabilities of the Carollo team to meet the JPA's needs.

Prepared by: Darrell Johnson, Water Systems Manager

ATTACHMENTS:

Scope of Work and Fee Proposal

Draft Scope of Work

2021/2022 Pure Water Demo Support

7/29/2021

Background

This scope of work is intended to provide 12 months of support to the Las Virgenes MWD/Triunfo JPA Pure Water Demonstration (Demo), spanning September of 2021 to August 2022.

Task 1 – Monthly Technical Support

CONSULTANT will provide monthly (over 12 months) support to the Demo operations team as follows:

- One monthly meeting (one hour in length), requiring 3 hours per month of total time;
- 1 hour per month for summarizing meeting minutes, with a specific section detailing future needed work (e.g., operational and maintenance modifications);
- Performance tracking and on-call support, amounting to 30 minutes per day (on average); and
- 40 hours of time in support of the Igreen transition, including checking data integrity, propose adjustments to dashboards and enhance functionality.
- 8 hours total for Carollo staff to update and maintain Carollo AM digital field log sheet.

Deliverables: Monthly Demo performance summary and operations and maintenance modification recommendations. Small improvements to Carollo AM as requested to improve usability.

Task 2 – Disinfection Byproduct Evaluations

CONSULTANT will support the analysis of disinfection byproducts (DBPs) at the Demo, focused upon DCBM, BDCM, and NDMA. That work will examine different chlorination approaches, different purified water stabilization approaches, and different free chlorination and quenching approaches. Specific scope items are:

- Develop a DBP Test Plan with input from OWNER and the Jacobs Program Management Team;
- Perform detailed sampling and process modifications over three different periods of time, each spanning three days:
    - Preliminary
    - Detailed
    - Confirmation
- DBP Evaluation Draft and Final TM.

Not Included in Scope: Laboratory work (to be completed by JPA's contract laboratory)

Deliverables: Draft and Final DBP Evaluation summary TM.

Task 3 – As Needed Support

CONSULTANT will work with engineering and operations staff to conduct a range of testing and analysis, as needed, over the project duration. This support could include, *but is not limited by*, the testing and/or analysis of the following:

- RO cleaning/fouling;
- RO concentrate scaling;
- High recovery RO;
- MF/UF process modifications; and
- UV AOP oxidant modifications and/or performance demonstration.

Initiation of Task 3 Scope Items: Prior to initiating work effort under Task 3, work items will be detailed in written communication (e.g., email) from the OWNER to the CONSULTANT, and acknowledge by the CONSULTANT along with an estimated level of effort.

Deliverables: Summary of completed work in written form.

Task 4 – Project Management

Limited time is included for meetings with JPA staff and for monthly invoicing and overall management.

Budget

The proposed cost for this scope of work, as shown in Table 1, is $117,622, based upon Carollo's 2020 California rate sheet. We are using the 2020 rate sheet instead of our 2021 or projected 2022 rates to reduce our costs.

Table 1 – Budget for 2021/2022 Demo Support

Task	Andy Salveson	Amos Branch	Harold Wright	Labor Cost
Task 1 - Monthly Technical Support	**12**	**226**	**0**	**$49,362**
Monthly Meeting with Preparation	12	36		
Monthly Meeting Notes		12		
Performance Tracking and On-Call Support		130		
Igreen Transition Assistance		40		
Digital Log Sheet Support		8		
Task 2 - Disinfection Byproducts Evaluation	**18**	**132**	**2**	**$33,008**
Test Plan	2	8	2	
DBP Field Sampling	12	84		
Draft and Final TM	4	40		
Task 3 - As Needed Support	**30**	**80**	**0**	**$25,920**
Task 8 - Project Management	**12**	**24**	**2**	**$9,332**
Total	**72**	**462**	**4**	**$117,622**

September 13, 2021 JPA Board Meeting

TO: JPA Board of Directors

FROM: Engineering and External Affairs

Subject : Pure Water Project Las Virgenes-Triunfo: Public Outreach Services

SUMMARY:

In 2017, the JPA initiated a public outreach campaign for the Pure Water Project Las Virgenes-Triunfo that included community presentations, social media content, presentations during JPA facility tours and in-person tours of the Pure Water Demonstration Facility. To-date, the public outreach campaign has been successful to inform customers of the proposed project and its benefits and to begin garnering public support. Recently, staff issued a Request for Proposals (RFP) for public outreach services such as updating the project brochure and planning special events to ensure the JPA continues to provide comprehensive, thorough and immersive outreach and education for the Pure Water Project Las Virgenes-Triunfo. The scope of work for the RFP includes specific activities and events that will further the understanding of Pure Water Project Las Virgenes-Triunfo.

The JPA received proposals from the following five firms: Imprenta Communications Group, Cordoba Corporation, Water Systems Consulting (WSC), NV5 and Katz & Associates. A three-member selection committee of staff from the Engineering and External Affairs Department took part in evaluation process. After reviewing proposals and approaches to meet the requirements specified in the RFP, the quality and comprehensiveness of the proposals themselves and the cost effectiveness of each, the committee concluded that the proposal submitted by WSC best meets the JPA's needs. As a result, staff recommends authorization to execute a professional services agreement with WSC, in the amount of $71,090, for public outreach services related to the Pure Water Project Las Virgenes-Triunfo.

RECOMMENDATION(S):

Authorize the Administering Agent/General Manager to execute a professional services agreement with Water Systems Consulting, in the amount of $71,090, for public outreach services related to the Pure Water Project Las Virgenes-Triunfo.

FISCAL IMPACT:

Yes

ITEM BUDGETED:

Yes

FINANCIAL IMPACT:

Sufficient funds for these services are available in the adopted Fiscal Year 2021-22 JPA Budget.

DISCUSSION:

Through a stakeholder-driven process beginning in 2015, the JPA moved to solve a regulatory compliance and regional water supply reliability challenge through the Pure Water Project Las Virgenes-Triunfo. Once completed, the project will allow the JPA to locally source up to 15% of the region's water supply. This accomplishment will be achieved through the planning, design and construction of an advanced water purification facility, which will allow the JPA to beneficially reuse highly-treated wastewater for drinking. Currently, the Pure Water Demonstration Facility serves as an educational outreach tool for the public to learn about the advanced water treatment process and taste the purified water. Staff is also learning to operate the membrane treatment process to ensure a highly-skilled workforce is prepared once the full-scale facility comes on-line. While tours of the facility are currently available to the public and serve as the primary public outreach tool for the Pure Water Project Las Virgenes-Triunfo, more extensive, creative and community-based approaches to public outreach are recommended to reach a larger demographic.

The additional outreach is meant to highlight the safety and quality of the purified water for everyday uses and typical items consumed and enjoyed by the public. The JPA proposes to meet this need through a series of events including a coffee brew, beer brew and gelato tasting – all using purified water sourced from the Pure Water Demonstration Facility. The JPA issued an RFP to solicit proposals from public relations firms with specific experience in the planning and implementation of these types of events. Firms were required to submit a scope of work describing how they would solicit participation from local beer/coffee/gelato producers, identify a local non-JPA venue to hold a beer tasting event, follow up with a JPA-provided attendee list, and host the events from beginning to end. A proper timeline of project implementation was also required, beginning in fall 2021 and wrapping up in summer 2022. Finally, the firms were required to provide supporting materials, including samples or concepts, for a new and more comprehensive brochure on the Pure Water Project Las Virgenes-Triunfo.

Five proposals were submitted by the deadline of July 29, 2021 and evaluated by a three-person committee comprised of staff from the Engineering and External Affairs Department. The proposals were discussed by the committee members and individually scored by each member. The evaluation criteria included experience with past projects, proposed scope of work, personnel qualifications, schedule adherence, level of effort and cost effectiveness. The evaluation process resulted in consensus among the committee members that the Water Systems Consulting (WSC) proposal best met the RFP criteria with an extensive outreach plan to provide event planning and management, as well as provide a brochure for the Pure Water Project Las Virgenes-Triunfo.

Additionally, WCS provided a slate of optional tasks including providing stakeholder mapping and a master contact list, a funding strategy, event branding, a media and advertising strategy, a promotional video, event and swag collateral, an attendee survey, and professional photography and videography as part of the events. The photography and videography would be useful for future outreach materials to showcase the safety and public acceptance of purified water. These optional tasks are included in the recommended contract amount of

$71,090. However, this amount does not include certain others costs that would be paid directly by the JPA such as venue rentals or food catering. These other costs are currently estimated to be $15,000 to $25,000, depending on factors including the location of the events and number of participants.

Prepared by: Mike McNutt, Public Affairs and Communications Manager

ATTACHMENTS:

Proposal from Water Systems Consulting (WSC)

Event Planning & Project Brochure

TRIUNFO PUBLIC OUTREACH SERVICES

Joe McDermott, PE
Las Virgenes Municipal Water District
4232 Las Virgenes Road
Calabasas, CA 91302

WSC San Luis Obispo
805 Aerovista Place
Suite 201
San Luis Obispo, CA 93401

P: 805.457.8833
F: 805.888.2764

Dear Mr. McDermott,

WSC is excited for the opportunity to partner with Las Virgenes Municipal Water District (District) in your pursuit of environmental health and long-term water supply resiliency in the Santa Monica mountains region. The Las Virgenes-Triunfo Water Joint Powers Authority (JPA) is leading a bold and creative public outreach campaign for the Pure Water Project, an indirect potable reuse project that will meet environmental regulations and provide a new, local source of drinking water to the region.

The WSC team is truly unique. We are an integrated group of strategic communications professionals exclusively focused on water who work alongside WSC's water reuse experts, engineers, and program managers to create awareness and gain community support for critical water projects. Our team comprises of water industry experts who specialize in presenting complex information in ways that will resonate with diverse audiences. We have some of the most successful and award-winning water industry communication and outreach experience in California over the past decade and we are leaders in providing public outreach services for water reuse projects similar to yours.

Our team will bring to your project:

Creative and proven communication strategies. Our clients will attest that we go beyond the status quo of traditional water outreach and communications delivery. We credit this to a unique blend of strategists, journalists, designers, event coordinators, and writers who work daily with technical water professionals. This integrated team excels at simplifying complex technical information to a variety of audiences.

A trusted local leader. Our proposed Project Manager, Haili Matsukawa, MPPA, has led community outreach and strategic communications for major water supply and capital improvement projects in the City of Ventura. Her unique experience blends environmental science and planning expertise with public relations and outreach success. Haili will lean on her trusted relationships with your team at Las Virgenes and is committed to your program's success.

Near and long-term value. With project milestones approaching and nearly a decade of work ahead, WSC offers added value to your project management team. We will compliment your existing efforts and provide a fresh lens for new, creative approaches and actively listen to understand your long-term goals and unique community challenges. Moreover, we have the systems in place to be responsive, flexible, and effective.

We are excited for the opportunity to enhance the success of the Pure Water Project's Public Outreach Plan and foster connection and support among your community. Please contact our Project Manager, Haili Matsukawa, if you have any questions.

Sincerely,

Water Systems Consulting

Haili Matsukawa
Project Manager

Jeff Szytel
Principal in Charge | WSC President/CEO

CONTENTS

FIRM INTRODUCTION

Local Leader in Water Reuse Communications

We believe the most effective water communications start with trust. That's why we put relationships first across all aspects of our work—from our relentless drive to understand your community's unique challenges, the trusted relationships we build, and to the collaborative, community-informed approach that drives every solution we create.

- Event Planning
- Stakeholder Engagement
- Public Outreach
- Community and Audience Research
- Communications Strategy
- Design and Content
- Creative Services
- Media Relations
- Event Design and Coordination
- Facilitation
- Water Reuse Program Branding
- Strategic Planning
- Project Management

supporting communications for more than **15** water reuse projects

uniquely **integrated**
- Communication Experts
+
- Water Reuse Technical Expertise

sought-after presenters
inclusive & accessible **public outreach & engagement**

industry **experts**
WATER REUSE COMMUNICATIONS, EDUCATION, + ENGAGEMENT

award-winning **leaders**
Haili Matsukawa
2019 CWEA Community Engagement and Outreach Person of the Year

involved and connected
10 WATER PROFESSIONAL ASSOCIATIONS

Experience planning events for water initiatives including:
Ventura Water's Open House Event
Central Coast Blue's Ribbon Cutting
SLO WRRF Groundbreaking Event
Camarillo Desalter Project Groundbreaking

offices in Ventura County & Southern California

8 DEDICATED communications experts

PROJECT TEAM AND REFERENCES

Meet Our Team

Creative and Tactful

WSC has built a team of public outreach experts who have significant experience and insight into the challenges and opportunities of developing a water reuse program, communicating capital investments to stakeholders, and building water resilience. We are a water-focused organization with a deep history of working with a diverse set of stakeholders throughout the Southern California.

Our proposed team is led by Haili Matsukawa, an award winning communication professional and emerging leader in civic engagement and community-driven solutions. Her experience includes leading community outreach and strategic communications for advanced water supply and capital improvement projects, event planning, developing water education programs, media coordination, and more. Haili is a passionate and trusted partner with established relationships with District leaders.

Haili will be supported by Nina Thoming, our proposed Graphics Lead and Event Coordinator. Nina and her family are long-time customers of the District. Born and raised in West Lake Village, Nina brings an in-depth understanding of your community because for most of her life, she has been a local.

Jeff Szytel is WSC's Principal in Charge, and he will provide direct support to Haili. Jeff brings more than 25 years of experience in the field and has a strong understanding of community engagement strategies for water system and supply projects along the Central Coast and in Southern California.

WSC's team also includes strategic communications and media experts, event planners, and photographers and videographers whose water-focused experience will support the District's vision in its communication and engagement opportunities.

Our integrated team will develop effective outreach strategies for each task order and looks forward to helping you implement your vision for public outreach to your community.

LAS VIRGENES MUNICIPAL WATER DISTRICT EST. 1958

Principal in Charge &QA/QC

Jeff Szytel PE, MS, MBA

Events: Central Coast Blue Ribbon Cutting, SLO Water Plus Groundbreaking, North Pleasant Valley Groundwater Desalter Project Groundbreaking

Project Manager & Event Lead

Haili Matsukawa MPPA

Events: Ventura Water Summer Open House Event, Water: Take 1 Film Festival, San Elijo Joint Power Authority Ribbon Cutting

Event Coordinator Advisor

Dianne Lee

Events: Easterly Wastewater Treatment Plan Open House, Lincoln Highway Dedication Ceremony, Effluent Export Project Event at Spooner Lake State Park

Media Lead

Amy Stevens

Events: Chapman Celebrates 2019 Foundations Gala, Schools First Branch Grant Opening Celebration, Chapman University Economic Forecast

Graphics Lead & Event Coordinator

Nina Thoming

Events: Ventura Water Summer Open House, SLO Water Plus Groundbreaking, Central Coast Blue Ribbon Cutting, North Pleasant Valley Groundwater Desalter Project Groundbreaking

Photography

Spencer Cole

Events: Cayucos Treatment Plant Ribbon Cutting, SLO Water Resource Recovery Facility Tours, San Luis Obispo Valley GSP Meetings

A Team You Can Trust to Deliver

The WSC Team is ready to provide the District with responsive and reliable communications, event planning and graphics support.

Meet Your Project Manager

The WSC Team is led by our proposed Project Manager, Haili Matsukawa. Haili has strategic planning, communications, and outreach experience for water projects and programs in California. She focuses on the value of effective water reuse communications—gaining insight into community culture and interests; sharing benefits related to proposed water solutions and programs; and engaging stakeholders in creative ways through all program phases. Haili's experience leading public outreach for local water supply projects in Ventura County gives her invaluable insight into effective strategies to build project knowledge and support impacted communities.

Haili Brings a Client's Perspective to Achieve Project Success

With years of experience working as a public servant, Haili brings a strong understanding of the emerging challenges and opportunities facing local government and public utilities. Her work leading complex water supply projects for a public utility allows her to bring an owner's perspective to her work and ask the right questions to gain a clearer understanding of the District's needs. As Project Manager, Haili will be the main point of contact for the District and will be responsible for the overall performance of the WSC team. Haili will lead responses to the District's task orders and build teams tailored to meet the unique requirements of each project. During project execution, Haili will coordinate with the project management team to resolve issues and assure that sufficient resources are dedicated to execution of project work. She will focus on client service, providing the District with continuity of leadership for the duration of the contract and will be actively involved with our teams to help us exceed your expectations.

The Right Team with the Resources, Expertise, and Commitment to Deliver Successful Events

Our team's unique skillset allows us to bring you creative and engaging events. Not only do we have creative designers, but we also have experience in working within a budget, managing tight deadlines, digging deep into the details, and maintaing a proactive and thorough schedule to make sure you are confident in your event's success throughout the entire process. Planning an event can be stressful but we are an experienced team that will do the hard work for you.

Haili Matsukawa was recently awarded CWEA Community Engagement and Outreach Person of the Year for leadership on the Ventura Water'Summer Open House.

Haili Matsukawa

Project Manager

"As your Project Manager, I have walked in your shoes, implementing communication strategies for advanced water supply initiatives and complex capital improvement projects. With years of experience working for a water agency, I hold a deep understanding of the emerging challenges and opportunities facing local government and public utilities, and now as a communicator, it is my mission to add value to the hard work you do every day. I am uniquely positioned to help the District be even more successful in your relationships with your customers. I have a heart for public service and a passion for civic engagement. I truly believe that thoughtful, two-way communication results in improved policy decisions and outcomes that reflect our communities' values and help you enhance the results of your Pure Water Project.

Haili Matsukawa

WSC

PROJECT MANAGER

Examples of Work

VenturaWaterPure Summer Open House

Ventura Water, City of San Buenaventura, CA

CLIENT REFERENCE

Ms. Gina Dorrington, Assistant General Manager
O: (805) 677-4131
gdorrington@cityofventura.ca.gov

WSC planning and coordinated Ventura Water's Summer Open House Event, a community event designed to raise project awareness and support during a critical project milestone.

Over 300 members of the public turned out to tour the Ventura Water Reclamation Facility and learn about the proposed VenturaWaterPure Project- a future water project that aims to diversity Ventura's water supply by recovering, purifying, and reusing water that is currently discharged into the Santa Clara River Estuary.

The event hosted a mix of community members, City staff, water reuse professionals, and water agencies from Morro Bay, Las Virgenes Municipal Water District, City of Oxnard, and Central Coast Blue- all sharing a common interested in efforts to pilot and implement potable reuse projects to improve the sustainability of vital water resources across California.

The evening kicked off with music, food, and a welcome speech from Mayor Matt LaVere . Guests were broken up into groups and led through the treatment plant with tours ending at the site of the former VenturaWaterPure demonstration facility piloted in 2015-16. A short video was played showcasing the need for a resilient, long term water supply solution in Ventura accompanied by static displays of treatment technologies and experts were available to explain advanced purification technologies.

The event was a success with diverse community participation, positive media coverage, and ultimately City Council approval of the project Environmental Impact Report. The Summer Open House was named California Water Environmental Association's (CWEA) 2019 Community Engagement and Outreach Project of the Year for the State of California.

KEY STAFF

Jeff Szytel
Principal in Charge

Haili Matsukawa
Program Manager and Event Lead

Nina Thoming
Photography, Events, Graphics, and Collateral

Our event coordinators secured event sponsors and developed family-friendly activities, including bird watching at the onsite wetlands.

WSC designed event banners, brochures, stickers and swag.

To cap off the night, guests were given the opportunity to taste bottled advanced purified water from Orange County's Indirect Potable Reuse system

Examples of Work

Central Coast Blue Ribbon Cutting Event

City of Pismo Beach, CA

CLIENT REFERENCE

Mr. Benjamin Fine, *Public Works Director/City Engineer*
P: (805) 773-7037
bfine@pismobeach.org

WSC has worked alongside the City of Pismo Beach and four partner agencies to provide communications support that promotes buy-in, awareness, and interest in the Central Coast Blue Advanced Water Purification Facility years ahead of construction. The multi-agency team prioritized an outreach campaign that conveys the value of water and the importance of providing sustainable water solutions for the coastal communities, especially as it relates to the Central Coast Blue program.

The Central Coast Blue program includes a regional advanced treatment facility and injection wells that will increase groundwater supplies by more than 40% and prevent seawater intrusion into the Santa Maria Groundwater Basin. WSC's strategic planning and communications support has been essential in aligning multiple agencies around a common vision for the project through coordinated events and effective and compelling branding support.

After undergoing a large branding effort to create the identity of Central Coast Blue, WSC coordinated a ribbon cutting ceremony to celebrate the pilot demonstration facility. WSC created signage, invitations, swag giveaways, and information brochures and videos to create an unforgettable experience for our client and the attendees. The 100+ attendees were given a chance to see the demonstration facility, try the water, learn how the facility works, and engage with stakeholders and community officials.

KEY STAFF

Jeff Szytel
Principal in Charge

Nina Thoming
Graphic Design

"The WSC communications team has had an integral role in helping us to create the Central Coast Blue Brand and increase awareness and support for the project. Their work has provided staff and elected officials from multiple partner agencies with a common message. They have worked efficiently, asked insightful questions, and leveraged the firm's technical expertise to convey complex treatment details in engaging and informative ways for many different audiences."

Ben Fine
Director of Public Works/City Engineer
City of Pismo Beach

More than 100 people attended the ribbon cutting ceremony which celebrated the opening of the piloting facility for Central Coast Blue.

Posters developed for the piloting facility convey project benefits and describe the treatment process at each step, guiding visitors though the components of the project.

Videos showcased the collaborative efforts that went into visioning this project.

WSC helped develop a project website that serves as the hub for project updates, educational resources, and program master messaging.
▶ centralcoastblue.com

Public outreach efforts paved the way towards Central Coast Blue becoming an award winning reuse program.

Examples of Work

SLO Water Plus Groundbreak Event

City of San Luis Obispo, CA

CLIENT REFERENCE

Mr. David Hix, *Deputy-Director Wastewater*
P: (805) 781-7205
dhix@slocity.org

WSC is serving as Program Manager and strategic planning/communications partner for the City of San Luis Obispo's Water Resource Recovery Facility (WRRF), a $140 million project to meet National Pollutant Discharge Elimination System requirements, and the Utility Department's Strategic Plan.

WSC provided branding and communications support for the WRRF Upgrade, referred to now as SLO Water+, including video creation, identity development, open house ceremony coordination, educational handouts, signage, and website update and maintenance of ongoing communications.

WSC helped to create an identity around the new upgrades at the facility focused around the name SLO Water Plus. This rebrand came with a newly minted visual identity which included a logo, website, color palette, brochures, signage, videos, and engaging graphics to help better tell share story with the public. WSC supported the City at its groundbreaking ceremony with cohesive event materials that included large banners with maps and technical information, overview brochures, and an informative video. We coordinated with stakeholders, local media, and City officials (including Mayor Heidi Harmon) to attend the event, resulting in over 100 in attendance. Not only were staff able to celebrate their accomplishment, but they were able to share it with their community. Attendees were also able to hear from City officials and stakeholders and tour the facility.

▶ SLO Water+Website

WSC developed a website highlighting the benefits of the project, how the treatment process works, and key project milestones.

KEY STAFF

Jeff Szytel
Program Manager, Principal in Charge

Nina Thoming
Graphic Designer and Event Coordinator

"Beyond technical terms and acronyms, WSC has been able to translate the vision for the City of San Luis Obispo's Water Resource Recovery Facility Project into one in which the community sees its investment creating a community asset, not just building another "boring" project. WSC's collaborative approach has maximized multiple platforms (such as a project website, one-on-one meetings, creative and engaging City Council presentations, and interactive public forums) to reach out to our broad range of stakeholders. This is the City's largest-ever capital project and, giving credit to WSC's efforts, the community is excited about seeing it come to life!"

Carrie Mattingly
Former Utilities Director
City of San Luis Obispo

Local leaders and members of the community joined together for an open house event at the WRRF. Information graphics, videos, banners, and other outreach materials enhance the accessibility of the program's core messaging.

▶ SLO Water Plus Video

We have supported local outreach for San Luis Obispo's WRRF for more than 5 years, including leading community engagement and education at the Farmer's Market.

Examples of Work

Water: Take 1 Film Festival

Ventura Water, City of San Buenaventura, CA

CLIENT REFERENCE

Ms. Susan Rungren, *General Manager*
O: (805) 652-4523
srungren@venturawater.net

The Water: Take 1 Film Festival is an innovative, multimedia event that brings together diverse stakeholders, including artists, activists, policymakers, and community leaders, over a shared interest—water. Water: Take 1 presents short films that showcase critical water issues and community efforts in water conservation, resource management, and sustainability. The annual event, hosted by Ventura Water, highlights the value of water through visual arts and compelling storytelling.

For several years, Haili Matsukawa planned, coordinated, and implemented the event, bringing in new partners and celebrating unsung heroes in the local water community. Managing details from budget, sponsors, invites, venue, food, live music, speakers, and more, Haili was responsible for running the event from start to finish. In addition, WSC's graphics team developed branded graphics, program brochures, and banners for the event.

With over ten years in production, Water: Take 1 is an example of what is possible when water professionals are inspired to think "outside the box" to create memorable moments and valuable relationships in the community.

KEY STAFF

Haili Matsukawa
Event Planner and Coordinator

Nina Thoming
Graphic Design

The event celebrated young water leaders for their efforts installing a water-wise garden at the local high school.

Film connects across sectors, attaching leaders from environmental and social nonprofit organizations.

NOSSAMAN LLP | carollo Engineers...Working Wonders With Water® | KJ Kennedy Jenks | HOPKINS GROUNDWATER CONSULTANTS, INC. THE WATER RESOURCE SPECIALISTS

Project Understanding and Approach

Bringing Our Water Full Circle

Las Virgenes Municipal Water District and the Triunfo Water and Sanitation District have joined to deliver the Pure Water Project, an innovative, multi-benefit, stakeholder-driven solution to meet environmental requirements and diversify the region's water supply portfolio.

The Pure Water Project will create a new, drought-resilient water supply for a region that relies heavily on imported water from the State Water Project. The project will also bring the District into compliance with emerging regulations by limiting recycled water discharge to the Malibu Creek.

Prolonged drought, increased environmental regulation, and climate uncertainty has many California communities investing in potable reuse solutions as safe, reliable, and cost-effective remedy to the State's water supply challenges. However, some communities are resistant to water reuse solutions, either due to project costs, lack of trust in the government, and/or misinformed water quality concerns.

In response, the Las Virgenes-Trifuno JPA has invested in a robust, long-term public outreach campaign. At the center of its communication strategy is a state-of-the-art demonstration facility that produces purified water using advanced treatment technologies. The demonstration facility serves multiple purposes, including water quality testing, staff training, and—perhaps most significantly—public understanding and awareness. As the Pure Water Project approaches its California Environment Quality Act (CEQA) assessment, community engagement, public outreach, and education are central to project's success.

A successful event series will:

- Bring together diverse stakeholders to learn about the Pure Water Project.
- Garner community understanding and support for the multi-benefit program.
- Build public trust and confidence in advanced water treatment technology.
- Provide opportunities to taste products made with purified water produced at the Pure Water Demonstration Facility.
- Develop a visually engaging and easy to understand project brochure fit for various audiences.
- Build lasting relationships with business partners, community members, elected officials, and others.
- Create opportunities and multimedia collaterals for project outreach and communications.

Our Guiding Principles

WSC's approach is rooted in building, fostering and growing **trust** at all levels.

Our approach results in project support and success because we focus on working as an extension of your team, providing seamless support planning, and coordination.

Listen to Understand	Value-based and Innovative Outreach	Maintain Open Feedback Loops	Deliver Accessible and Visually Engaging Communications
We work to understand the District's objectives, identify audience sensitivities and opportunities, and inform outreach activities.	**We leverage our team's creative skills and strategic abilities to enhance relationships, build awareness, and generate program support.**	**We foster transparent information exchange with the District to ensure effective and timely execution of project tasks.**	**We deliver timely, engaging, and de-jargoned creative content that resonates with target audiences.**

Integrated Communications

We will maximize value for the District by partnering and collaborating with your existing project support team.

The Las Virgenes-Trifuno Joint Powers Authority is leading a proactive and transparent communication and outreach plan for the Pure Water Project. From your investments in a state-of-the-art demonstration facility to your commitment to public input and participation, the Pure Water Project is positioned to be a leader in effective and inclusive communications.

We plan to work alongside your project support team, create materials and messaging consistent with the program brand, and integrate our event planning efforts with the overall public outreach strategy. We believe our local presence, exceptionally creative professionals, and proven success on water reuse events will complement the project management team and add value to the project's innovative outreach approach.

Deliver Near-term and Long-term Value

We are committed to your program's long-term success

Our partnership goes beyond transactional tasks. WSC is committed to the long-term success of this program. Our uniquely talented team, tailored approach, and optional tasks are designed to offer lasting value to the Las Virgenes-Trifuno Joint Powers Authority. We are prepared to excel in the scope outlined in the proposal and serve as a creative soundboard for future project aspirations.

Our team appreciates the importance of enabling the success of programs like your Pure Water Project and we are prepared to assist your team where you need additional support. Whether you need support with future event planning, outreach collateral, community communication, stakeholder facilitation, and strategic partnerships, WSC can serve as a trusted partner and industry expert. While your RFP addresses your near-term needs, we are committed to fostering a long-lasting partnership.

Build Trust with Engaging and Memorable Moments

We create experiences and visuals that leave lasting impressions.

We believe in taking community engagement beyond basic education and awareness. We design dynamic, multi-directional engagement experiences that build community relationships, participation, and forge trust and connection across diverse stakeholder groups. We share information in a way that helps audiences understand how your investments and efforts impact their quality of life and gather input and feedback that will allow us to understand customers concerns and areas of interest.

Seeing (or tasting) is understanding! Tasting events are an important opportunity to reach new audiences, establish project awareness, and build trust and confidence in advanced treatment technologies. After a difficult year, our communities are craving connection. We will deliver lively, fun, and memorable experiences, fit for all ages, all while ensuring public health and safety for your participants. The event itinerary, speakers, visuals, and giveaways will all be designed to leave a lasting impression on guests.

Tailored Event that is Uniquely Las Virgenes

We go beyond a 'one-size-fits-all' approach, delivering an experience that connects with your community.

With an in-depth understanding of your customers and service area, WSC is able to create an experience that is uniquely tailored to your community's values, interests, and aesthetics. From details such as tasting partners to brochure graphics, we will ensure the event materials and vendors support your local economy and resonate with your customers.

Proactive, Proven Project Management Approaches

Project Scoping

At the outset of each project, we clearly define your goals, schedule, and budget to inform our project approach. Getting early input from your project team, as appropriate for each task, provides clarity at project onset to assure intended goals are achieved or exceeded.

Critical Success Factors

We put people first and listen intently to define and deliver success. Through the project scoping process, we seek clarity on covert and overt success factors unique to each project. The critical success factors for communications projects are often different from the typical budget and schedule drivers, and can include priorities across diverse stakeholder groups. These factors are used to guide delivery of our work from initial planning through execution and to help meet the District's long-term strategic goals.

Schedule and Budget

WSC uses an integrated project management and accounting system, Ajera, to manage project progress and budget in real time. The system gives our project manager immediate access to key project performance metrics. We use earned value management to identify discrepancies between planned and actual progress, allowing corrective measures to be implemented early to prevent cost overruns and delays. WSC holds internal kickoff meetings with our project teams to assure that each team member understands and shares the commitment to managing the scope, schedule, and budget.

Communication and Responsiveness

WSC's project manager will establish an open and continuous line of communication with the District's project manager for each engagement. A well-established line of communication, and relationship based on trust, will facilitate effective exchanges of information outside of regularly scheduled progress meetings, enabling quick resolution of questions and issues so that the project can continue to progress smoothly. We know the importance of responding rapidly when you need us and are committed to being responsive, including being available for impromptu phone calls and virtual meetings.

Resource Management

WSC assembled a robust and flexible team to meet the District's communication and outreach needs. We will consider each project at the outset to determine best fit and availability from our deep team of technical and creative staff. Once the key staff are set for each task, we will proactively manage their workload to avoid competing priorities. We hold weekly workload planning meetings with our local and company-wide team to assess workload and make adjustments as needed to assure we can meet our commitments to the District.

Schedule and Budget Compliance

Our team has a demonstrated record of meeting deadlines and being conscientious of budget. Many of our clients have initiated additional sole source contracts for ongoing communications support because of the value and exceptional client service we deliver. Listed below are a few quantified examples of our commitment to schedule and budget.

Project Name, Client	Total Contract Value/Billed	% over / under budget	Results
VenturaWaterPure Strategic Communications and Outreach, *City of Ventura, CA*	$381,864.00 / $381,825.47	.01%	• Delivered project on schedule and met critical deadlines, including EIR approval. • Project success led to additional contract for ongoing outreach support.
Strategic Communications Support for RW Program Roadmap, *Clean Water Services, OR*	$25,000 / $24,920.00	.32%	• Delivered Roadmap on schedule and on budget. • Project success led to WSC receiving Phase 3 contract for Roadmap implementation.
2020 Communications and Public Outreach Support, *San Elijo Joint Powers Authority, CA*	$23,420.00 / $24,801.25	5.9%	• Provided timely on-call support for a variety of communications needs. • Responded quickly to urgent request to deliver content and graphics support for SEJPA's monthly Board report. Request resulted in unbudgeted time spent delivering report on time. Client was informed ahead of delivery and chose to extend our contract accordingly.
Chino Basin Program Communications Phase 2, *Inland Empire Utilities Agency, CA*	$180,030.00 / $173,935.00	3.4%	• Delivered project on time and under budget. • Our team worked thoughtfully to keep expenses low, saving the client nearly 50k in expense costs originally outlined in contract.

Project Scope

Below is a summary of some key elements of our scope of work. A detailed table of our complete scope of work is on the next page.

Event Planning

WSC offers a seamless event planning experience. From invites, signage, parking, venue, venders, budget, itinerary, coffee/beer/gelato production, day-of coordinating, post-reports, we will handle the details so your team can focus on building relationships and connecting with the community.

During the kickoff meeting we will confirm event dates and develop a detailed roadmap schedule to ensure timely execution of each task. Your project manager will work closely with staff, providing weekly progress updates. Prior to the event, we will support a full walk-through rehearsal, making certain all arrangements are in order.

While the District will be responsible for costs incurred by outside venders (rentals, food, music) and production (swag, printing, signs), our team will support necessary research, cost analysis, and purchasing upon staff approval.

Program Brochure

WSC will help create a brochure to provide information about the program so attendees get a clear understanding of the Pure Water Project. We will take the technical information and utilize engaging graphics, photography, and short headlines to make the information easier for the public to understand.

Optional Tasks

Stakeholder Mapping and Master Contact List

With years of experience in stakeholder mapping for complex water reuse programs, we will work with staff to develop a master contact list inclusive of diverse stakeholders with deep community connections. By engaging elected officials, regional partners, industry leaders, community leaders, education institutions, healthcare providers, business partners, water reuse regulators, environmental organizations, and non-profit organizations, we will ensure the invite list is complete with necessary partners and influential participants.

Funding Strategy

There are many opportunities to stay within your budget and deliver an engaging and memorable event. We will explore opportunities to off-set costs to your agency with event sponsors, donations, grants, and partnerships. Our experienced event coordinators will secure meaningful sponsorships that add value and bring your vision to life.

Event Branding

There is an opportunity to create unique visual identity for this event series. WSC can utilize elements from the program brand, while bringing in the fun, community-focused imagery, custom to the tasting series. Our graphic designers will create visuals and graphics that offer long-lasting value, should the Las Virgenes decide to host similar events in the future.

Media and Advertising Strategy

WSC's media specialist will work to place stories in local publications. We will develop VIP invites for media correspondence and conduct follow-ups to encourage attendance. Reporters will be given exclusive tours and connected with key personnel for onsite interviews.

In addition to earned media, our team will design, write, and place paid advertisements in various outlets, including digital, print, broadcast, and radio. We will create high-quality, engaging, and trackable ads to encourage attendance and vendor participation. We will provide a report of ads placed and audiences reached to demonstrate value for program partners (brewers/vendors), donors, and sponsors.

Promotional Video

Interactive and engaging marketing pieces can pique interest and connect with new audiences. We will develop short promotional video(s) fit for advertising on the project website, social media, e-newsletter, and more. The video(s) will serve as a marketing tool and an awareness campaign for the Pure Water Project.

Event Swag and Collateral

Event swag and giveaways are an opportunity to build brand recognition communicate program benefits and create personal connections with the project. Whether its program stickers, growlers, or espresso shots, our team will create a memorable takeaway for guests.

Attendee Survey

WSC will design and administer a pre/post-event survey to measure attendees' understanding, impression, and support for the Pure Water Project. This important insight will measure the effectiveness of event-related outreach and support future messaging and project-related communications.

Professional Photographer/Videographer

Our in-house professional photographer will capture high-quality interviews with attendees, photos, and video footage, enabling your staff to connect with the community and enjoy your events.

WSC will deliver well organized and engaging events that pay tribute to the District's One Water story.

2021 | SEPT - OCT | OCT-NOV | DEC-JAN | 2022 | FEB-JUL

TASK 0.0 Project Management

TASK 0.1 GENERAL ADMINISTRATION

- Monthly invoicing
- Client communication and meeting coordination
- Hold weekly team meetings with key staff

TASK 0.2 KICKOFF MEETING WITH DISTRICT/JPA STAFF

- Conduct an on-site kickoff meeting to confirm the scope and approach
- **Work with the team to confirm event dates and develop detailed project schedule**

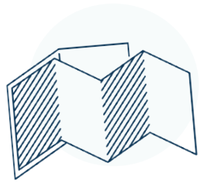
DELIVERABLES

- Monthly project progress report and invoices
- Meeting agendas
- Meeting notes

OPTIONAL TASKS

- **OT 0.1 Stakeholder Mapping and Master Contact List**
  - Develop stakeholder map and master contact list to engage diverse participants including local leaders, NGOs, educational institutions, elected officials, economic development, community group, etc.
- **OT 0.2 Funding Strategy**
  - Identify and secure alternative funding opportunities and sponsorships to offset program costs
- **OT 0.3 Media and Advertising Strategy**
  - Develop a media strategy to ensure local and regional event coverage
  - Develop marketing and advertising strategy to reach diverse audiences

TASK 1.0 Project Brochure



TASK 1.1 DRAFT BROCHURE

- Draft brochure content and master messaging
- Create custom project graphics
- Produce brochure layout
- Circulate drafts for District Staff review

TASK 1.2 DESIGN FINAL BROCHURE

- Prepare final brochure
- Circulate final draft for District Staff review and edits
- Coordinate printing and delivery of brochure

DELIVERABLES

- Printed brochure
- Brochure master files and artwork

OPTIONAL TASKS

- **OT 1.1 Event Branding**
  - Develop a program logo and style guide to support event advertising
- **OT 1.2 Promotional Video**
  - Create a custom video highlighting program benefits and advertising the events
- **OT 1.3 Event Swag and Collateral**
  - Design and develop additional collateral materials
  - Design and produce program swag to be distributed at the events

TASK 2.0 Beer Brew Tasting Event

TASK 2.1 BEER BREW EVENT PREPARATION AND COORDINATION

- Develop event itinerary and establish detailed schedule
- Solicit up to three potential brewery partnerships and schedule testing tasting with Las Virgenes
- Confirm Brewery partnership and coordinate with Master Brewer to confirm production schedule
- Confirm event guest list and develop invites for up to 150 participants (mail VIP and digital)
- Procure any permits and insurance that may be required for the event
- Identify keynote speakers and confirm honorary guests
- Design event signage and collateral (i.e. banners, graphics, photo backdrop)
- Schedule and book outside vendors (i.e. music, table rentals, food)

TASK 2.2 EVENT REHEARSAL

- Full event run through
- On-site meeting with staff, speakers, and vendors

TASK 2.3 BEER BREW EVENT EXECUTION

- On-site setup
- Event management
- Clean-up and event take down

DELIVERABLES

- Event run-of-show
- Keynote speeches
- Press release
- Event report-out

TASK 3.0 Coffee Brew Tasting Event

TASK 3.1 COFFEE BREW EVENT PREPARATION AND COORDINATION

- Develop event itinerary and establish detailed schedule
- Solicit up to three potential coffee partnerships and schedule testing tasting with Las Virgenes
- Confirm coffee partnership and coordinate with business owner to confirm production schedule
- Confirm event guest list and develop invites for up to 50 participants (mail VIP and digital)
- Procure any permits and insurance that may be required for the event
- Identify keynote speakers and confirm honorary guests
- Design event signage and collateral (i.e. banners, graphics, photo backdrop)
- Schedule and book outside vendors (i.e. music, table rentals, food)
- Coordinate with District staff to combine with a tour of the Pure Water Demonstration Facility

TASK 3.2 EVENT REHEARSAL

- Full event run through
- On-site meeting with staff, speakers, and vendors

TASK 3.3 BEER BREW EVENT EXECUTION

- On-site setup
- Event management
- Clean-up and event take down

DELIVERABLES

- Event run-of-show
- Keynote speeches
- Press release
- Event report-out

TASK 4.0 Pure Water Gelato Events

TASK 4.1 PURE WATER GELATO EVENT PREPARATION AND COORDINATION

- Develop event itinerary and establish detailed schedule for two weekday evening events
- Solicit up to three potential gelato partnerships and schedule testing tasting with Las Virgenes
- Confirm gelato partnership and coordinate with business owner to confirm production schedule
- Confirm event guest list and develop invites for up to 50 participants for each day (mail VIP and digital)
- Procure any permits and insurance that may be required for the event
- Identify keynote speakers and confirm honorary guests
- Design event signage and collateral (i.e. banners, graphics, photo backdrop)
- Schedule and book outside vendors (i.e. music, table rentals, food)
- Coordinate with District staff to combine with a tour of the Pure Water Demonstration Facility

TASK 4.2 EVENT REHEARSAL

- Full event run through
- On-site meeting with staff, speakers, and vendors

TASK 4.3 PURE WATER GELATO EVENT EXECUTION

- On-site setup
- Event management
- Clean-up and event take down

DELIVERABLES

- Event run-of-show
- Keynote speeches
- Press release
- Event report-out

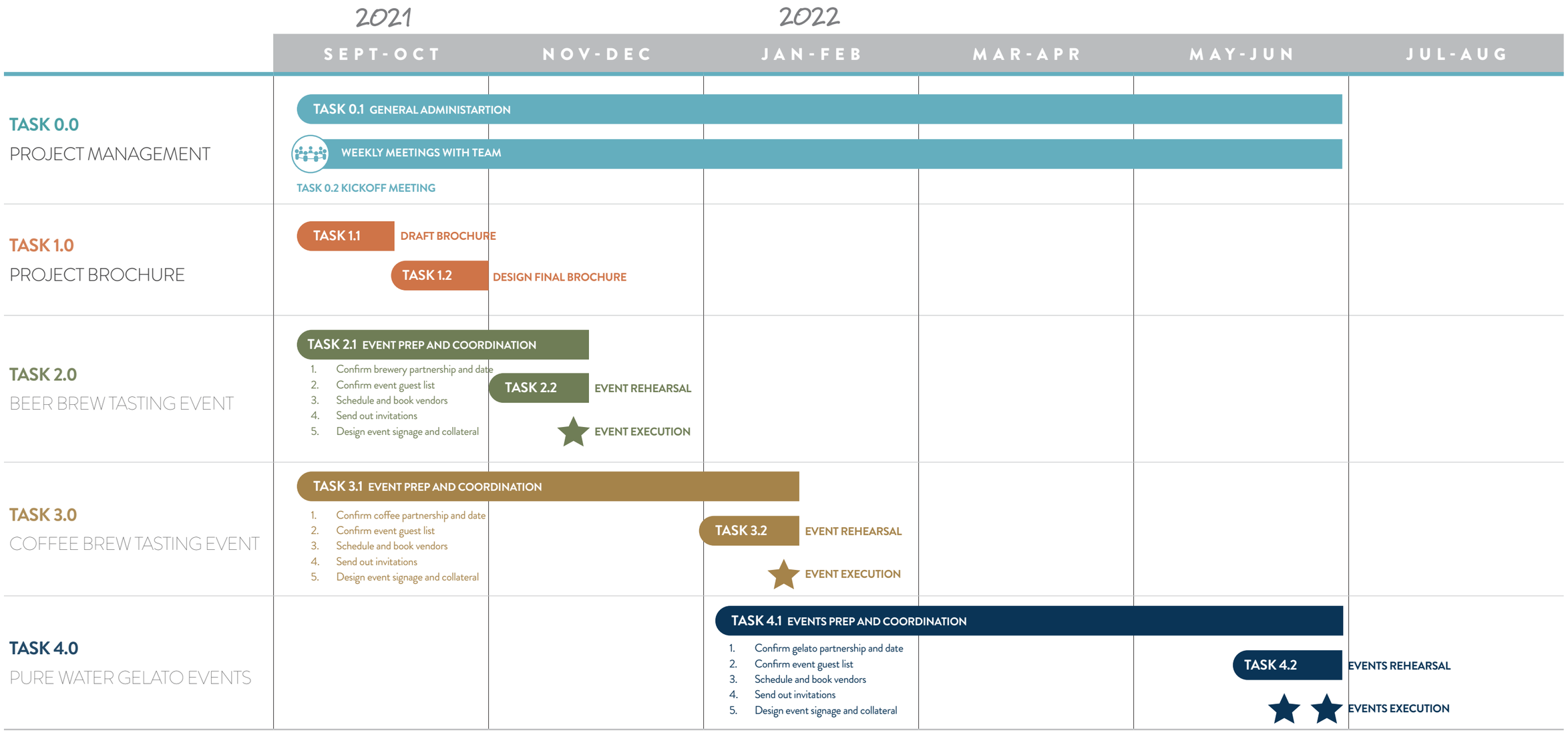
OPTIONAL TASKS

- **OT 3.1 Attendee Survey**
  - Develop pre/post survey to gain stakeholder insight at each of the three events
- **OT 3.2 Professional Photography/Videography**
  - Provide photography and videogrpay services for each of the three events

Project Schedule

Project Schedule

We will guide a realistic and mindful schedule that enables successful event planning and execution.



Fee Estimate

Fee Estimate

Task No.	Task Description	WSC										ALL FIRMS
		0	0	0	0	0	0	WSC Labor Hours	WSC Labor Fee	Expenses	WSC Fee	Total Fee
		Jeffery Szytel	Dianne Lee	Haili Matsukawa	Amy Stevens	Nina Thoming	Spencer Cole					
	Billing rates, $/hr	*$320*	*$275*	*$230*	*$230*	*$140*	*$125*					
0	**Project Management**											
0.1	General Administration			30				**30**	**$ 6,900**	**$ 300**	**$ 7,200**	**$ 7,200**
0.2	Kickoff Meeting with District/JPA Staff	1		3	2	3		**9**	**$ 1,890**	**$ 100**	**$ 1,990**	**$ 1,990**
	SUBTOTAL	**1**	**0**	**33**	**2**	**3**	**0**	**39**	**$ 8,790**	**$ 400**	**$ 9,190**	**$ 9,190**
1	**Project Brochure**											
1.1	Draft Brochure			6		10		**16**	**$ 2,780**	**$ 100**	**$ 2,880**	**$ 2,880**
1.2	Design Final Brochure			2		5		**7**	**$ 1,160**	**$ -**	**$ 1,160**	**$ 1,160**
	SUBTOTAL	**0**	**0**	**8**	**0**	**15**	**0**	**23**	**$ 3,940**	**$ 100**	**$ 4,040**	**$ 4,040**
2	**Beer Brew Tasting Event**											
2.1	Beer Brew Event Preparation and Coordination			20		10		**30**	**$ 6,000**	**$ 200**	**$ 6,200**	**$ 6,200**
2.2	Event Rehearsal			4		4		**8**	**$ 1,480**	**$ 100**	**$ 1,580**	**$ 1,580**
2.3	Beer Brew Event Execution	2		8	2	8		**20**	**$ 4,060**	**$ 200**	**$ 4,260**	**$ 4,260**
	SUBTOTAL	**2**	**0**	**32**	**2**	**22**	**0**	**58**	**$ 11,540**	**$ 500**	**$ 12,040**	**$ 12,040**
3	**Coffee Brew Tasting Event**											
3.1	Coffee Brew Event Preparation and Coordination			20		10		**30**	**$ 6,000**	**$ 200**	**$ 6,200**	**$ 6,200**
3.2	Event Rehearsal			4		4		**8**	**$ 1,480**	**$ 100**	**$ 1,580**	**$ 1,580**
3.3	Coffee Brew Event Execution	2		8	2	8		**20**	**$ 4,060**	**$ 200**	**$ 4,260**	**$ 4,260**
	SUBTOTAL	**2**	**0**	**32**	**2**	**22**	**0**	**58**	**$ 11,540**	**$ 500**	**$ 12,040**	**$ 12,040**
4	**Pure Water Gelato Event**											
4.1	Pure Water Gelato Event Preparation and Coordination			20		10		**30**	**$ 6,000**	**$ 200**	**$ 6,200**	**$ 6,200**
4.2	Event Rehearsal			4		4		**8**	**$ 1,480**	**$ 100**	**$ 1,580**	**$ 1,580**
4.3	Pure Water Gelato Event Execution	2		12	2	12		**28**	**$ 5,540**	**$ 200**	**$ 5,740**	**$ 5,740**
	SUBTOTAL	**2**	**0**	**36**	**2**	**26**	**0**	**66**	**$ 13,020**	**$ 500**	**$ 13,520**	**$ 13,520**
	COLUMN TOTALS	**7**	**0**	**141**	**8**	**88**	**0**	**244**	**$ 48,830**	**$ 2,000**	**$ 50,830**	**$ 50,830**

OT 1	**Project Management**											
OT 1.1	Stakeholder Mapping and Master Contact List		2	5				**7**	**$ 1,700**	**$ 100**	**$ 1,800**	**$ 1,800**
OT 1.2	Funding Strategy		2	8				**10**	**$ 2,390**	**$ 100**	**$ 2,490**	**$ 2,490**
OT 1.3	Media and Advertising		2		10			**12**	**$ 2,850**	**$ 100**	**$ 2,950**	**$ 2,950**
	Project Management TOTAL	**0**	**6**	**13**	**10**	**0**	**0**	**29**	**$ 6,940**	**$ 300**	**$ 7,240**	**$ 7,240**
OT 2	**Project Brochure**											
OT 2.1	Event Branding			4		10		**14**	**$ 2,320**	**$ 100**	**$ 2,420**	**$ 2,420**
OT 2.2	Promotional Video			4		10	8	**22**	**$ 3,320**	**$ 100**	**$ 3,420**	**$ 3,420**
OT 2.3	Event Swag and Collateral			2		8		**10**	**$ 1,580**	**$ 100**	**$ 1,680**	**$ 1,680**
	Project Brochure TOTAL	**0**	**0**	**10**	**0**	**28**	**8**	**46**	**$ 7,220**	**$ 300**	**$ 7,520**	**$ 7,520**
OT 3	**Events**											
OT 3.1	Attendee Survey			2	8			**10**	**$ 2,300**	**$ 100**	**$ 2,400**	**$ 2,400**
OT 3.2	Professional Photography/Videography						24	**24**	**$ 3,000**	**$ 100**	**$ 3,100**	**$ 3,100**
	Events TOTAL	**0**	**0**	**2**	**8**	**0**	**24**	**34**	**$ 5,300**	**$ 200**	**$ 5,500**	**$ 5,500**
	OPTIONAL TASKS TOTAL	**0**	**6**	**25**	**18**	**28**	**32**	**109**	**$ 19,460**	**$ 800**	**$ 20,260**	**$ 20,260**

10% mark-up on direct expenses; 15% mark-up for sub-contracted services
Standard mileage rate $0.57 per mile (or current Federal Mileage Reimbursement Rate)
Rates are subject to revision as of January 1 each year.

Fees are inclusive of WSC labor costs. The District will be responsible for event costs incurred by outside vendors.

Resumes

Jeff Szytel MS, MBA, PE

PROFESSIONAL EXPERIENCE

Jeff has more than 25 years of experience in the water, wastewater, and recycled water industry. He is a Professional Engineer, experienced program manager, and strategic communications expert. Since founding WSC 13 years ago, Jeff envisioned providing strategic communications and outreach support to the same clients working toward implementing critical water resources projects. His passion is finding the alignment between creative and technical ideas, bridging the communications gap within the industry, and forging the path to make these services an essential component to the technical work that we do. As a strategic planning leader, he brings passion for listening to needs, distilling them down into actionable tasks, and delivering high quality results in strategic planning, communications, and engineering services.

REPRESENTATIVE PROJECTS

Ventura Water Pure Water Supply Strategic Communications and Facilitation, City of Ventura, Ventura, CA. *Principal in Charge.* Overseeing ongoing strategic communications efforts to build internal alignment and external public support for key water planning water supply, and water rate decisions. Support has included messaging and content development to support ongoing public affairs for proposed water supply projects, including a State Water interconnection and a new advanced water treatment facility capital investment. Approach has helped translate complex technical messaging into accessible collateral, video, website content, talking points, and op eds to appeal to stakeholder audiences and earn positive public support..

Strategic Plan Facilitation and Design, San Bernardino Valley Municipal Water District, San Bernardino Municipal Water District, San Bernardino, CA. *Project Manager and Principal in Charge.* Leading creative production of an accessible, digestible Strategic Plan document that supports decision making and addresses priority needs for the future. Facilitating workshops to build consensus on the mission, values, vision, and shared agreement on goals and measures of success.

Central Coast Blue, Multiple Agencies, Pismo Beach, CA. *Principal in Charge.* Oversaw stakeholder collaboration to arrive at a regional water supply solution. Advisor to WSC's Program Management Team leading the implementation of the Central Coast Blue Program. Served as an advisor to the communications strategy for a $30 million program that included the participation of five separate agencies.

San Clemente Dam Removal and Carmel River-Reroute, California American Water, Carmel Valley, CA. *Program Manager.* Responsible for the management of the high-profile, largest dam removal ever completed in California. Program included website development and management, extensive stakeholder outreach between public and private entities to gain buy-in, conducted numerous public and technical presentations that included messaging practices, on- and off-site workshops, press release development, and print and video interviews.

SLO Water Plus Project, City of San Luis Obispo, San Luis Obispo, CA. *Program Manager/Principal in Charge.* Managed communications and engagement for a regional, multi-year public outreach campaign to support the largest capital investment in the City's history. Tasks included guiding message

WSC

EDUCATION

MBA, UCLA Anderson School of Management

MS, Civil Engineering, University of California Los Angeles

BS, Civil and Environmental Engineering, University of California Davis

REGISTRATIONS

Professional Engineer - Civil, California, No. C63004

"I am passionate about creating a better water future for our communities and environment. I founded WSC in 2007 to pursue this vision with a focus on the human connection that brings transformative solutions to life. I look forward to earning your trust and building a better water future together!

Jeff Szytel

development around the different treatment technologies and site upgrades, developing a program website; and supporting the ongoing public information campaign. WSC's continued support through the project's duration will amplify the project's alignment to the City's Climate Action Plan and Community Workforce Agreement while maintaining positive public support.

Chino Basin Project, Inland Empire Utilities Agency, Ontario, CA. *Principal in Charge/Strategic Advisor.* Key advisor and participant to an innovative project which addresses regional capacity and water quality needs with a network of recycled water treatment, distribution, and storage investments. He has supported the program team with strategic goal setting and action plan development for the program. And, he has supported the strategic communications action plan.

Enhanced Urban Water Management Plan, City of Santa Barbara, CA. *Project Manager and Principal in Charge.* Providing strategic communications support for the development of an Enhanced Urban Water Management Plan that navigates uncertainty and builds broad stakeholder support in its future water supply. The team is conducting a collaborative, transparent stakeholder engagement process that will engage 16 community leaders representing the City's critical water customers.

Regional Recycled Water Concept Study, San Bernardino Valley Municipal Water District, San Bernardino, CA. *Principal in Charge.* Collaborated with 10 local agencies to identify regional projects to improve water supply reliability and sustainability. The project included leading stakeholder workshops to create alignment behind a unified vision. The Study is still being used and projects identified in it are currently being implemented.

SAWPA Strategic Plan, Santa Ana River Watershed Protection Agency, Riverside, CA. *Principal in Charge.* Leading the development of a Strategic Plan update that provides a timely opportunity to bring together staff, the Commission, General Managers of Member Agencies and key SAWPA teams for open and engaging dialogue that leads to functional and integrated action plans. Jeff will lead a series of interactive workshops that will bring different listening styles and voices to the process to build consensus on the mission, values, and vision for SAWPA. SLO Water Plus Facility Upgrade, City of San Luis Obispo, CA. Program Manager. Managing a $145 million treatment facility upgrade, the largest capital improvement project in City history. Developed the Program Charter which fosters the guiding principles that all decisions about the project are filtered through. The Program Charter is a program-specific strategic plan that is still being used and guiding the project nearly five years later.

Replenish Big Bear, Big Bear Area Regional Water Agency, Big Bear, CA. *Principal in Charge.* Providing program management services to develop a project that will create a new, sustainable water resource to benefit the Big Bear Valley and the entire Santa Ana River watershed. Serving as principal in charge and as a technical advisor on the planning, permitting, and design for the program. Alternatives were analyzed based on treatment and regulatory requirements, water supply yield, social and environmental benefits, and life-cycle cost. Led workshops with key stakeholders and meetings with state and federal funding and regulatory agencies to support the implementation of a cost-effective project.

Cayucos Sustainable Water Project, Cayucos Sanitary District, Cayucos, CA. *Principal in Charge.* Provided program management services, which include schedule management; stakeholder outreach coordination; meeting coordination and facilitation; action item/data request/project decision tracking; and subconsultant management, to assist the Cayucos Sanitary District in evaluating and identifying alternatives for the development of a Water Resource Recovery Facility to treat sewage from its collection system and provide a beneficial use for the treated wastewater. Additionally, completed the Phase 1 initial tasks for the Cayucos Sustainable Water Project. These initial tasks include project chartering, beneficial use analysis, wastewater characterization, siting analysis, funding and financial strategy, and wastewater collection system evaluation.

Project Management Support, City of Camarillo, Camarillo, CA. *Principal in Charge.* Provided project management support for implementation of various recycled water projects. Prepared design drawings for recycled water connections to irrigate City landscape, a recreational sports park and an elementary school. Prepared design drawings for the installation of a backup potable water supply for recycled water distribution, and developed standard operating procedures for recycled water facilities. Coordinated with Division of Drinking Water to ensure compliance with regulations for recycled water irrigation. Assisted the City to develop a recycled water use program for private water use. Prepared various Use Site reports for DDW compliance, including cross connection control testing.

Haili Matsukawa MPPA

PROFESSIONAL EXPERIENCE

Haili Matsukawa is an accomplished communications professional specializing in community outreach, public affairs, and stakeholder coordination. She has developed strategic communication plans and managed outreach events for complex and sensitive initiatives, including potable reuse projects, utility rate increases, and environmental litigation. Haili has experience developing effective messaging, engaging materials, and multifaceted programs to connect with diverse audiences.

With years of experience working as a public servant, Haili brings a strong understanding of the emerging challenges and opportunities facing local government and public utilities. Ms. Matsukawa has specialized training in crisis communications and advanced-level coursework in civic engagement, leadership, and policy implementation. Haili is a dynamic public speaker and thoughtful facilitator with a passion for community-driven solutions.

EDUCATION

Masters, Public Policy and Administration, California Lutheran University

BS, Environmental Science, Point Loma Nazarene University

REPRESENTATIVE PROJECTS

Water: Take 1 Film Festival, Ventura, CA. *Event Planner and Coordinator.* The Water: Take 1 Film Festival presents water-themed short films that showcase critical water issues and community efforts in water conservation, resource management, and sustainability. The annual event, hosted by Ventura Water, highlights the value of water through visual arts and compelling storytelling. With over ten years in production, Water: Take 1 is well attended and celebrated in the community. During her time with agency, Haili served as the lead event coordinator, responsible for event planning, advertising, budgeting, and implementation. Haili coordinated the event run-of-show, identified partners, directed featured films, secured sponsors and keynote speakers, designed invites, scheduled vendors (venue, rentals, music, food), and coordinated day-of media.

California Water Environmental Association, Community Engagement and Outreach Person of the Year, Tri-Counties, CA. *Event Planner and Coordinator.* In 2019, Haili was awarded Community Engagement and Outreach Person of the Year by California Water Environment Association for her leadership on the Summer Open House event, which brought together 300 community members to learn about proposed water supply solutions. The event hosted a mix of community leaders, regional stakeholders, and water reuse professionals from Morro Bay, Las Virgenes Municipal Water District, City of Oxnard, and Central Coast Blue. Guests toured Ventura's wastewater treatment facility, viewed a short video on the VenturaWaterPure Program, interacted with advanced treatment components, and were invited to taste purified water. The event attracted elected officials and was featured in local media.

Communications and Outreach for Water Supply Solutions, Ventura Water, Ventura, CA. *Communication Manager.* Prolonged drought, increased regulations, and environmental challenges have left Ventura's 100% local water sources at risk. Ventura is pursuing two major water supply projects, including VentureWaterPure, a potable reuse project that will improve water quality, meet legal mandates, and provide a drought-resilience water supply for the City. As Management Analyst for Ventura Water, Haili was responsible for executing a long-term communications campaign for the department's key capital improvement projects.

"With years of experience working for a water agency, I hold a deep understanding of the emerging challenges and opportunities facing public utilities. As a communicator, it is my mission to add value to the important work my clients do every day."

Haili Matsukawa

Haili was instrumental in engaging key stakeholders, developing a public awareness campaign, preparing presentations, organizing special events, identifying professional partners, crafting talking points, directing video campaigns, overseeing media relations, and creating digital and print materials. Haili managed both internal and external affairs, enhancing awareness and support among residents, City leaders, and elected officials.

Strategic Communications and Outreach Plan for Utility Rate Increases, Ventura Water, Ventura, CA. *Project Lead.* Signification investments are needed in Ventura's water and wastewater systems to ensure safe and reliable services now and into the future. Haili developed and implemented a comprehensive communication and outreach strategy to support public engagement, community awareness, and transparency through a year-long water and wastewater rate study. Digital materials (videos, virtual meetings, social media, and e-newsletters) and print collateral (news articles, bill inserts, and mailers) were created in English and Spanish to reach diverse audiences. An online engagement tool was developed to encourage public participation and two-way communications during the rate-setting process. The platform featured a survey, idea-board, educational video series, answers to frequently asked questions, and a bill calculator for customers to view rate adjustment impacts. The communication plan successfully leveraged economic development stakeholders, non-profit organizations, and community leaders to win the support of the City Council and ratepayers.

Maximizing Outreach and Engagement Through Partnerships. *Water Smart Innovations Conference, Las Vegas, NV.* Program Manager. During her time with Ventura Water, Haili developed strategic community partnerships with influential stakeholders, including educational institutions and environmental nonprofit organizations. She designed a unique education program with the MERITO Foundation Inc., a Central Coast-based nonprofit organization dedicated to providing meaningful watershed experiences to multicultural youth. Each year, Ventura Water sponsors approximately 500 students to participate in MERITO Foundation's Watershed and Ocean Education Program. Teachers receive training on the curriculum focusing on water conservation, water treatment, and stormwater pollution prevention. Additionally, participating schools visit one of Ventura Water's coastal facilities for a day of science-based learning and data collection. Post-program survey results demonstrate a positive impact on students' environmental behaviors, specifically in water conservation and stormwater pollution prevention. In 2019, The program was recognized at Water Smart Innovations Conference as a creative outreach and education model for water agencies.

Emergency Communication Plan. *City of Ventura, Public Information Office.* Liaison. Ms. Matsukawa has supported crisis communications through numerous local disasters, including devastating wildfires and a citywide boil water advisory. She has contributed to the City's Emergency Communications Plan by implementing new tools and strategies needed to reach residents during a crisis. She has experience working in an emergency operations center, securing regional resources, and developing emergency communications materials such as press releases, e-blasts, social media posts, website content, brochures, talking points, interview scripts, and more.

Water Infrastructure Finance and Innovation Act (WIFIA) Letter of Interest. *City of Ventura, CA.* Management Analyst. Haili served as the lead staff member to develop the City of Ventura's WIFIA Letter of Interest (LOI). Haili coordinated with a third-party grant specialist to deliver a competitive and complete LOI for the City of Ventura's $250 million potable reuse project. Haili was responsible for developing the project description, scope, and fee schedule, compiling supporting documents/agreements, and ensuring all program requirements were met. The LOI successfully demonstrated project value and was approved to apply for up to $125 million in WIFIA funding.

Department of Water Resources Integrated Regional Water Management (IRWM) Grant Program, Ventura County, CA. *Program Manager.* Haili acted as the program manager and grant administrator for the Department of Water Resources 2015 Proposition 84 IRWM Grant program. The City of Ventura was awarded $1.24 million to manage a regional water conservation program that offered rebates and incentives to Ventura County residents not served Metropolitan Water District Southern California rebate program. Haili served as the program manager and lead grant administrator for a suite of programs that offered turf replacement rebates, direct installation on high-efficiency irrigation devices, water efficiency surveys and more.

Bureau of Reclamation WaterSMART Grant Program, City of Ventura, Ventura, CA. *Management Analyst.* Haili has diverse experience in program development and grant management. For over nearly five years, she managed the City of Ventura's Water Wise Incentive Program, which provided water conservation rebates and incentives to residential and commercial customers for an estimated water savings of that approximately 190 acre-feet per year. The program was funded in part by the Bureau of Reclamation WaterSMART Grant Program. Haili was responsible for program management, development of semi-annual progress and financial reporting,

Bureau of Reclamation WaterSMART Title XVI Water Reclamation and Reuse, City of Ventura, Ventura, CA. *Management Analyst.* Coordinated with third-party grant specialist to deliver a complete and competitive grant application. Involved in developing the project description, scope, fee scheduled, letters of support. Worked closely with the City's federal lobbyist to secure letters of support from diverse stakeholders including State and Federal legislators, environmental organizations, labor groups, regional agencies, and special districts. Developed project reports and semi-annual financial reporting. In 2020, the City of Ventura was award $2.4 million for the VenturaWaterPure Program.

Amy Stevens

PROFESSIONAL EXPERIENCE

Amy is an integrated communications strategy expert who brings more than 15 years of experience in the public relations and outreach fields. Her experience includes leading media relations and event planning and promotion, reaching wide audiences using tailored communication strategies. Amy has planned engaging community events and utilized the media to support the organizations key messaging and goals. She is a results-driven communicator who utilizes data to support decision-making and demonstrate successful ROI.

REPRESENTATIVE PROJECTS

Public Relations, Chapman University, Orange, CA. *Director of Public Relations.* Developed and executed the university's public relations, crisis communication and internal communication strategies. Amy served as the main point of contact for media inquiries and proactive pitches for local and national media. She secured positive placements in national and local media including CNN, NBC, The Kelly Clarkson Show, FOX News, Wall Street Journal, KPCC, OC Register, LA Times, OC Business Journal, KCBS, KNBC, and more. Amy utilized Trendkite/Cision for building pitch lists, tracking coverage, and identifying trends. She created and reported key performance indicators, including placements, page visits, ticket sales, etc. Amy was a key decisionmaker in planning cornerstone university events, including the Economic Forecast, commencement, orientation, and the foundation gala. She ensured the events adhered to the university brand, accomplished strategic goals, and received positive media coverage – locally and nationally.

Public Information Officer, Garden Grove Unified School District, CA. *Public Information Officer.* Served as the media contact for the board of education, district office and 70 school sites, securing positive placements in local and national outlets, including English, Vietnamese, Korean, and Spanish media. As part of the Superintendent's Cabinet, she counseled senior management on communication goals, strategies, and outcomes. Amy wrote press releases, employee and community publications, newsletters, internal communications, board policies, presentations, web content, a strategic plan and more. Amy planned and promoted community and employee events, including art shows, graduations, groundbreakings, facility tours, and more. She worked with a graphics firm to create all event materials – in multiple languages – to ensure that the district brand was upheld. She secured positive coverage for these events in local and national media.

Communications Specialist, SchoolsFirst Federal Credit Union, Tustin, CA. *Senior Communication Specialist.* Amy wrote and distributed communications to 900,000+ members through integrated campaigns including social media (Facebook, Twitter and Instagram), public relations, events, digital and offline media. She initiated and executed organization's first intentional public relations efforts. Additionally, she wrote and developed the design for annual community report and recruited members and directed them in testimonial videos and photoshoots. Amy independently managed several of the organizations high-priority events and was responsible for hiring food and activity vendors, securing insurance, promoting the event to encourage attendance, setting up and day-of event management, post-event coverage, and reporting out results to the board. Events included the annual school supplies drive, several branch grand openings, groundbreakings, all-staff meetings, and more.

WSC

EDUCATION

MA, Communication, California State University - Fullerton

BA, Technical and Professional Writing, San Francisco State University

"I'm passionate about driving dynamic communication strategies that help organizations educate their communities and drive meaningful change."

Amy Stevens

Dianne Lee

PROFESSIONAL EXPERIENCE

Dianne Lee brings over 20 years of communication, facilitation, and marketing experience. Dianne's experience covers a broad range of topics including leading large and small group workshops, strategic planning, technical writing, event planning, and developing collateral. She works with technical and non-technical teams providing planning, preparation, and facilitation for events, meetings, workshops, seminars, conferences, and technical focus groups.

REPRESENTATIVE PROJECTS

Open House and Tours, Easterly Wastewater Treatment Plant, City of Vacaville. *Event Coordination.* Worked on the City's team to deliver a successful dedication ceremony and open house for the City's expanded Easterly Wastewater Treatment Plant. Responsible for schedule of events which included dedication event, plant tours, and refreshments. Created event invitations and a full color brochure on the plant and the improvements. Over 100 dignitaries, guests, and community members attended.

Dedication Ceremony and Public Brochures, Lincoln Highway and U.S. *Highway 40, Placer County Water Agency, CA.* Public Outreach Materials Support. Created outreach materials for the dedication of a monument on the historic Lincoln Highway and Highway 40. Worked with graphics team to produce a five-fold, educational brochure that discussed the monument and the local history of this historic transportation corridor. Provided support to the dedication ceremony for the monument, including creating invitations and event posters.

Press and Stakeholder Event, Effluent Export Project, Incline Village General Improvement District, CA. *Event Support.* Team lead for developing all materials used at a promotional event for this joint project between Incline Village General Improvement District (IVGID) and the US Army Corps of Engineers. The outdoor event at Spooner Lake State Park, featured the Honorable US Senator Harry Reid and included project stakeholders and the media. Worked with the client and technical staff to create project display boards and a trifold brochure highlighting the benefits and results of regional cooperation on this project.

Event Planning, US Army Corps of Engineers Permitting Seminar, American Public Works Association, Sacramento Chapter, Sacramento, CA. *Event manager.* Responsible for planning, coordination, and implementation for a one-day seminar in Sacramento for 300 attendees, featuring public and regulatory entities engaged in the local permitting process, specifically the 404 permitting process. Served on the organizing committee consisting of the four professional organizations; APWA, ASCE, SAME, and BIA, and included considerable representation from the US Army Corps of Engineers. Subsequently organized a follow up, half day seminar on Jurisdictional Delineations of Waters of the U.S.

Anniversary Event Program, Private Consultant, California. *Managed Program.* Created and implemented a year long, branded program to celebrate and commemorate a milestone company anniversary. Managed the process and logistic to create a community giving program, an outreach plan, a founders video, and a company video—cumulating in a dinner and theater event for over 100 guest.

WSC

EDUCATION

BS, Business, Journalism, Psychology, Iowa State University

"I am passionate about leading with my heart and keeping people as the focus of all my work."

Dianne Lee

Conference Event, Region 4 Forum on Regional Cooperation, Association of California Water Agencies (ACWA) Conference, Spring, 2010, Monterey, CA. *Coordinator.* Lead for developing and coordinating delivery of a conference forum on regional cooperation for reliability, operational flexibility, and sustainability. Organizer of a regional agency panel featuring general managers and directors from San Juan Water District, City of Folsom, Sacramento Suburban Water District and Placer County Water Agency. This forum provided opportunities to promote the benefits of regional water partnerships and engage the audience in sharing their regional water questions and stories. Responsible for coordinating with ACWA's program developer, participating in planning meetings with the panel, and preparing materials for the forum.

Event Management, Water Knowledge Transfer Workshops on Maximizing Available Water Resources, Davis and Fresno, CA. *Workshop Lead/Project Manager.* Initiated, coordinated, and implemented two six-hour workshops in Davis and Fresno California which focused on water supply reliability and water resource planning. Workshops were attended by 65 staff members from California water districts and agencies. Responsible for planning these events, coordinating facilities, speakers, and other logistics, managing the preparation of materials, providing on-site coordination at each event, and generating evaluation summaries and follow-up action plans.

Workshop for Central Valley Clean Water Agencies Water Committee Educational Permitting Workshop, Sacramento, CA. *Workshop Lead.* Co-lead in planning and developing a wastewater discharge permitting workshop attended by over 60 professionals. Worked with conference committee to plan speakers, arrange facilities, and publicize the event. Provided pre-workshop outreach to potential audience members to solicit input on industry topics of interest and worked with the speakers to integrate this feedback into the program.

Sacramento River Water Reliability Study. *Placer County, CA.* Stakeholder Integration/Final Report Preparation. Interviewer of select water agency stakeholders regarding opportunities and barriers to cooperation on a new regional surface water supply project. Assisted in developing interview questions, coalesced all interview results, and developed agendas, formats, and messaging for stakeholder presentations and workshops. Created structure, content, and graphics for the Phase 1 Final Report that is used to share the project story and benefits with potential agency partners, community groups, and state officials. Subsequent phases of this project are within the River Arc Program.

Davis-Woodland Water Supply Project, Davis, CA. *Stakeholder and Community Outreach.* Provided project messaging in the initial stages of developing a commitment with project participants to move forward with developing a regional surface water supply project, including garnering board support from two cities. Collaborated with the client and program team to craft informative and persuasive city council presentations. Provided writing, production oversight, and editing for the project's first community report. Assisted with informational collateral over the 8-year span of the project, and prepared five successful industry award packages.

Public Meeting Support, Yountville Flood Barrier Project, Town of Yountville, CA. *Community Outreach.* Provided guidance on messaging of public presentations for two community outreach workshops. Included assisting in crafting content, preparing the presentation, and creating informative handout materials.

Public Meeting Support, Cameron Ranch Levee and Storm Drainage Improvements, Sacramento, CA. *Communications Support.* Provided guidance on presentation materials and message delivery for a community outreach workshop to discuss municipal flood control options for a creek located behind many community properties. Assisting in content development, team rehearsals, and preparing presentation and handout materials.

Regional Water Supply Reliability, Agency Interviews and Regional Water Authority (RWA) Presentation, Placer County, CA. *Stakeholder Outreach.* Assisted in conducting interviews with regional water managers to identify opportunities and barriers to enhanced regional efforts for water modeling and management. Assisted in consolidating responses, formulating the summary presentation, and creating the presentation materials.

Oak Park Regional Storage Project, Sacramento, CA. *Collateral/ Awards.* Worked with city engineering staff to prepared presentation materials for community meeting on construction of an underground storage facility located in a community park. Prepared successful industry award package for client.

Effluent Export Project, Incline Village General Improvement District (IVGID), CA. *Event Support.* Directed internal team for the development of all materials used at a media event featuring the Effluent Export Project, a joint project between IVGID and the US Army Corps of Engineers. Three oversized display boards were created for the Lake Tahoe Basin event at Spooner Lake State Park, which featured the Honorable US Senator Harry Reid. In addition, a trifold brochure highlighting the project was created and 200 copies were printed.

Coordination/Collateral, Region 4 Forum at ACWA's 2010 Spring Conference, Monterey, CA. *Panel Team Coordinator.* Led development and delivery of a conference forum on Regional Cooperation for Reliability, Operational Flexibility, and Sustainability. More than 50 ACWA delegates attended the forum, which featured a panel of general managers and directors from San Juan Water District, City of Folsom, Sacramento Suburban Water District and Placer County Water Agency. Responsible for coordinating with ACWA's program developer, participating in planning meetings with the panel, and preparing materials for use at the event.

Nina Thoming

PROFESSIONAL EXPERIENCE

Nina Thoming is a graphic designer whose more than 5 years of experience includes guiding brand development, visual direction, collateral design, and event planning all within the water industry. She utilizes a wide array of multimedia disciplines to convey technical information to a variety of audiences in accessible presentations, including information graphics, websites, videos, PowerPoint, as well as wide-ranging documents, strategic plans, branding, brochures, and signage. She has supported our clients in event planning and coordination, specifically for ribbon cuttings and groundbreaking ceremonies for water reuse projects.

REPRESENTATIVE PROJECTS

VenturaWaterPure, City of Ventura, CA. *Graphic Designer and Events.* Created a project sub-brand within Ventura Water, called VenturaWaterPure. Developed brand guidelines, website updates, videography packages, infographics, handouts, and brochures. Supported the event planning and signage for their Summer Open House. The project will provide the City with a new reliable water source.

SLO Water Resource Recovery Facility, City of San Luis Obispo, CA. *Graphic Designer and Events.* Created a project logo, main brand concepts, marketing materials, a new website, various infographics, and a video highlighting aspects of the project. Supported with the event planning for the City's Groundbreaking Event.

Central Coast Blue, City of Pismo Beach, CA. *Graphic Designer and Events.* Designed various graphics including signage, website updates, and graphic design support for award submittals. The project won the 2019 Outreach and Education Program of the Year award from California WateReuse and at the National WateReuse Symposium. Supported with the event planning for the Ribbon Cutting Ceremony.

North Pleasant Valley Desalter Rebranding and Outreach, City of Camarillo, CA. *Graphic Designer.* Supporting the design of a new project brand and outreach communications strategy for the North Pleasant Valley Desalter to raise community awareness and support. The project included designing informational signs for the 2019 groundbreaking event.

Enhanced Urban Water Management Plan, City of Santa Barbara, CA. *Graphic Designer.* Created a project sub-brand within City of Santa Barbara, called Water Vision Santa Barbara. Developed a logo, website graphics, videography packages, infographics, presentations, and more. Provided graphic support for the first annual Water Vision Month.

Annual Groundwater Assessment Report, City of Riverside, CA. *Graphic Designer.* Designed a 56-page, hard-cover groundwater atlas for City of Riverside Public Utilities. Worked with the hydrogeologic team to create 30+ maps and infographics. Coordinated the book printing for client.

Strategic Communications and Content Development for Website Update and Related Outreach, San Elijo Joint Powers Authority, Cardiff, CA. *Graphic Designer.* Developed new logo and helped guide visual proponents of rebrand strategies. Assisted with annual report layout and design and designed handouts for Authority's public learning center.

SLO Basin Groundwater Sustainability Plan, County of San Luis Obispo, CA. *Graphic Designer.* Designed a quarterly project update template and developed a visual brand for the project focusing on colors, fonts, and aesthetics.

WSC

EDUCATION

BS, Graphic Communication, California Polytechnic University, San Luis Obispo

"I love to apply strategic thinking to capture complex, technical ideas and concepts through visually engaging graphics using a wide variety of medias."

Nina Thoming

Spencer Cole

PROFESSIONAL EXPERIENCE

Spencer is a multimedia professional and communications specialist with 7 years of experience as a full-time journalist and more than a decade of combined experience in related fields. His services for WSC range from photography and videography, copy editing, proposal preparation, schedule driving, and writing press releases and other creative content. Spencer has provided photography and videography services for several events celebrating the groundbreaking of water and wastewater infrastructure projects.

REPRESENTATIVE PROJECTS

San Luis Obispo Valley Groundwater Sustainability Plan, City and County of San Luis Obispo, San Luis Obispo, CA. *Communications Support.* Support includes photographing and documenting planning meetings with the GSAs, copy editing outreach materials and staff reports, and editing collateral and website content.

Cayucos Sustainable Water Project, Los Osos, Cayucos, CA. *Photography and Videography Support.* Captured video and photos of new facility including tours and ground breaking events.

Freelance Videography and Photography, Columbia, MO. *Creative Director.* Responsible for all camera work, editing, client outreach, story boarding, script writing, etc. Videography clients included professional musicians and automotive companies.

New Times Media Group, San Luis Obispo, CA. *Staff Photographer and Writer.* Staff photographer and writer for two years who covered the environment, Santa Barbra County, and SpaceX. Tasks included A-1 and supporting pages photography, assisting with the development and operation of social media and website accounts, and copy editing.

The World Newspaper, Coos Bay, OR. *Metro Reporter and Weekend and Night Photographer.* Led City and County coverage of Oregon coastal community with two unique beats: business and city government. Tasks included serving as weekend and night staff photographer, writing and researching for multi-week and multi-month longform investigative and enterprise stories, and providing critical website and social media editing and content moderation.

The Porterville Recorder, Porterville, CA. *Assistant Staff Photographer and Editor.* Served as a Monday, nights, and weekend newsroom staff photographer in addition to working full-time as a reporter and editor with three unique beats: Health, Education and the Environment. Tasks included taking and editing photos, editing photos for page spreads, editing and designing pages for editorial and news, and social media editing, outreach and content moderation.

The Oklahoma Eagle Newspaper, Tulsa, OK. *Freelance Reporter, Writer, and Photographer.* Contributed photographs for sports and entertainment sections of historic, black-owned weekly newspaper.

WSC

EDUCATION

BA, History, University of Missouri, Columbia

"I enjoy being a part of the solution to help protect essential water resources for communities everywhere."

Spencer Cole

Professional Services Agreement

Las Virgenes Municipal Water District
PROFESSIONAL SERVICES AGREEMENT

This Professional Services Agreement ("Agreement") is entered into this_____day of _____, 20Choose an item. by and between Las Virgenes Municipal Water District ("Agency"), and Consultant ("Consultant"). Agency and Consultant are sometimes individually referred to as "Party" and collectively as "Parties."

1. PURPOSE.

1.1 Project.

Consultant desires to perform and assume responsibility for the provision of certain professional services required by the Agency on the terms and conditions set forth in this Agreement and Agency desires to engage Consultant to render such services for project ("Project") as set forth in this Agreement and its attached exhibits.

Now therefore, in consideration of the mutual covenants and agreements set forth herein, the Parties do contract and agree as follows:

2. TERMS.

2.1 Scope of Services.

2.1.1 General Scope of Services. Consultant promises and agrees to furnish to the Agency all labor, materials, tools, equipment, services, and incidental and customary work necessary to fully and adequately supply the professional services necessary for the Project ("Services"). The Services are more particularly described in the attached **Exhibit "A"** ("Scope of Services"). All Services shall be subject to, and performed in accordance with, this Agreement and~~,~~ the exhibits attached hereto and incorporated herein by reference, and Consultant shall exercise the Standard of Care to comply with all applicable local, state and federal laws, rules, and regulations.

2.1.2 Term. [*This Agreement shall commence on the date above written and shall continue until completion of the Services described above.*

or

The term of this Agreement shall be from Date to Date, as set forth in the attached ***Exhibit "B"*** *("Fee Schedule") unless earlier terminated as provided herein. Consultant shall perform its services to meet the schedule as expeditiously as is consistent with the exercise of professional skill and care and the orderly progress of the Project to complete the Services within the term of this Agreement and ~~shall~~ to meet any other established schedules and deadlines. The Parties may, by mutual, written consent, extend the term of this Agreement if necessary to complete the Services.*]

Format

2.2 Consideration.

2.2.1 Compensation. *Consultant shall receive compensation, including authorized reimbursements, for all Services rendered under this Agreement at the rates set forth in the Fee Schedule. The total compensation shall not exceed* written dollar value *Dollars ($XXX.00) without written approval by Agency. Extra Work may be authorized, as described below, and if authorized, will be compensated at the rates and manner set forth in this Agreement.*

Or

Agency agrees to pay Consultant compensation, including authorized reimbursements, in accordance with the completion and acceptance of the task, milestones, and Deliverables delineated in the Scope of Work and Fee Schedule.

2.2.2 Payment. Consultant shall submit to Agency a monthly itemized statement which indicates work completed and hours of Services rendered by Consultant. The statement shall describe the Services and supplies provided since the initial commencement date, or since the start of the subsequent billing periods, as appropriate, through the date of the statement. Agency shall pay all approved charges within forty-five (45) days of receiving such statement.

2.2.3 Extra Work. At any time during the term of this Agreement, Agency may request that Consultant perform Extra Work. As used herein, "Extra Work" means any work which is determined by Agency to be necessary for the proper completion of the Project, but which the Parties did not reasonably anticipate would be necessary at the execution of this Agreement. Consultant shall not perform, nor be compensated for, Extra Work without written authorization by Agency.

2.3 Responsibilities of Consultant.

2.3.1 Independent Contractor. The Services shall be performed by Consultant or under its supervision. Consultant will determine the means, methods and details of performing the Services subject to the requirements of this Agreement. Consultant is an independent contractor and not an employee of Agency. Except as Agency may specify in writing, Consultant shall have no authority, expressed or implied, to act on behalf of Agency in any capacity whatsoever as an agent. Any additional personnel performing the Services under this Agreement on behalf of Consultant shall also not be employees of Agency and shall at all times be under Consultant's exclusive direction and control.

2.3.2 Payment of Subordinates. Consultant shall pay all wages, salaries, and other amounts due such personnel in connection with their performance of Services under this Agreement and as required by law. Consultant shall be responsible for all reports and obligations respecting such additional personnel, including, but not limited to: social security

taxes, income tax withholding, unemployment insurance, disability insurance, and workers' compensation insurance.

2.3.3 Standard of Care. Consultant shall perform all Services under this Agreement in a skillful and competent manner, consistent with the standards generally recognized as being employed by professionals in the same discipline in the State of California (herein the "Standard of Care"). Consultant represents and maintains that it is skilled in the professional calling necessary to perform the Services. Consultant ~~warrants~~ represents that all employees and subconsultants shall have sufficient skill and experience to perform the Services assigned to them.

2.3.4 Licensing. Consultant represents that it, its employees and subconsultants have all professional licenses~~, permits,~~ qualifications~~,~~ and approvals of whatever nature thatare legally required to perform the Services, and that such licenses and approvals shall be maintained throughout the term of this Agreement. Consultant shall assist the Owner in obtaining any required permits.

2.3.5 Conformance to Applicable Requirements. All work prepared by Consultant shall be subject to the approval of Agency.

2.3.6 Substitution of Key Personnel. Consultant has represented to Agency that certain key personnel will perform and coordinate the Services under this Agreement. Key Consultant personnel to be assigned to this Agreement are identified in the List of Key Consultant Personnel set forth in the attached **Exhibit "C"** ("Key Personnel"). Key Personnel shall be available to perform under the terms and conditions of this Agreement immediately upon commencement of the term of this Agreement. Should one or more of such personnel become unavailable, Consultant may substitute other personnel of at least equal competence upon written approval of Agency. The Agency shall have the right to approve or disapprove the reassignment or substitution of Consultant key personnel listed in Exhibit C for any reason at its sole discretion. In the event that Agency and Consultant cannot agree as to the substitution of key personnel, Agency shall be entitled to terminate this Agreement for cause.

2.3.7 Unavailability of Key Personnel. In the event individual key personnel listed in Exhibit C are terminated either by the Consultant or the individual, with or without cause, or if individual key personnel are otherwise unavailable to perform services for the Consultant, the Consultant shall provide to the Agency written notification detailing the circumstances of the unavailability of the individual key personnel and designating replacement personnel prior to the effective date of individual key personnel termination or unavailability date, to the maximum extent feasible, but no later than five (5) business days after the effective date of the individual key personnel termination or unavailability. The Consultant shall propose replacement personnel that have a level of experience and expertise equivalent to the unavailable individual key personnel for Agency review and approval.

2.3.8 Removal of Consultant Personnel. The Consultant agrees to remove personnel from performing work under this Agreement if reasonably requested to do so by the Agency within 24 hours or as soon thereafter as is practicable.

2.3.9 Laws and Regulations. Consultant shall keep itself ~~fully~~reasonably informed of, and shall exercise the Standard of Care to be in compliance with all local, state and federal laws, rules and regulations in any manner affecting the performance of the Project or the Services, including all Cal/OSHA requirements, and shall give all notices required by law. Consultant shall be liable for all willful or negligent violations of such laws and regulations in connection with Services. If the Consultant performs any work knowingit to be contrary to such laws, rules, and regulations, Consultant shall be solely responsible for all costs arising therefrom.

2.3.10 Labor Code Provisions.

(a) Prevailing Wages. Consultant is aware of the requirements of California Labor Code Section 1720, et seq., and 1770, et seq., as well as California Code of Regulations, Title 8, Section 16000, et seq., ("Prevailing Wage Laws"), which require the payment of prevailing wage rates and the performance of other requirements on "public works" and "maintenance" projects. If the Services are being performed as part of an applicable "public works" or "maintenance" project, as defined by the Prevailing Wage Laws, and if the total compensation is $1,000 or more, Consultant agrees to fully comply with such Prevailing Wage Laws. Consultant shall comply with all prevailing wage requirements under the California Labor Code and Consultant shall forfeit as penalty to the Agency a sum of not more than $200.00 for each calendar day, or portion thereof, for each worker paid less than the prevailing rates. This penalty shall be in addition to any shortfall in wages paid. The Agency has obtained the general prevailing rate of wages, as determined by the Director of the Department of Industrial Relations, a copy of which is on file in the Agency's office and shall be made available for viewing to any interested party upon request. Consultant shall make copies of the prevailing rates of per diem wages for each craft, classification, or type of worker needed to execute the Services available to interested parties upon request and shall post copies at the Consultant's principal place of business and at the Project site.

(b) Registration and Labor Compliance. If the Services are being performed as part of an applicable "public works" or "maintenance" project, then, in addition to the foregoing, pursuant to Labor Code sections 1725.5 and 1771.1, the Consultant and all subconsultants must be registered with the Department of Industrial Relations ("DIR"). Consultant shall maintain registration for the duration of the Project and require the same of any subconsultants. This Project may also be subject to compliance monitoring and enforcement by the Department of Industrial Relations. It shall be Consultant's sole responsibility to comply with all applicable registration and labor compliance requirements, including the submission of payroll records directly to the DIR.

(c) Labor Certification. By its signature hereunder, Consultant certifies that it is aware of the provisions of Section 3700 of the California Labor Code which require every employer to be insured against liability for Workers' Compensation or to undertake self-insurance in accordance with the provisions of that Code and agrees to comply with such provisions before commencing the performance of the Services.

2.3.11 Accounting Records. Consultant shall maintain complete and accurate records with respect to all costs and expenses incurred under this Agreement. All such records shall be clearly identifiable. Consultant shall allow a representative of Agency during normal business hours to examine, audit, and make transcripts or copies of such records and any other documents created pursuant to this Agreement. Consultant shall allow inspection of all work, data, documents, proceedings, and activities related to the Agreement for a period of four (4) years from the date of final payment under this Agreement.

2.4 Representatives of the Parties.

2.4.1 Agency's Representative. The Agency hereby designates its General Manager, or his or her designee, to act as its representative for the performance of this Agreement ("Agency's Representative"). Consultant shall not accept direction or orders from any person other than the Agency's Representative or his or her designee.

2.4.2 Consultant's Representative. Consultant hereby designates XXXXXX, or his or her designee, to act as its representative for the performance of this Agreement ("Consultant's Representative"). Consultant's Representative shall have full authority to represent and act on behalf of the Consultant for all purposes under this Agreement. The Consultant's Representative shall supervise and direct the Services, using their ~~best~~ professional skill and attention, and shall be responsible for all means, methods, techniques, sequences, and procedures and for the satisfactory coordination of all portions of the Services under this Agreement.

2.5 Indemnification.

To the fullest extent permitted by law, Consultant shall immediately indemnify and hold the Agency, its directors, officials, officers and~~,~~ employees~~, volunteers, and agents~~ free and harmless (but, for claims alleging professional liability, shall not defend) from any and all ~~claims, demands, causes of action,~~ costs, expenses, liability, loss, damage, or injury of any kind, in law or equity, to property or persons, including wrongful death, ~~in any manner arising out of, pertaining to, or incident to any alleged~~to the extent caused by the negligent acts, errors~~,~~ or omissions of Consultant, its officials, officers, employees, subcontractors, consultants, or agents in connection with the performance of the Consultant's Services, the Project, or this Agreement, including without limitation the payment of all ~~consequential damages,~~ reasonable attorneys' fees and costs, including expert witness fees. Notwithstanding the foregoing, to the extent Consultant's Services are subject to Civil Code Section 2782.8, the above indemnity shall be limited, to the extent required by Civil Code Section 2782.8, to third party claims ~~that arise out of, pertain to, or relate~~ to the extent caused by the negligence, recklessness, or willful misconduct of the Consultant.

Format

Consultant shall immediately defend (for non-professional liability claims), with Counsel of Agency's choosing and at Consultant's own cost, expense and risk, any and all claims, suits, actions, or other proceedings of every kind that may be brought or instituted against Agency or its directors, officials or~~,~~ officers,employees, to the extent caused by Consultant's negligence or willful misconduct~~, volunteers, and agents~~. Consultant shall pay and satisfy any judgment,

award, or decree that may be rendered against Agency or its directors, officials, officers or, employees , volunteers, and agents as part of any such claim, suit, action, or other proceeding. Consultant

shall also reimburse Agency for the cost of any settlement paid by Agency or its directors, officials, officers or, employees , agents, or volunteers as part of any such claim, suit, action, or other proceeding. Such reimbursement shall include payment for Agency's reasonable attorneys' fees andcosts, including expert witness fees. Consultant's obligation to defend and indemnify shall survive expiration or termination of this Agreement, and shall not be restricted to insurance proceeds, if any, received by the Agency, its directors, officials, officers, employees, agents, or volunteers.

2.6 Insurance.

2.6.1 Time for Compliance. Consultant shall not commence Work under this Agreement until it has provided evidence satisfactory to the Agency that it has secured all insurance required under this section. In addition, Consultant shall not allow any subconsultant to commence work on any subcontract until it has provided evidence satisfactory to the Agency that the subconsultant has secured all insurance required under this section. Failure to provide and maintain all required insurance shall be grounds for the Agency to terminate this Agreement for cause.

2.6.2 Minimum Requirements. Consultant shall, at its expense, procure and maintain for the duration of the Agreement insurance against claims for injuries to persons or damages to property which may arise from or in connection with the performance of the Agreement by the Consultant, its agents, representatives, employees, or subconsultants. Consultant shall also require all of its subconsultants to procure and maintain the same insurance for the duration of the Agreement. Such insurance shall meet at least the following minimum levels of coverage:

(a) Commercial General Liability. Coverage for commercial general liability insurance shall be at least as broad as Insurance Services Office (ISO) Commercial General Liability Coverage (Occurrence Form CG 0001). Consultant shall maintain limits no less than $2,000,000 per occurrence, or the full per occurrence limits of the policies available, whichever is greater, for bodily injury, personal injury, and property damage. If Commercial General Liability Insurance or other form with general aggregate limit or product-completed operations aggregate limit is used, including but not limited to form CG 2503, either the general aggregate limit shall apply separately to this Agreement/location or the general aggregate limit shall be twice the required occurrence limit.

(b) Automobile Liability. Coverage shall be at least as broad as the latest version of the Insurance Services Office Business Auto Coverage form number CA 0001, code 1 (any auto). Consultant shall maintain limits no less than $1,000,000 per accident for bodily injury and property damage. The automobile liability policy shall cover all owned, non-owned, and hired automobiles.

(c) Workers' Compensation and Employer's Liability Insurance. Consultant shall maintain Workers' Compensation insurance as required by the State of California and Employer's Liability Insurance in an amount no less than $1,000,000 per accident

for bodily injury or disease. The insurer shall agree to waive all rights of subrogation against the Agency, its directors, officials, officers, employees, agents, and volunteers for losses paid under the terms of the insurance policy which arise from work performed by the Consultant.

(d) Professional Liability. Consultant shall procure and maintain, and require its subconsultants to procure and maintain, for a period of five (5) years following completion of the Project, errors and omissions liability insurance appropriate to their profession covering Consultant's wrongful acts, negligent actions, errors, or omissions. The retroactive date (if any) is to be no later than the effective date of this Agreement. Consultant shall purchase a one-year extended reporting period: i) if the retroactive date is advanced past the effective date of this Agreement; ii) if the policy is canceled or not renewed; or iii) if the policy is replaced by another claims-made policy with a retroactive date subsequent to the effective date of this Agreement. Such insurance shall be in an amount not less than $2,000,000 per claim.

(e) Excess Liability (if necessary). The limits of Insurance required in this Agreement may be satisfied by a combination of primary and umbrella or excess insurance. Any umbrella or excess coverage shall contain or be endorsed to contain a provision that such coverage shall also apply on a primary and non-contributory basis for the benefit of the Agency (if agreed to in a written contract or agreement) before the Agency's own primary or self-Insurance shall be called upon to protect it as a named insured. The policy shall be endorsed to state that the Agency, its directors, officials, officers, employees, agents, and volunteers shall be covered as additional insured at least as broad a form as CG 20 10 11 85 or the latest versions of both CG 20 10 and CG 20 37. The coverage shall contain no special limitations on the scope of protection afforded to the Agency, its directors, officials, officers, employees, agents, and volunteers.

2.6.3 All Coverages. The general liability and automobile liability policy shall include or be endorsed to state that: (1) the Agency, its directors, officials, officers, employees, agents, and volunteers shall be covered as additional insured with respect to work by or on behalf of the Consultant, including materials, parts, or equipment furnished in connection with such work using as broad a form as CG 20 10 11 85 or the latest versions of both CG 20 10 and CG 20 37; and (2) the insurance coverage shall be primary insurance as respects the Agency, its directors, officials, officers, employees, agents, and volunteers using as broad a form as CG 20 01 04 13, or if excess, shall stand in an unbroken chain of coverage excess of the Consultant's scheduled underlying coverage. Any insurance or self-insurance maintained by the Agency, its directors, officials, officers, employees, agents, and volunteers shall be excess of the Consultant's insurance and shall not be called upon to contribute with it in any way.

(a) The insurance policies required above shall contain or be endorsed to contain the following specific provisions:

(i) The policies shall contain a waiver of transfer rights of recovery ("waiver of subrogation") against Agency, its board members, officers, employees, agents, and volunteers, for any claims arising out of the work of Consultant.

(ii) Policies may provide coverage which contains deductible or self-insured retentions. Such deductible and/or self-insured retentions shall not be applicable with respect to the coverage provided to Agency under such policies. Consultant shall be solely responsible for deductible and/or self-insured retention and Agency, at its option, may require Consultant to secure the payment of such deductible or self-insured retentions by a surety bond or an irrevocable and unconditional letter of credit. The insurance policies that contain deductibles or self-insured retentions in excess of $25,000 per occurrence shall not be acceptable without the prior approval of Agency.

(iii) Prior to start of work under this Agreement, Consultant shall file with Agency evidence of insurance as required above from an insurer or insurers certifying to the required coverage. The coverage shall be evidenced on a certificate of insurance signed by an authorized representative of the insurer(s).

(iv) Each policy required in this section shall contain a policy cancellation clause that provides the policy shall not be cancelled or otherwise terminated by the insurer or the Consultant or reduced in coverage or in limits except after thirty (30) days' prior written notice by certified mail, return receipt requested, has been given to the Agency, Attention: Director of Finance & Administration.

(v) Insurance required by this Agreement shall be placed with insurers licensed by the State of California to transact insurance business of the types required herein. Each insurer shall have a current Best Insurance Guide rating of not less than A: VII unless prior approval is secured from the Agency as to the use of such insurer.

(vi) Consultant shall include all subcontractors as insureds under its policies or shall furnish separate certificates and endorsements for each subcontractor. All coverages for subcontractors shall be subject to all of the requirements stated herein. Consultant shall maintain evidence of compliance with the insurance requirements by the subcontractors at the job site and make them available for review by Agency.

2.6.4 Reporting of Claims. Consultant shall report to the Agency, in addition to Consultant's insurer, any and all insurance claims submitted by Consultant in connection with the Services under this Agreement.

2.7 Termination of Agreement.

2.7.1 Grounds for Termination. Agency may, by written notice to Consultant, terminate the whole or any part of this Agreement without liability to the Agency if Consultant fails to perform or commits a substantial breach of the terms hereof. Either Party may terminate this agreement on thirty (30) days' written notice for any reason. Upon termination, Consultant shall be compensated only for those Services which have been adequately rendered to Agency, and Consultant shall be entitled to no further compensation. If the Agreement is

terminated by Consultant without cause, Consultant shall reimburse Agency for additional costs to be incurred by Agency in obtaining the work from another consultant.

2.8 Ownership of Materials and Confidentiality.

2.8.1 Documents & Data; Licensing of Intellectual Property. This Agreement creates a non-exclusive and perpetual license for Agency to copy, use, modify, reuse, or sublicense any and all copyrights, designs, and other intellectual property embodied in plans, specifications, studies, drawings, estimates, and other documents or works of authorship fixed in any tangible medium of expression, including but not limited to, physical drawings or data magnetically or otherwise recorded on computer diskettes, which are prepared or caused to beprepared by Consultant under this Agreement ("Documents & Data"). The Consultant shall deliver to Agency on demand or upon completion of the Project, all such Documents & Data which shall be and remain the property of the Agency, provided Consultant has been paid all undisputed invoice amounts due. If the Agency uses any of the data, reports, and documents furnished or prepared by the Consultant for projects other than the project shown on Exhibit A, the Consultant shall be released from responsibility to third parties concerning the use of the data, reports, and documents. The Consultant may retain copies of the materials. The Agency may use or reuse the materials prepared by Consultant without additional compensation to Consultant. The Agency agrees to indemnify, defend and hold the Consultant harmless from and against any claims or damages that may result from the subsequent use, reuse, transfer or modification of the materials, except on projects where the Consultant has been retained to provide services.

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2.8.1

2.8.2 Confidentiality. All Documents & Data, either created by or provided to Consultant in connection with the performance of this Agreement, shall be held confidential by Consultant. All Documents & Data shall not, without the prior written consent of Agency, be used or reproduced by Consultant for any purposes other than the performance of the Services. Consultant shall not disclose, cause, or facilitate the disclosure of the Documents & Data to any person or entity not connected with the performance of the Services or the Project. Nothing furnished to Consultant that is otherwise known to Consultant or is generally known, or has become known, to the related industry shall be deemed confidential. Consultant shall not use Agency's name or insignia, photographs of the Project, or any publicity pertaining to the Services or the Project in any magazine, trade paper, newspaper, television, or radio production, or other similar medium without the prior written consent of Agency.

2.9 Subcontracting/Subconsulting.

2.9.1 Prior Approval Required. Consultant shall not subcontract any portion of the work required by this Agreement, except as expressly stated herein, without prior written approval of Agency. Subcontracts, if any, shall contain a provision making them subject to all provisions stipulated in this Agreement.

3. General Provisions.

3.1.1 Notices. All notices permitted or required under this Agreement shall be given to the respective parties at the following address, or at such other address as the

respective parties may provide in writing for this purpose:

Agency:	**Consultant:**
Las Virgenes Municipal Water District Attn: District Contact 4232 Las Virgenes Road Calabasas, CA 91302	Consultant, Contact & Address

Such notice shall be deemed made when personally delivered or when mailed, upon deposit in the U.S. Mail, first class postage prepaid and registered or certified addressed to the Party at its applicable address. Actual notice shall be deemed adequate notice on the date actual notice occurred, regardless of the method of service.

3.1.2 Equal Opportunity Employment. Consultant represents that it is an equal opportunity employer and it shall not discriminate against any subconsultant, employee or applicant for employment because of race, religion, color, national origin, handicap, ancestry, sex, or age. Such non-discrimination shall include, but not be limited to, all activities related to initial employment, upgrading, demotion, transfer, recruitment or recruitment advertising, layoff, or termination.

3.1.3 Time ~~of Essence~~. Time is of ~~the essence~~ cardinal importance for each and every provision ofthis Agreement. The acceptance of late performance shall not waive the right to claim damagesfor such breach nor constitute a waiver of the requirement of timely performance of any obligations remaining to be performed.

3.1.4 Agency's Right to Employ Other Consultants. Agency reserves the right to employ other consultants in connection with this Project.

3.1.5 Successors and Assigns. This Agreement shall be binding on the successors and assigns of the Parties.

3.1.6 Assignment or Transfer. Consultant shall not assign, hypothecate, or transfer, either directly or by operation of law, this Agreement or any interest herein without the prior written consent of the Agency.

3.1.7 Amendment. This Agreement may not be altered or amended except in a writing signed by both Parties.

3.1.8 Waiver. No waiver of any default shall constitute a waiver of any other default or breach, whether of the same or other covenant or condition.

3.1.9 No Third Party Beneficiaries. There are no intended third party beneficiaries of any right or obligation assumed by the Parties.

3.1.10 Invalidity; Severability. If any portion of this Agreement is declared invalid, illegal, or otherwise unenforceable by a court of competent jurisdiction, the remaining provisions shall continue in full force and effect.

3.1.11 Governing Law. This Agreement shall be governed by the laws of the State of California. Venue shall be in Los Angeles County.

3.1.12 Attorneys' Fees. If either Party commences an action against the other Party, either legal, administrative or otherwise, arising out of or in connection with this Agreement, the prevailing party in such litigation shall be entitled to have and recover from the losing party reasonable attorneys' fees and all other costs of such action. "Prevailing party" is the party who recovers at least 67% of its total claims in the action or who is required to pay no more than 32% of the other party's total claims in the action when considered in the totality of claims and counterclaims, if any. In claims for monetary damages, the total amount of recoverable attorney's fees and costs shall not exceed the net monetary award of the Prevailing Party.

3.1.13 Authority to Enter Agreement. Consultant has all requisite power and authority to conduct its business and to execute, deliver, and perform the Agreement. Each Party warrants that the individuals who have signed this Agreement have the legal power, right, and authority to make this Agreement and bind each respective Party.

3.1.14 Counterparts. This Agreement may be signed in counterparts, each of which shall constitute an original.

3.1.15 Integration. This Agreement represents the entire understanding of Agency and Consultant as to those matters contained herein. No prior oral or written understanding shall be of any force or effect with respect to those matters covered hereunder.

3.1.16 Limitation of Liability.
To the fullest extent permitted by law, the total liability, in the aggregate, of Consultant, Consultant's officers, directors, partners, employees, agents, and subconsultants, to Agency, and anyone claiming by, through, or under Agency for any claims, losses, costs, or damages whatsoever arising out of, resulting from or in any way related to this Project or Agreement from any cause or causes, including but not limited to negligence, professional errors and omissions, strict liability, breach of contract, or breach of warranty, shall not exceed the total compensation received by Consultant or $100,000, whichever is greater.

3.1.17 Mutual Waiver of Consequential Damages.
Consultant and Agency waive all consequential or special damages, including, but not limited to, loss of use, profits, revenue, business opportunity, or production, for claims, disputes, or other matters arising out of or relating to the Contract or the services provided by Consultant, regardless of whether such claim or dispute is based upon breach of contract, willful misconduct or negligent act or omission of either of them or their employees, agents, subconsultants, or other legal theory, even if the affected party has knowledge of the possibility of such damages. This mutual waiver shall survive termination or completion of this Contract.

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[***Signature Page following***]

IN WITNESS WHEREOF, the Parties hereby have caused this Agreement to be executed the date first written above:

APPROVED:	APPROVED:
Las Virgenes Municipal Water District	**CONSULTANT**
_____	_____
David W. Pedersen	Name
General Manager	Title

WSC

expectWSC.com

September 13, 2021 JPA Board Meeting

TO: JPA Board of Directors

FROM: Engineering and External Affairs

Subject : Pure Water Project Las Virgenes-Triunfo: Water Augmentation Study Results

SUMMARY:

On February 22, 2021, staff conducted a special JPA Board workshop on water augmentation strategies for the Pure Water Project Las Virgenes-Triunfo. The workshop introduced the concept of water augmentation as it relates to the Pure Water Program. Staff summarized the purpose and approach for the Water Augmentation Study, as well as the preliminary screening of sources to solicit feedback from the JPA Board prior to performing modeling of the various alternatives. Based on the discussion and input from the JPA Board, modeling of the augmentation sources was completed, and a summary of the study results will be presented to the JPA Board. Attached for reference is a copy of the presentation materials.

RECOMMENDATION(S):

Review and provide feedback on the results of the Water Augmentation Study for the Pure Water Project Las Virgenes-Triunfo.

FISCAL IMPACT:

No

ITEM BUDGETED:

Yes

FINANCIAL IMPACT:

There is no financial impact associated with this action. The capital investment needs and long-term operation and maintenance costs for the water augmentation alternatives are not included in the baseline cost estimate for the Pure Water Project Las Virgenes-Triunfo. The water augmentation alternatives provide an opportunity for regional collaboration and cost sharing between local agencies, which will serve to extend the operation of the proposed Advanced Water Purification Facility, increase the production of purified water, improve the reliability of local water supply, reduce the unit cost to produce purified water as well as provide indirect benefits to the environment and potential JPA partner agencies.

DISCUSSION:

The Tapia Water Reclamation Facility (Tapia WRF) will supply tertiary-treated effluent to a new, 7.5-million-gallon-per-day (mgd) Advanced Water Purification Facility (AWPF) as part of the Pure Water Project Las Virgenes-Triunfo. The 12-mgd Tapia WRF currently produces approximately 7.5 mgd of tertiary-treated effluent, a majority of which is available for treatment at the AWPF during the winter months from November 16th to April 15th. However, there is generally no available effluent for the AWPF during the warm summer months due to the effectiveness of the JPA's existing non-potable reuse demands. Seasonal variations in flow to the AWPF will complicate operations and create a partially stranded asset for about half of the year. Achieving a year-round operation for the AWPF would improve systemwide operational efficiency; enhance the production of valuable, locally-sourced water; and reduce the overall unit cost of the purified water. In support these objectives, staff and Jacobs Engineering prepared a Water Augmentation Study to identify and evaluate feasible options for augmenting sources of influent water to the Tapia WRF and/or directly to the AWPF.

Ninety (90) alternative combinations of augmentation sources were evaluated, representing a range of augmentation types, quantities and strategies. From the analysis, the following four sources were identified as core augmentation sources for pursuit by the JPA: (1) Westlake Wells, (2) Tapia WRF Balancing Pond Well, (3) Hill Canyon Treatment Plant, and (4) Los Robles Thousand Oaks Golf Course Wells. At the Board meeting, staff and the Jacobs Engineering Team would like to review the alternatives analysis approach, final ranking criteria and the recommended water augmentation approach based on the water augmentation sources with the highest benefit to solicit feedback from the JPA Board.

Guiding Principles:

The objective of the Water Augmentation Study is to assess and recommend a high-performing combination of water augmentation sources that the JPA should pursue for implementation to achieve a cost-effective balance of water augmentation and seasonal AWPF operating rates. The Water Augmentation Study focuses on augmentation sources that meet the following criteria:

- Potential to provide significant flow to the AWPF during the dry season.
- Cost-effective to capture and convey.
- Reliable and controllable towards the operation of the AWPF.

Evaluation Approach:

With input from the JPA Board, staff and the Jacobs Engineering Team brainstormed to identify forty-two (42) potential water augmentation sources that were grouped into the following seven categories: (1) raw wastewater, (2) septic-to-sewer conversion, (3) wastewater effluent, (4) groundwater wells (production and dewatering wells), (5) flow diversions (stream and dry weather), (6) recycled water demand reduction, and (7) potable water supplementation. An initial screening was then performed to select the most viable augmentation sources for further analysis. The initial screening was performed based on readily available information and considering factors such as risk, reliability, flow amount and water quality.

Twenty-one (21) high priority sources identified from the initial screening were then further developed to estimate the cost (Class 5 construction, operation and maintenance costs)

associated with each to refine flow assumptions and further understand feasibility. An alternatives analysis was performed using a modeling tool called the "Digital Watershed," which was built using elements from available models and data to represent key components of the wastewater collection system, Tapia WRF, recycled water system and receiving waters with respect to flow and relevant water quality. Augmentation sources were analyzed individually, and in combination, to identify high performing alternatives that met the evaluation objectives. A ranking analysis was then performed using decision science to evaluate the high-performing alternatives based on factors beyond cost and performance and to arrive at a recommended water augmentation approach.

Prepared by: Eric Schlageter, P.E., Principal Engingeer

ATTACHMENTS:

Water Augmentation Study: Results

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LAS VIRGENES-TRIUNFO

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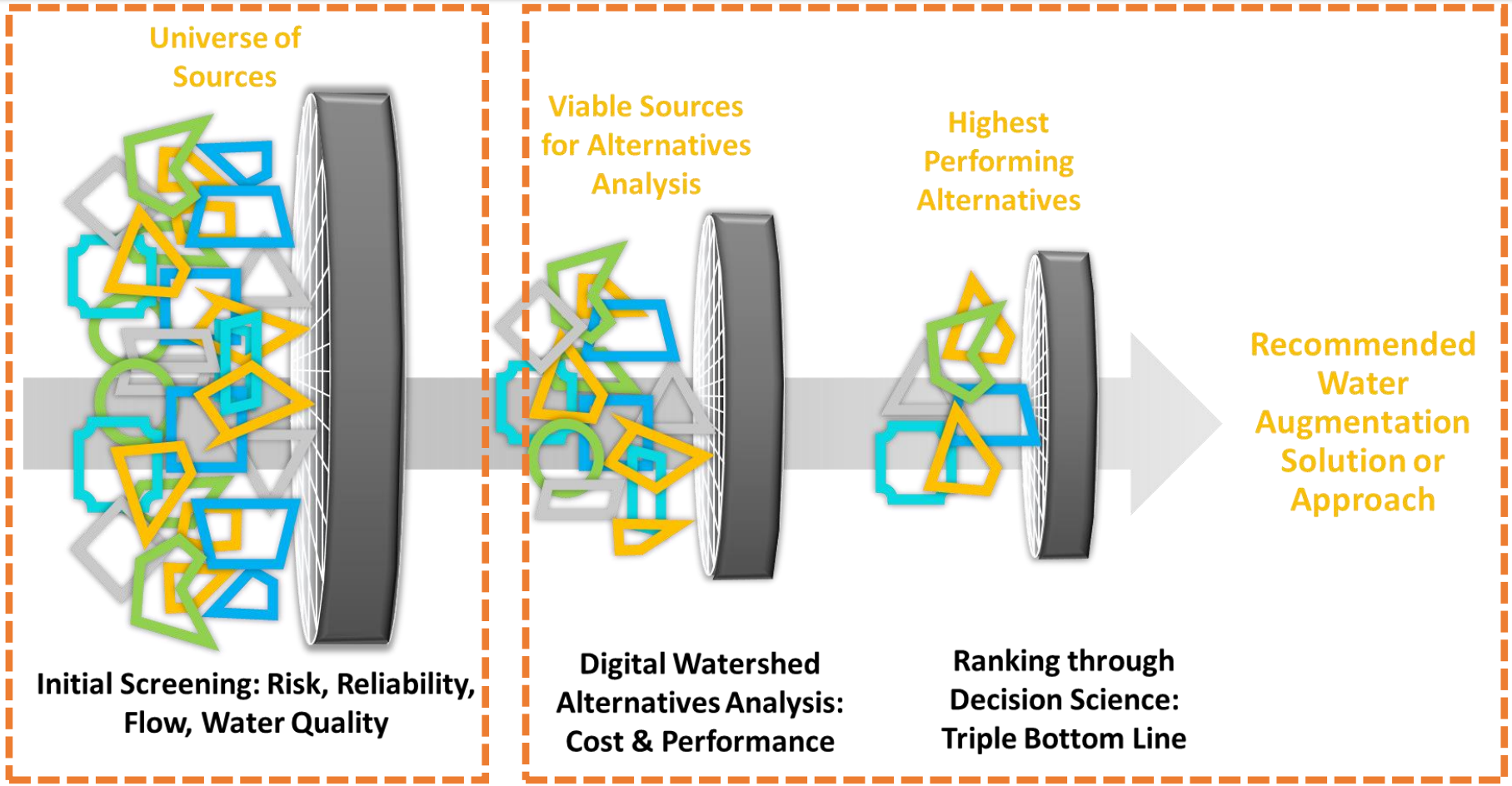
Water Augmentation Study
Alternatives Analysis Results

Las Virgenes-Triunfo JPA Board Meeting

September 13, 2021

Water Augmentation Study - Discussion Objectives



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Agenda

1. Baseline Flow
2. Alternatives Analysis Approach
3. Alternatives Analysis Results
4. Final Ranking Criteria and Outcome
5. Recommended Water Augmentation Approach

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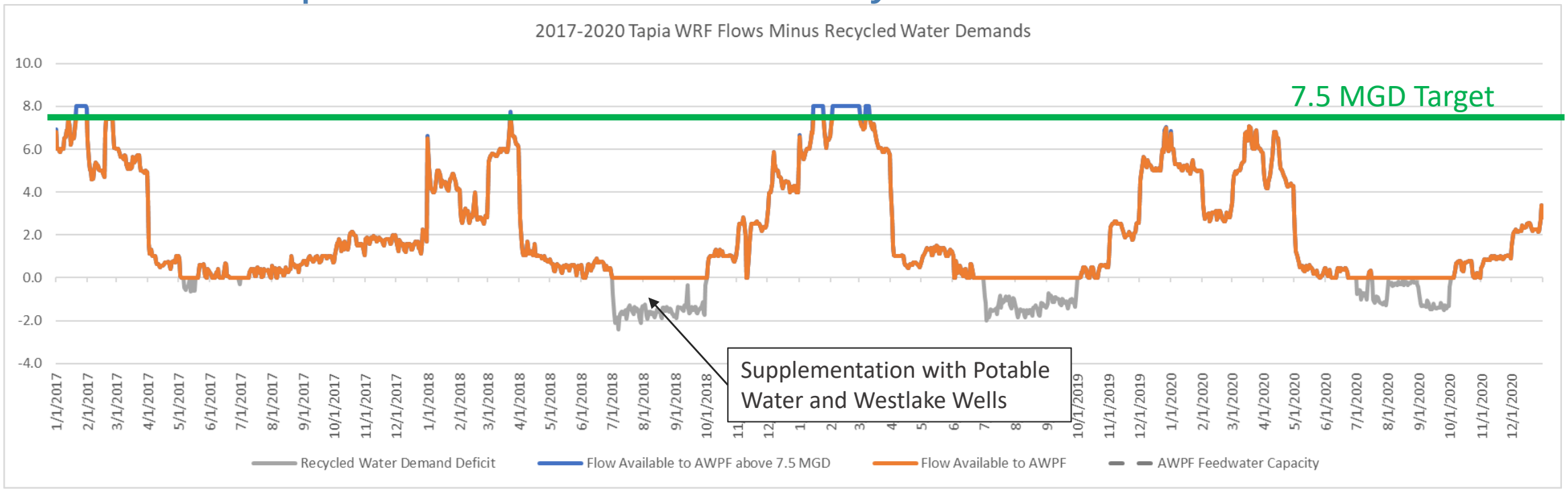
Baseline Flow

Approximate Flow Available to AWPF without Augmentation from 2017-2020: Tapia WRF Flows minus Recycled Water Demand



Years	Total Annual AWPF Volume	
	Feedwater (AF)	Product Water (AF)
2017	2,400	1,920
2018	2,181	1,744
2019	2,942	2,354
2020	2,179	1,743
7.5 MGD Year Round	8,401	6,721
Title XVI Annual Average Product Water		3,100

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Baseline Flow for Augmentation Study: 2019 Tapia Flows minus Average Recycled Water Demand (2017-2020)

Years	Total Annual AWPF Volume	
	Feedwater (AF)	Product Water (AF)
2017	2,400	1,920
2018	2,181	1,744
2019	2,942	2,354
2020	2,179	1,743
Study Baseline	2,635	2,108
7.5 MGD Year Round	8,401	6,721

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Augmentation Study Alternatives Analysis Approach

Water Augmentation Study Guiding Principles

- Desired Outcome: Identification of water augmentation sources that JPA should pursue for implementation.
- Study will focus on augmentation sources that meet the following criteria:
  - *Augmentation source has the potential to provide significant flow to the AWPF during dry season.*
  - *Augmentation source is cost-effective to capture and convey.*
  - *Augmentation source will be reliable and controllable towards the operation of the AWPF.*

Initial Screening Results

High Priority Sources	
GW-1	Westlake Wells
GW-2	Los Robles Golf Course Wells (TO)
GW-3	Library Well (TO)
GW-TO	Additional Thousand Oaks (TO) Groundwater Wells
GW-7	Tapia WRF Balancing Pond Well
WE-1	Hill Canyon TP
WE-2	Civic Center TP
FD-1	Medea Creek
FD-2	Triunfo Creek
FD-3	Las Virgenes Creek
FD-4	Agoura Hills Urban Runoff
FD-5	Calabasas Urban Runoff
FD-6	Oak Park Urban Runoff
FD-7	Hidden Hills Runoff
FD-8	Unincorporated LA County Runoff
FD-9	Thousand Oaks Urban Runoff
FD-10	Westlake Urban Runoff Diversion
RWD-1	Recycle Water Conservation Programs
RWD-2	Procure Malibu Excess Tertiary Flow for Pepperdine
RWD-3	Recycled Water Conservation at Pepperdine
PO-1	Potable Water Supplementation

Medium Priority Sources	
GW-4	Four Seasons Well
GW-5	Hilton Foundation Dole Building Wells
GW-6	LA County Fire Department Well (Fire Station #89)
GW-10	Old Hilton Foundation Wells
GW-11	Agoura Hills Perched Groundwater
GW-12	Hidden Hills Wells
GW-13	King Gillette Ranch Wells
GW-XX	Additional Dewatering Wells – Stokes Canyon Groundwater below reservoir
SS-1	Malibu Lake Septic
SS-2	Chesebro & Old Agoura Septic
SS-3	Monte Nido Septic
SS-4	Triunfo Septic Areas (TBD)
SS-4	Other: Topanga Canyon mobile home park; penitentiaries

Low Priority Sources	
GW-8	Rancho Las Virgenes Farm Wells
GW-9	Westlake Seepage
RW-1	Increase Pepperdine Wastewater
RW-2	Chatsworth-Twin Lakes Sewer Flow (LASAN), including Bell Canyon
RW-3	Swimming Pool Maintenance Flows
RW-4	Malibu Mesa TP
RWD-3	Recycled Water Conservation at Pepperdine
GW-YY	Underground Groundwater Storage

Sources for Alternatives Analysis

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Initial Screening Results

High Priority Sources	
GW-1	Westlake Wells
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RWD-1	Recycle Water Conservation Programs
RWD-2	Procure Malibu Excess Tertiary Flow for Pepperdine
RWD-3	Recycled Water Conservation at Pepperdine
PO-1	Potable Water Supplementation

Sources for Alternatives Analysis

Augmentation Source Types

- Treated Wastewater Effluent (2)
- Groundwater (5)
- Flow Diversions: Stream and Urban Runoff (10)
- Recycled Water Demand Reduction (3)
- Potable Water Supplementation (1)

Delivery Points

- AWPF/Recycled Water System
- Tapia WRF / Sanitary Sewer System

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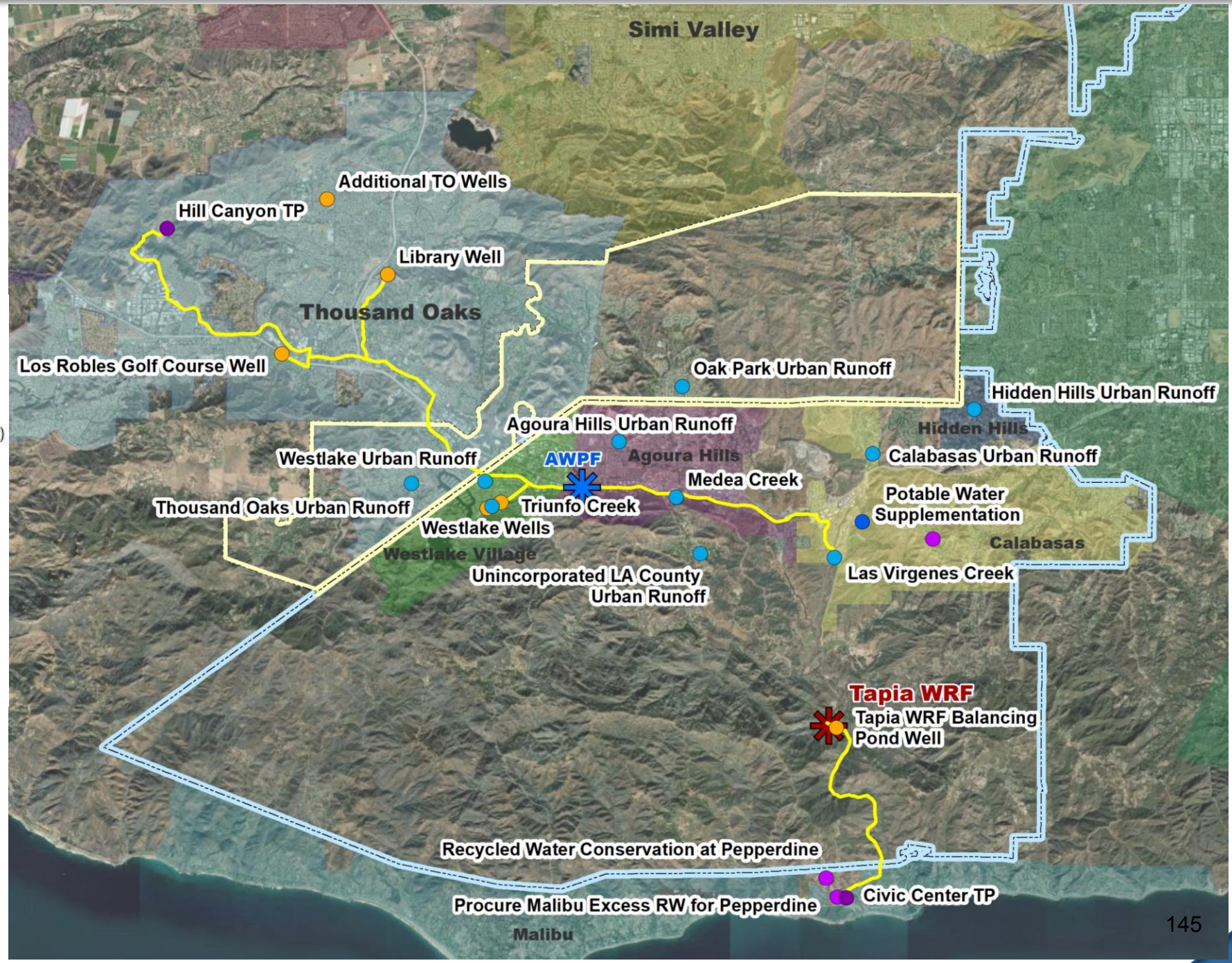
Augmentation Sources



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Initial Screening Results

High Priority Sources	
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RWD-2	Procure Malibu Excess Tertiary Flow for Pepperdine
RWD-3	Recycled Water Conservation at Pepperdine
PO-1	Potable Water Supplementation

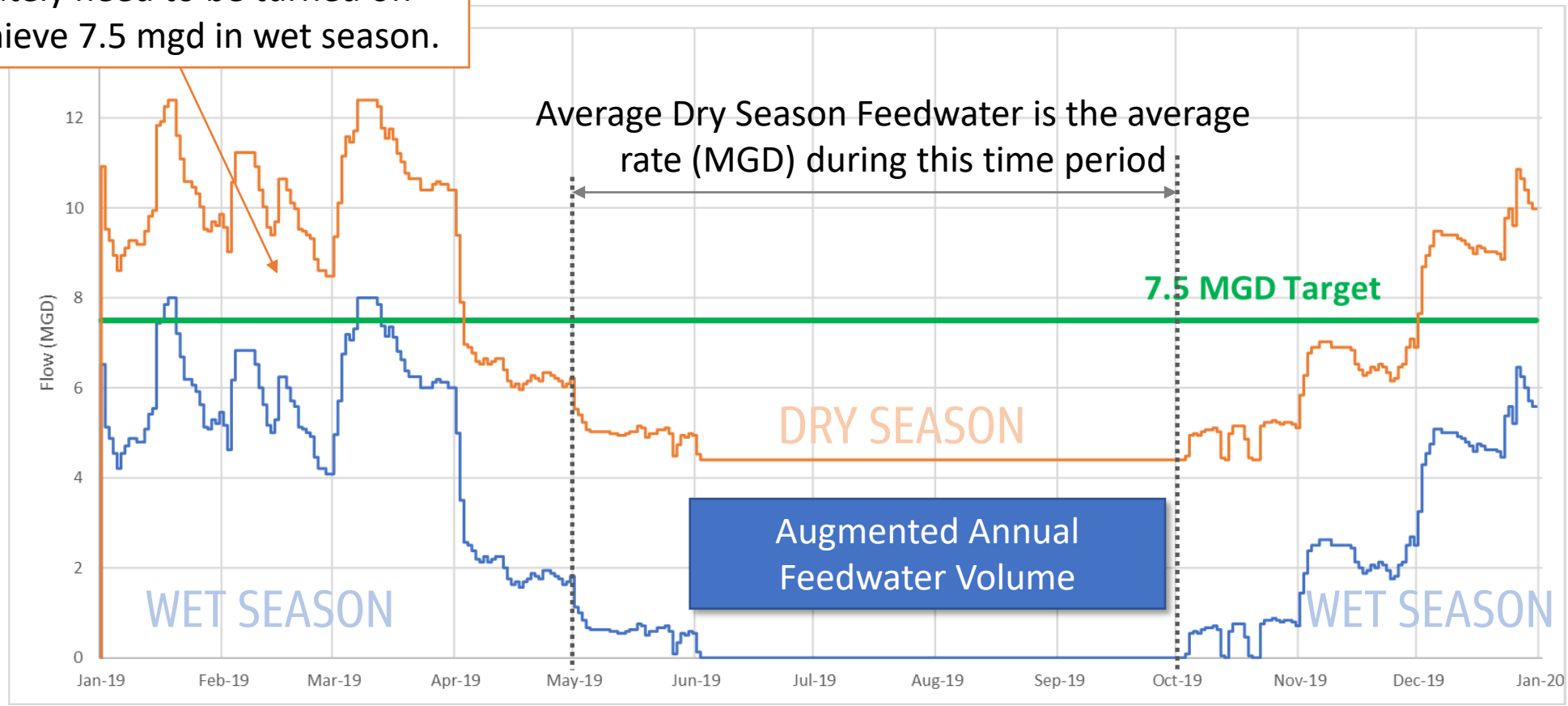
Sources for Alternatives Analysis

Actions since Selection of High Priority Sources:

- Refined flow estimates
- Identified general infrastructure components comprising each and where infrastructure may be shared across sources
- Developed class 5 construction, capital, and O&M costs for each
- Built-out Digital Watershed with these updated sources
- Evaluated alternatives: comprised of individual sources or multiple sources
  - *Evaluated 90 alternatives, representing a range of augmentation amounts and strategies.*

Flow and Volume Metrics for Alternatives Analysis

Select Augmentation Sources will ultimately need to be turned off to achieve 7.5 mgd in wet season.



Cost Metrics for Alternatives Analysis

- All costs are Class 5
- All costs assume no cost sharing with outside entities.
- Cost analysis does not include revenue associated with production of water and does not consider offset of MWD supply that no longer has to be purchased.
- Net Annual Cost:
  - *Represents an annualized net present value/cost format.*
  - *Developed for alternatives analysis and are intended for comparison among alternatives only for a one-year analysis period.*
- Unit Cost ($/AF) = $\frac{\text{Net Annual Cost for Augmentation Alternative (\$)}}{\text{Annual Augmented Product Water Volume (AF)}}$

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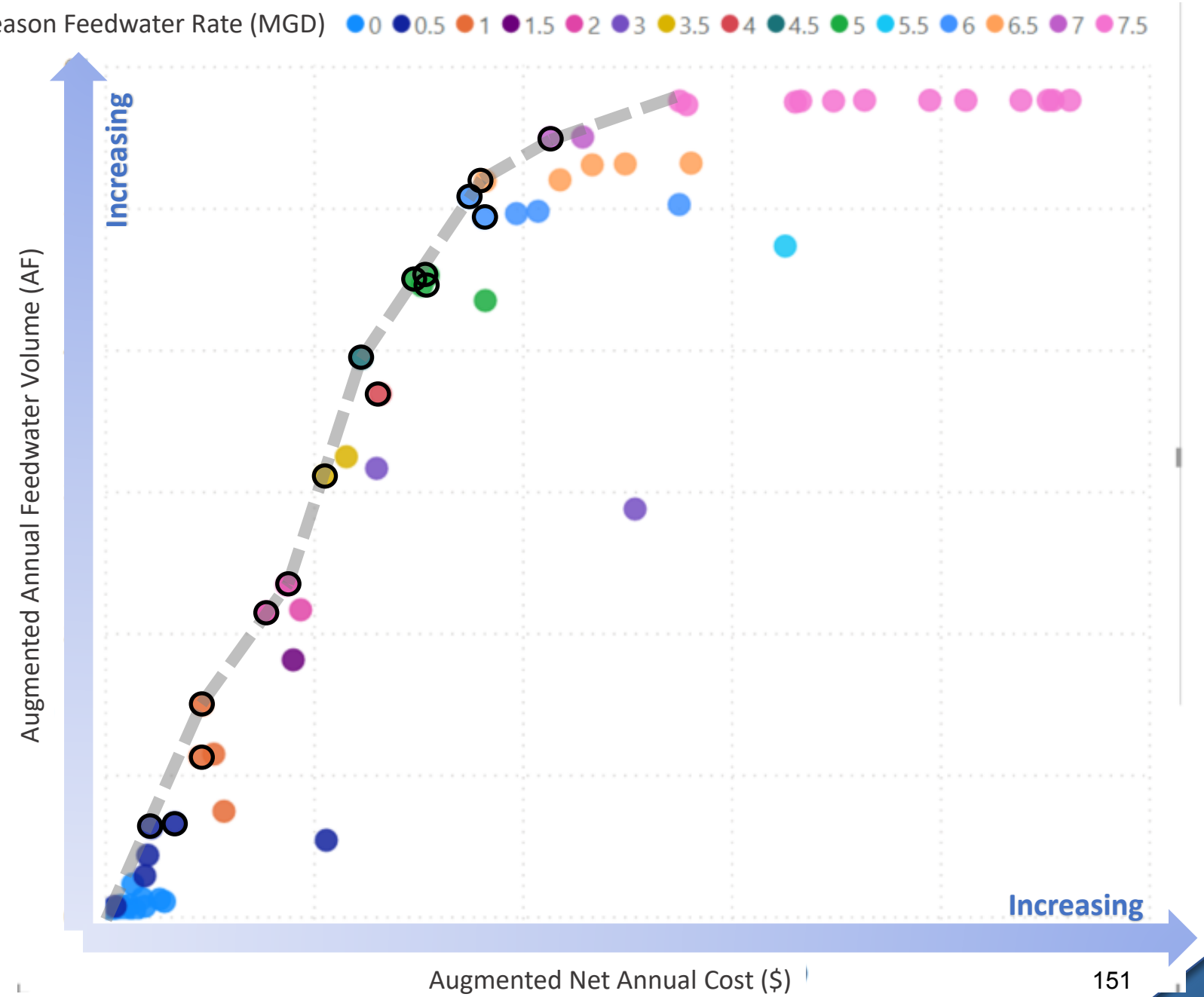
Alternatives Analysis Results

Findings from Review of Single-Source Alternatives

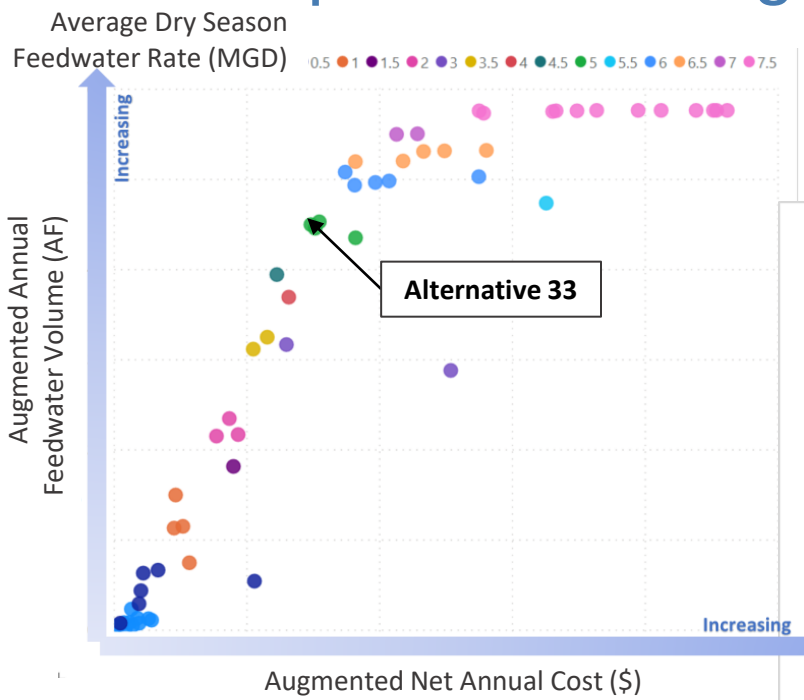
High Performers	GW-1	Westlake Wells to AWPF ($2,156/AF)	Sources managed by JPA.
	GW-7	Tapia WRF Balancing Pond Well ($3,439/AF)	
	FD-1	Medea Creek ($1,927/AF)	Close proximity to the AWPF and significant volume result in favorable unit cost.
	WE-1	Hill Canyon TP ($2,099/AF)	Require shared agreement with Thousand Oaks
	GW-2	Los Robles Golf Course Wells (TO) ($2,804/AF)	
Medium Performers	FD-2	Triunfo Creek ($3,966/AF)	Close proximity to the AWPF.
	GW-3	Library Well (TO) ($4,726/AF)	Requires shared agreement with Thousand Oaks. More costly due to the need for construction of new wells. May become more cost effective with shared agreement.
	FD-7	Hidden Hills Runoff ($5,489/AF)	Urban runoff diversions are a desired collaboration with MS4 permittees, who will be responsible for the cost of the infrastructure.
Low Performers	FD-3	Las Virgenes Creek	Significant conveyance cost from diversion to AWPF.
	FD-4	Agoura Hills Urban Runoff	While not cost-effective as JPA-only projects, urban runoff diversions are a desired collaboration with MS4 permittees, who will be responsible for the cost of the infrastructure.
	FD-5	Calabasas Urban Runoff	
	FD-6	Oak Park Urban Runoff	
	FD-8	Unincorporated LA County Runoff	
	FD-9	Thousand Oaks Urban Runoff	
	FD-10	Westlake Urban Runoff Diversion	
	WE-2	Civic Center TP	Relatively low unit cost but provides very little augmentation in dry season. More flow may become available over time.
	RWD-2	Procure Malibu Excess Tertiary Flow for Pepperdine	Relatively low cost but provides very little augmentation in dry season. More flow may become available over time.

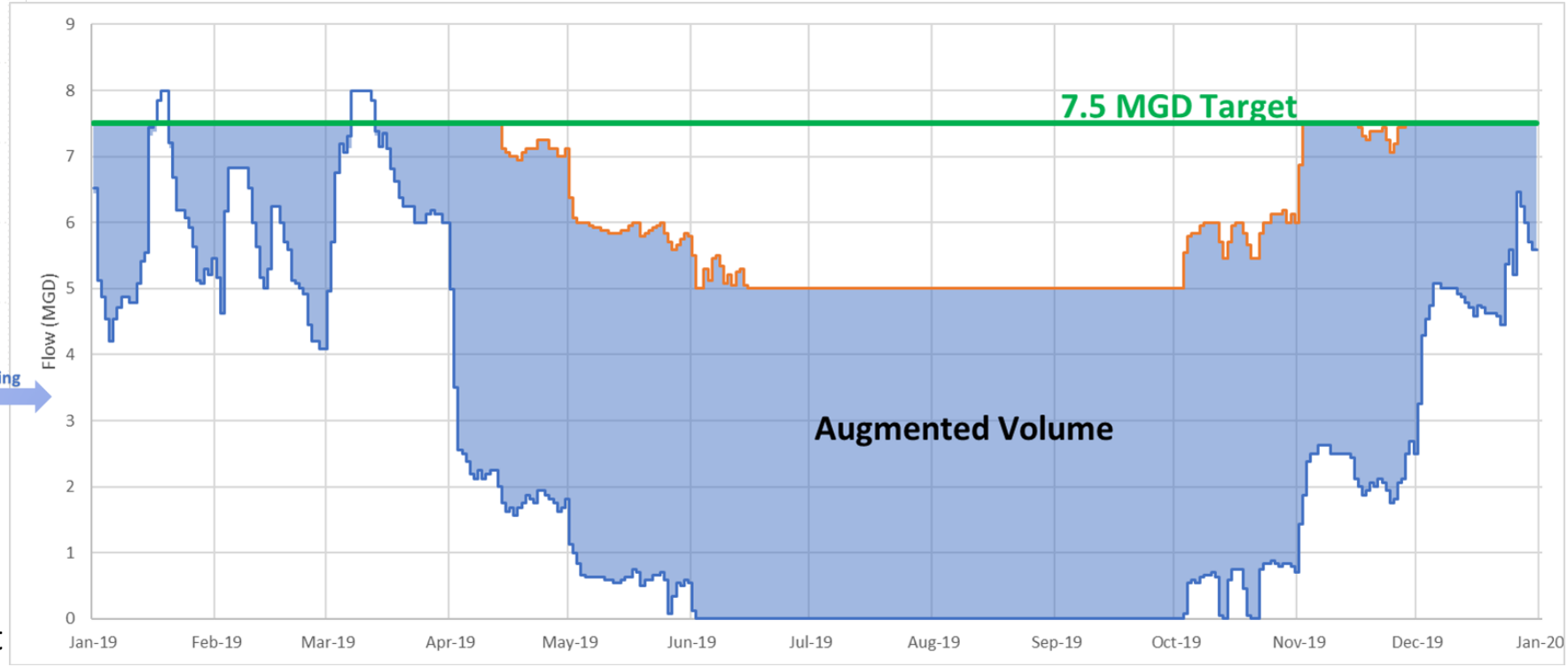
Selection of High Performing Alternatives

- Approximately 90 alternatives were evaluated, representing a range of augmentation amounts and strategies.
- Results of Alternatives Analysis tell us:
  - *Investment required to achieve different levels of water augmentation.*
  - *Point at which further investment in augmentation is no longer cost effective.*
  - *Highest-performing alternatives selected for ranking using non-monetary criteria.*



Example: Water Augmentation achieved from Alternative 33





Alternative 33:

Westlake Wells to AWPF
Tapia Balancing Pond Well
Hill Canyon Treatment Plant Effluent
Los Robles Golf Course Wells

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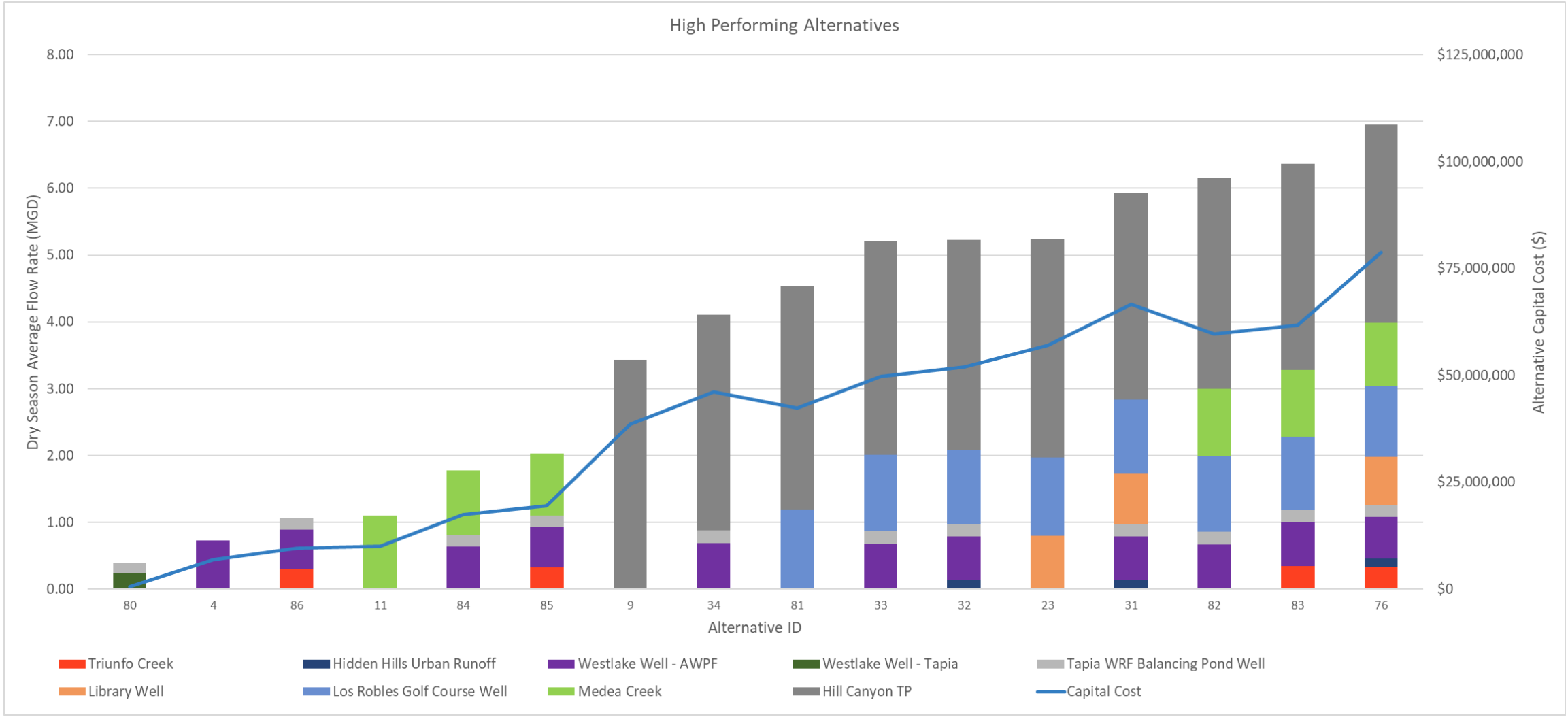
High-Performing Alternatives Recommended for Ranking



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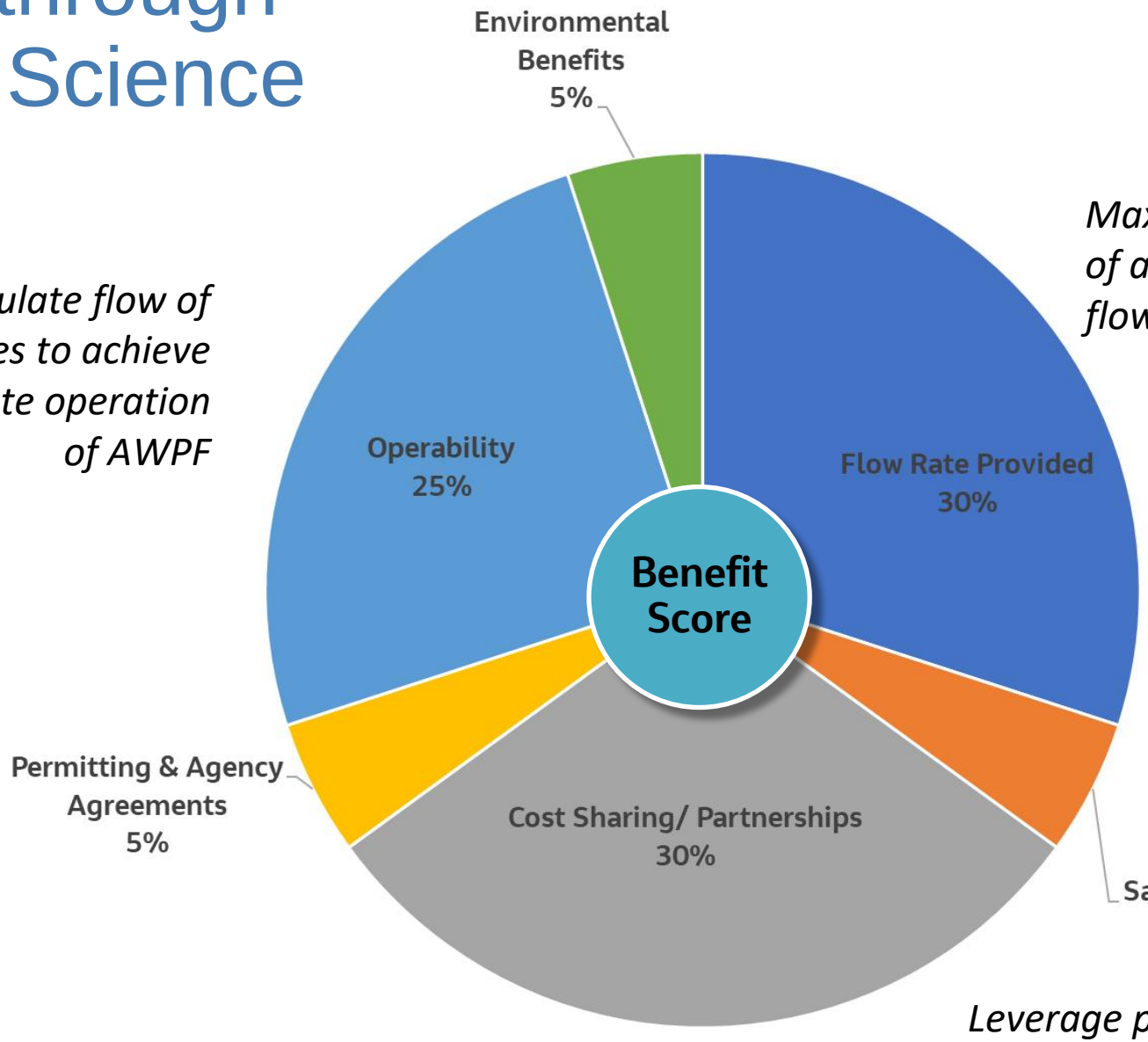
Final Ranking Approach

Ranking through Decision Science



Maximize amount of augmentation flow to AWPF

Modulate flow of sources to achieve steady-state operation of AWPF

Leverage partnerships for regional benefit and cost sharing

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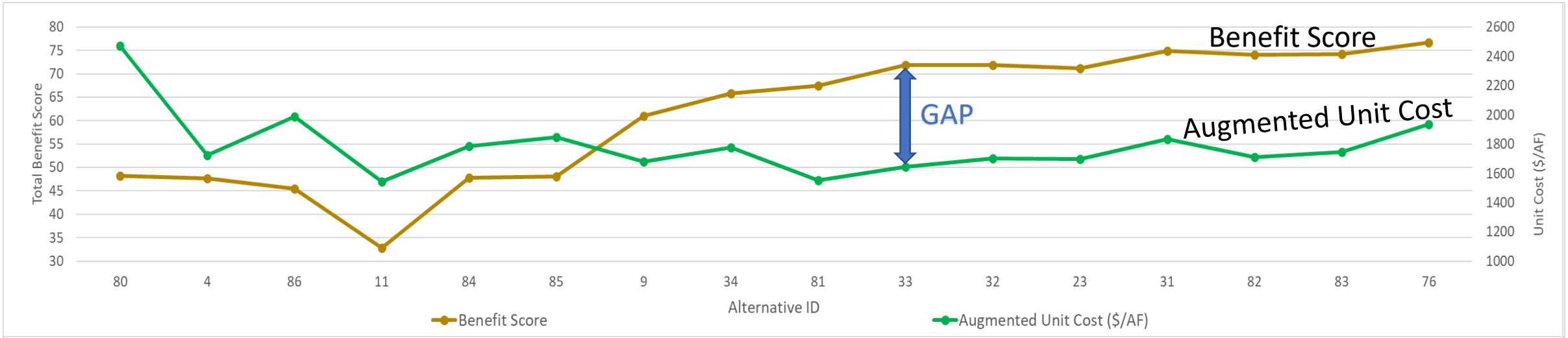
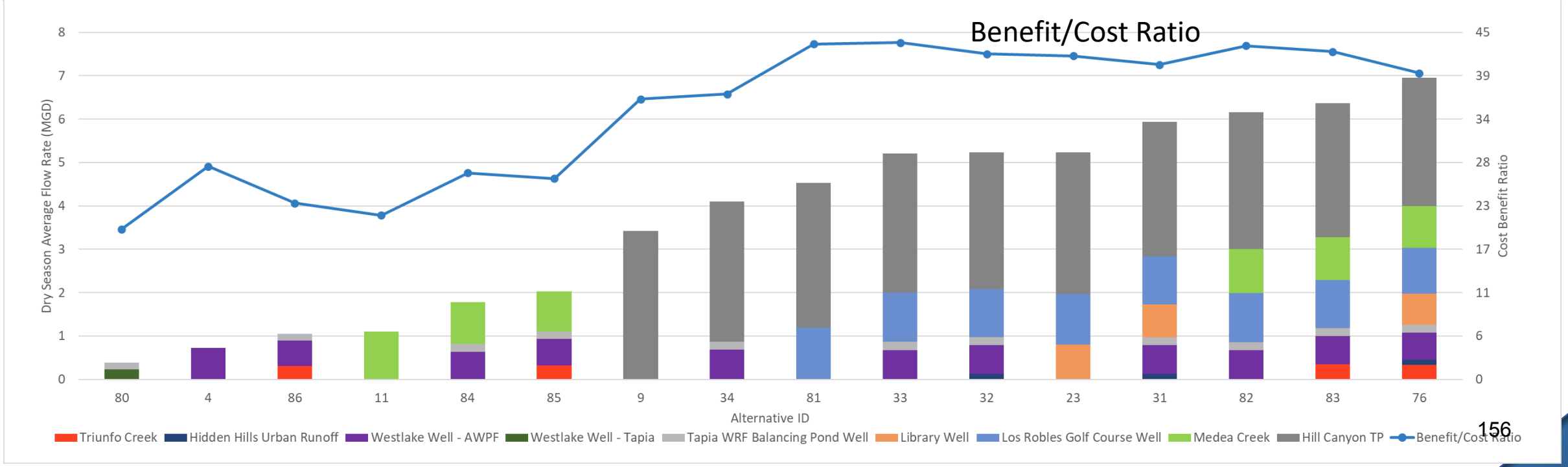
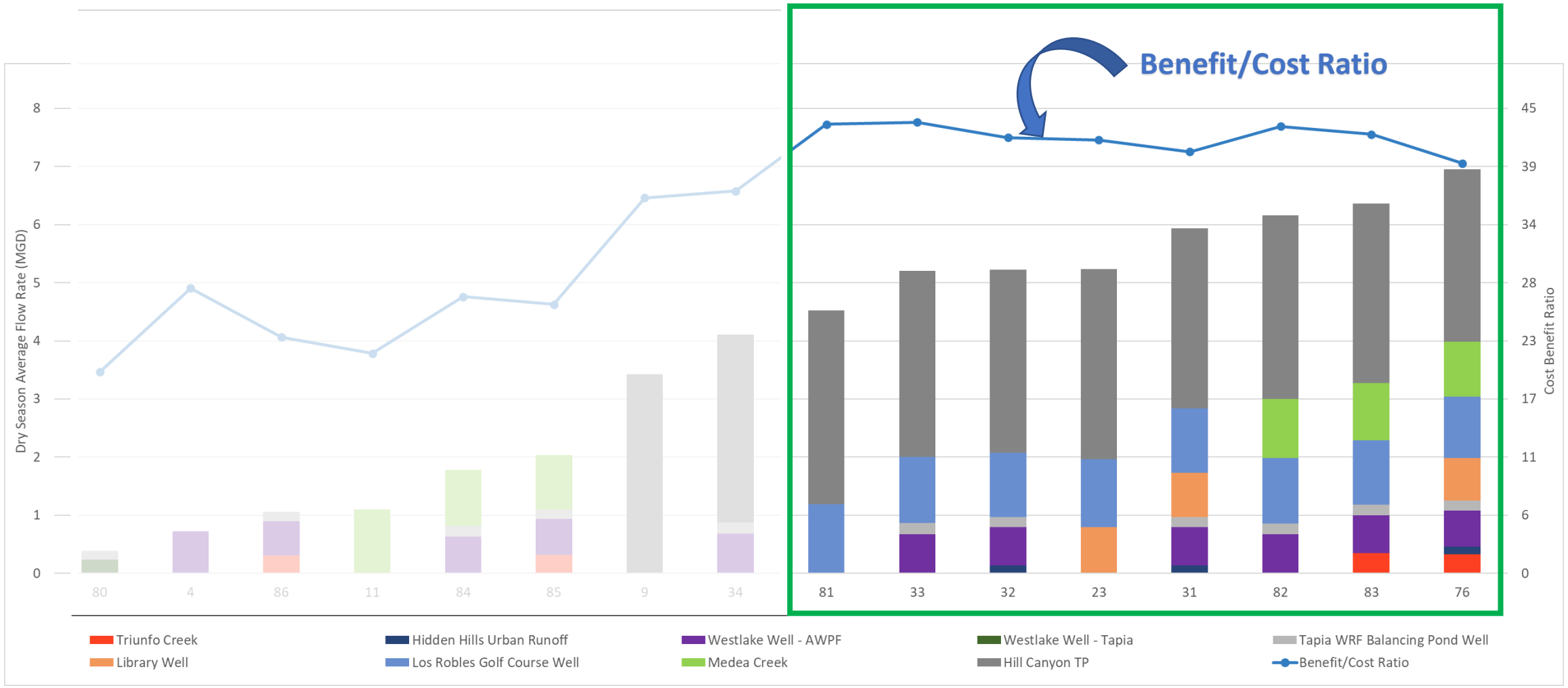
Ranking Results





Findings from Ranking Results



Findings from Ranking Results

		Alt 33	Alt 81	Alt 82	Alt 83	Alt 32	Alt 23	Alt 31	Alt 76
Ranking	**Ranking**	**1**	**2**	**3**	**4**	**5**	**6**	**7**	**8**
	Benefit/Cost Ratio	43.7	43.5	43.3	42.5	42.2	42.0	40.8	39.7
	Total Benefit Score	71.9	67.5	74.1	74.3	71.9	71.2	74.9	76.7
	Augmented Unit Cost ($/AF)	$1,646	$1,552	$1,712	$1,748	$1,704	$1,697	$1,834	$1,933
	Augmented Feedwater Volume (AF)	4,499	3,944	5,081	5,198	4,530	4,458	4,936	5,500
Sources	Westlake Wells to AWPF	X		X	X	X	X	X	X
	Tapia Balancing Pond Well	X		X	X	X	X	X	X
	HCTP	X	X	X	X	X		X	X
	Los Robles Golf Course	X	X	X	X	X		X	X
	Medea Creek Stream Diversion			X	X				X
	Triunfo Creek Stream Diversion				X				X
	Library Wells						X	X	X
	Hidden Hills Runoff					X		X	X

Core Sources

Secondary Sources

Led by Others

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Recommended Approach for Water Augmentation

Recommended Water Augmentation Approach

Pursue Implementation of Core Augmentation Sources

Primary supply of augmentation from these sources:

- ✓ Hill Canyon Treatment Plant Effluent (critical path)
- ✓ Los Robles Golf Course Wells
- ✓ Tapia Balancing Pond Well
- ✓ Enhance Use of Westlake Wells

Explore Implementation of Secondary Augmentation Sources

Secondary sources can further increase augmentation:

- Library Wells owned by Thousand Oaks
- Medea Creek Diversion
- Triunfo Creek Diversion

Implement Recycled Water Conservation Programs

Reducing recycled water demand will free up additional flow from Tapia WRF for the AWPF.

Accept Flow from Augmentation Projects Led by Others

Augmentation may occur organically through actions by others:

- Stream or Urban Runoff Diversions implemented by MS4 permittees.
- Dewatering wells accepted to sanitary system.
- Septic-to-sewer system projects
- Further augmentation by Thousand Oaks

Revisit Other Sources Identified under Study

Periodically review the medium and low priority sources identified under this study for changing conditions or feasibility.

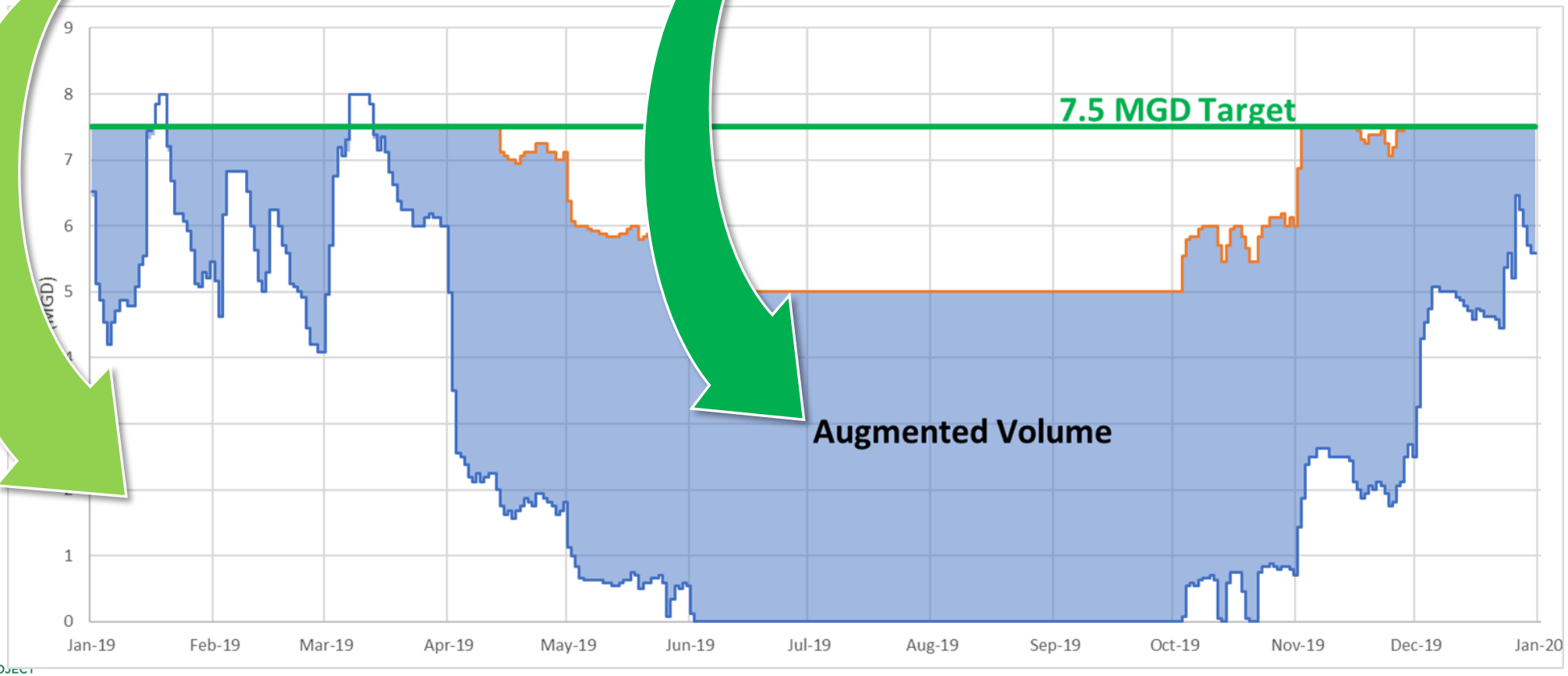
Augmentation improves cost-effectiveness of Pure Water Project.

✓ Baseline

- ✓ Protects Malibu Creek
- ✓ Creates local drinking water source
- ✓ Meets regulatory obligations

+ Augmentation

- + Extends operation of AWPF across year and increases product volume
- + Improves reliability of local water supply
- + Drives down unit cost of locally produced water



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Next Steps

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Bringing Our Water Full Circle

Thank You

September 13, 2021 JPA Board Meeting

TO: JPA Board of Directors

FROM: Engineering and External Affairs

Subject : Tapia Water Reclamation Facility Summer Season TMDL Compliance and Meter Replacement Project: Construction Award

SUMMARY:

On July 6, 2021, the JPA Board authorized a call for bids for the Tapia Water Reclamation Facility (Tapia WRF) Summer Season Total Maximum Daily Load (TMDL) Compliance and Meter Replacement Project. The scope of work generally consists of the extension of a potable water pipeline, structural reconfiguration of the final effluent overflow basin, meter installation, and associated mechanical and electrical installations. The JPA received three bids for the project, and staff determined that the lowest responsive bid was submitted by Pacific Hydrotech Corporation, in the amount $3,488,505.00, which is 25 percent higher than the Engineer's Estimate of $2,787,395. The lowest overall bid was submitted by Minco Construction; however, the firm submitted a request to withdraw the bid due to a clerical error that rendered the bid materially different than intended.

Given the circumstances, staff considered recommending that the project be rebid, but this approach would extend the project completion date beyond the regulatory deadline and would not ensure a lower bid would be submitted. Proceeding with the project at this time is necessary to meet the May 16, 2022 compliance deadline established in the National Pollutant Discharge Elimination System (NPDES) permit for the Tapia WRF. As a result, staff recommends accepting the request from Minco Construction to withdraw its bid due to a clerical error and awarding a construction contract to Pacific Hydrotech Corporation, in the amount of $3,488,505, for the Tapia WRF Summer Season TMDL Compliance and Meter Replacement Project.

RECOMMENDATION(S):

Accept the request from Minco Construction to withdraw its bid due to a clerical error; award a construction contract to Pacific Hydrotech Corporation, in the amount of $3,488,505; reject all remaining bids upon receipt of the duly executed contract documents; and appropriate an additional $1,660,567.50 for the Tapia Water Reclamation Facility Summer Season Total Maximum Daily Load Compliance and Meter Replacement Project.

FISCAL IMPACT:

Yes

ITEM BUDGETED:

Yes

FINANCIAL IMPACT:

The adopted Fiscal Year 2021-22 JPA Budget includes carry-over appropriations of $2,937,375 for the Tapia WRF Summer Season TMDL Compliance Project and $33,000 for the Tapia Meter Replacement Project. These appropriation amounts were established several years prior to development of the design and bidding documents, and prior to the COVID-19 pandemic. Construction costs have significantly increased due to interruptions in the manufacturing and shipping of materials and due to labor shortages throughout the industry. An additional appropriation, in the amount of $1,660,567.50, is required for completion of the combined project. The additional appropriation includes a 10 percent contingency and the estimated administrative costs for the project. The project costs are allocated 70.6 percent to LVMWD and 29.4 percent to Triunfo Water and Sanitation District.

To offset the need for an additional appropriation, staff proposes to reduce/release existing appropriations for the capital improvement projects listed below, which were either completed with a remaining appropriation or can be deferred.

CIP No.	Project Description	Remaining Appropriation	Reduced/Released Appropriation Amount
10665	Cordillera Tank Rehab	$206,637.98	$176,637.00
10608	Rancho Amendment Bin & Conveyance Mod	$142,540.65	$142,540.65
10670	Centrate 24” Valve Replacement	$162,874.11	$162,874.11
10680	Rancho LV Disgester Cleaning/Repair	$98, 620.30	$98,620.30
10720	Tapia Sodium Hypochlorite Tank Replacement	$109,220.85	$109,220.85
10742	Lift Station Improvements	$1,110,000.00	$555,000.00
10750	Lift Station No. 1 Pump Replacement	$396,000.00	$207,837.07
10751	Lifts Station No. 2 Pump Replacement	$396,000.00	$207,837.07
TOTAL			$1,660,567.50

DISCUSSION:

Background:

This project combines two formally distinct projects: the Tapia WRF Summer Season TMDL

Compliance Project and the Tapia Meter Replacement Project. The Tapia WRF Summer Season TMDL Compliance Project was developed in response to new nitrogen and phosphorus limits established by the 2017 Tapia WRF National Pollutant Discharge Elimination System (NPDES) permit. The permit establishes seasonal (winter season and summer season) nutrient limits for total nitrogen (TN) and total phosphorous (TP) discharged to Malibu Creek from the Tapia WRF.

The less stringent winter season limits of 4.0 milligrams per liter (mg/L) TN and 0.20 mg/L TP become effective on November 16, 2030 and apply to November 16th through April 14th of each year. The JPA's plan for compliance with the winter season TMDL nutrient limits will be achieved through diversion of recycled water to the Pure Water Project Las Virgenes-Triunfo. The more stringent summer season limits of 1.0 mg/L TN and 0.10 mg/L TP become effective on May 16, 2022 and apply to April 15th through November 15th of each year.

On May 7, 2018, the JPA Board approved a technical memorandum selecting breakpoint chlorination and the discharge of potable water to Malibu Creek as the preferred method to comply with Tapia's summer season waste load allocation. The discharge of water to the creek is required to provide minimum flow rates as mandated by the NPDES permit; this base flow is intended to sustain habitat for endangered Southern Steelhead and other wildlife. Breakpoint chlorination of potable water was deemed the most feasible alternative for compliance, and involves adding enough chlorine to oxidize to any nitrogen that is present in potable water. Recycled water will not be discharged to the creek during the summer season as the additional treatment to achieve compliance would be infeasible.

On April 29, 2019, the JPA Board accepted a proposal, in the amount of $207,917, from Stantec Consulting (Stantec) and authorized the Administering Agent/General Manager to execute a professional services agreement (PSA) for the Tapia WRF Summer Season Compliance Project, design and engineering support during construction. On March 11, 2020, the Administering Agent/General Manager executed a PSA with AECOM for the Tapia Meter Replacement Project, in the amount of $19,480.00, for design and engineering support during construction. Additionally, on April 5, 2021, the JPA Board approved a change of scope to incorporate the Tapia Meter Replacement Project into the Tapia WRF Summer Season TMDL Compliance Project bidding documents and to proceed as a combination project. Bidding and constructing these projects jointly will reduce the overhead costs associated with separate calls for bids, eliminate potential conflicts of having two contractors on site, and prevent the interference of underground utilities associated with the two projects.

Scope of Work:

The design for the Tapia WRF Summer Season TMDL Compliance Project includes the extension of a potable water main along Las Virgenes Road from Piuma Road to the Tapia effluent overflow structure. Modifications to the effluent structure include the addition of baffles, analyzers, chemical storage tanks and piping for breakpoint chlorination treatment before discharge to Malibu Creek. The metering portion of the project will consist of replacing the Tapia groundwater meter, replacing the radar sensor over the effluent flume for Discharge Point 003, and installing a magnetic flow meter within the effluent pipe for Discharge Point 001.

On July 6, 2021, the JPA Board authorized a call for construction bids. Proceeding with the

project at this time is necessary to meet the RWQCB deadline of May 16, 2022. Delaying the project would extended the completion date beyond the regulatory deadline and introduce risk of discharge violations.

Bid Results:

Staff held a mandatory pre-bid meeting on July 28, 2021, which was attended by 10 contractors. Three bids were received by the bid closing date of August 18, 2021. The call for bids included two bid schedules: one for the Tapia WRF summer season TMDL compliance work and one for the meter replacement. The bid schedules were separated to support the tracking of project costs. The intent is to award the project to a single contractor with the lowest overall responsive bid.

Minco Construction, the lowest bidder for the project, submitted the attached request to withdraw its bid, citing clerical errors when filling out the bid schedule. The errors caused the bid to be $1,902,760 lower than intended. Staff consulted with JPA Legal Counsel and determined that the mathematical errors reflected on the bid schedule were materially different from the intended bid. As such, the withdrawal request complies with Section 5103(c) of the Public Contract Code.

Following is a summary of the bid results:

Bidder	A. TMDL Compliance	B. Meter Project	Bid Total	Percent Difference from Engineer's Estimate	Note
Minco Construction	$1,911,645.00	$315,000.00	$2,226,645.00	-20%	Non-responsive
Blois Construction	$3,305,626.00	$582,528.00	$3,888,154.00	+39%	Responsive
Pacific Hydrotech Corporation	$3,024,205.00	$464,300.00	$3,488,505.00	+25%	Responsive

Cost Analysis:

The total Engineer's Estimate for both the TMDL compliance work and the meter replacement is $2,787,395, when adjusted to current market conditions. The difference between the bid prices and the Engineer's Estimate is likely due to pandemic conditions such as higher mark-ups and labor costs, material shortages, and greater competition for available contractors.

Following is a summary of the anticipated costs and requested additional appropriations:

Description	TMDL Compliance Costs	Meter Project Costs
Professional Services:		
Design, Bidding, Construction Support	$207,917.00	$19,480.00

- Scope Change 1	$12,400.00	$2,700.00
- Scope Change 2	$7,450.00	
- Scope Change 3	$15,609.00	
- Scope Change 4	$17,892.00	
Environmental Monitoring	$28,380.00	
Construction:		
Construction Award	$3,024,205.00	$464,300.00
Construction Contingency (10%)	$302,420.50	$46,430.00
Administrative:		
District Labor	$120,968.20 @ (4%)	$55,716.00 @ (12%)
G&A	$211,694.35 @ (7%)	$92,860.00 @ (20%)
Total Project Cost	$3,948,936.05	$682,006.00
Existing Budget	$2,937,375.00	$33,000.00
Additional Appropriation	$1,011,561.05	$649,006.00

Total additional appropriation required is $1,660,567.05.

Environmental Documentation:

An Initial Study was performed for the Tapia WRF Summer Season TMDL Compliance Project in accordance with the California Environmental Quality Act (CEQA). The Initial Study identified potentially significant impacts on biological resources, cultural resources and noise impacts. A Mitigated Negative Declaration was adopted by the JPA Board on March 4, 2019. A Mitigation Monitoring and Reporting Program (MMRP) will be adhered to during construction. Staff requested proposals for the environmental monitoring required for the project and received five responses. The lowest responsive bid was submitted by Padre Associates, Inc., in the amount of $28,380, which is within the authority of the Administering Agent/General Manager for award.

The Meter Replacement Project is categorically exempt from the provisions of CEQA, pursuant to Article 19, Section 15301(b) of the CEQA Guidelines because it involves rehabilitation of existing facilities and no expansion of use. On July 6, 2021, the JPA Board approved filing of a Notice of Exemption from the provisions of CEQA.

Reevaluation of Alternatives:

Given the higher cost of the bids received, staff reviewed the Stantec Technical Memo dated April 2018, which analyzed five alternatives for achieving seasonal compliance with the future TMDLs. These alternatives included the following:

(1) Tertiary Membrane Bioreactor (MBR) + Reverse Osmosis (RO)
(2) Microfiltration/Ultrafiltration (MF/UF) + RO + Ion Exchange (IX)
(3) Breakpoint Chlorination of Potable Water (the selected alternative - this Project)
(4) Secondary MBR + RO
(5) Biologically Active Filtration (BAF) + MF/UF + RO

After a review of the alternatives, breakpoint chlorination of potable water continues to provide the greatest operational reliability, highest water quality, easiest operation and remains significantly more cost-effective than the other options. The initial cost estimates for the

alternative project approaches are also expected to be proportionally higher than originally estimated for the same reasons explained above. Even if one of the other alternatives were to be less expensive, pursuing it would not allow the JPA to meet the compliance deadline.

GOALS:

Construct, Manage and Maintain All Facilities and Provide Services to Assure System Reliability and Environmental Compatibility

Prepared by: Veronica Hurtado, Assistant Engineer

ATTACHMENTS:

Request by Minco Construction to Withdraw Bid

MINCO MINCO CONSTRUCTION

(877) BY-MINCO www.mincoconstruction.com

Date: August 24, 2021

To: Las Virgenes Municipal Water District
4232 Las Virgenes Road Calabasas, CA 91302

Re: Tapia Water Reclamation Facility Summer Discharge Compliance Project

Subject: Bid Withdrawal Request

Veronica Hurtado,

After the project has been reviewed we found out that we made a mathematical error resulted in a quote/bid that was materially different from its intended bid, the mistake was made in filling out the bid, Item No 8 of Schedule A adds up incorrectly item No 8 intend to be $ 1,293,000 instead of $ 593,000, also line Item No 15 and Line Item 16 Intend to be Daily rate by mistake entered as hourly rate.

The mistake was not due to error in judgment or to carelessness in inspecting the site of the work, or in reading the plans or specifications

Refer to California Public Contract Code section 5103, please consider this letter as a request to withdraw Minako America Corporation dba Minco Construction bid for Tapia Water Reclamation Facility Summer Discharge Compliance Project.

Thank you for your consideration,

Respectfully,

Refaat Mina
President

Sheet Title :	TAPIA WATER RECLAMATION FACILITY SUMMER DISCHARGE Las Virgenes		Dwg #:		
No.	**Item #8**	**Qty**	**Unit**	**M+L**	**Final Price**
	Main 8" line				
1	8" c900 pvc pipe	(720 lf)		$200	144,000
2	22.5 degree 8" c900 pvc	(1 each)			1,000
3	11.25 degree 8" c900 pvc	(3 each)			3,000
4	45 degree 8" c900 pvc	(2 each)			2,000
5	restrained ductile iron joints for c900 pvc	(27 each)		$500	13,500
6	electrical detector, furnished by the contractor and capable of at least a 12,000 volt output.	(1 each)			7,000
7	(LS) when a visual inspection indicates that a portion of the coating system has sustained physical damage, the contractor shall perform an electrical holiday test of 6,000 to 7,000 volts.	LS			10,000
8	20"x8" welded steel reducer, flg x pe (cement-mortar protective lining and coating steel)	(1 each)			5,000
9	8" cement-mortar protective lining and coating steel water pipe	(389 lf)			116,700
10	45 degree 8" cement-mortar protective lining and coating steel	(1 each)			2,000
11	90 degree 8" cement-mortar protective lining and coating steel	(1 each)			2,000
12	11.25 degree 8" cement-mortar protective lining and coating steel	(1 each)			2,000
13	tee 8" cement-mortar protective lining and coating steel	(1 each)			2,300
14	8" epoxy coating systems for the interior and exterior of steel water pipelines under bridge	(240 lf)		$1000	240,000
15	8" pipe hanger	(30 each)		$ 300	9,000
16	9" pipe bracing	(30 each)		$ 300	9,000

721,500

1580.5

1593

12,500

5,000

7,500

Sheet Title :	TAPIA WATER RECLAMATION FACILITY SUMMER DISCHARGE Las Virgenes		Dwg #:		
No.	**Item #8**	**Qty**	**Unit**	**M+L**	**Final Price**
	Expansion joint assembly (2 locations)				
17	dig for vault	(45 cy)			20,000
18	aggregate under vault	(7 cy)			2,000
19	2" floor drain with 8" drain opening	(1 each)			2,000
20	3'x3'x3' drain rock pit, hole for drain 3'x3'x10'= 4cy of excavated dirt	(1 each)			5,000
21	jensen precast vault 810 6' deepx7'x7' with 30" manhole opening and stairs	(1 each)			20,000
22	18" 3' long epoxy coted sleeve for 8: pipe	(2 each)			1,500
23	coring 10" dia	(2 each)			1,500
24	coring 20" dia	(2 each)			3,000
25	9" welded flange	(8 each)		$500	4,000
26	8" flexible expansion joint, ebaa iron forced balanced flex tend or approved equal(flg x flg)	(4 each)			4,000
27	link seal 10"	(2 each)			1,000
28	link seal 20"	(2 each)			3,000

Sheet Title :	TAPIA WATER RECLAMATION FACILITY SUMMER DISCHARGE Las Virgenes		Dwg #:		
No.	**Item #8**	**Qty**	**Unit**	**M+L**	**Final Price**
	Air vacuum release assembly from underground pipe (2 Locations)				
29	2" corporation stop	(2 each)			2,000
30	service saddle 8" to 2'	(2 each)			2,000
31	2" 90 elbow threaded	(2 each)			1,000
32	2" adaptor thread to weld	(2 each)			1,000
33	2" service tubing	24 LF			5,000
34	3' high x 2' dia cage	(2 each)			2,000
35	2" 90 elbow welded	(2 each)			1,000
36	2" adaptor weld to thread	(2 each)			1,000
37	2" valve (non-rising jones j-372)	(2 each)			2,000
38	2" (3" long) nibble	(2 each)			1,000
39	combination air release & vacuum valve with ¾" test drain.	(2 each)			4,000
	2" air valve release over ground pipe (2 Locations)				
40	2" dia 300lb flanged welded to 8" pipe	(2 each)			2,000
41	2" 600 lb steel ball valve	(2 each)			2,000
42	2" (3" long) nipple	(6 each)			3,000
43	combination air release & vacuum valve with ¾" test drain.	(2 each)			4,000
44	2" sch 80 galvanized steel pipe	10 lf			2,000
45	2" air valve screen	(2 each)			1,000
46	2" sch 80 galvanized 90 bend	(4 each)			1,000

Sheet Title :	TAPIA WATER RECLAMATION FACILITY SUMMER DISCHARGE Las Virgenes		Dwg #:		
No.	**Item #8**	**Qty**	**Unit**	**M+L**	**Final Price**
	8" line to basin				
47	8" mj x flg from c900 pvc pipe to cml&c pipe	(1 each)			1,000
48	8" 90 bend c900 pvc pipe	(1 each)			1,000
49	8" c900 pvc pipe	6 LF			2,000
50	8" butterfly valve bfv 101	(1 each)			7,000
51	(6 lfx4) 8" cml&c pipe	24 LF			5,000
52	(2 each) 8" dismantling joint	(2 each)			6,000
53	8" magnetic flow meter fe 101	(1 each)			7,000
54	8"orifice plate	(1 each)			2,000
55	8" cml&c pipe 90 elbow	(2 each)			2,000
56	8" welded flange	(16 each)		$500	8,000
	12" line from the basin to the water bond				
57	(5 lfx3) 12" cml&c pipe	15 LF			7,500
58	12" butterfly valve with stem and wheel	(1each)			10,000
59	12"Motorized butterfly valve with stem	(1each)			15,000
60	12" butterfly valve 102 with stem and wheel	(1each)			12,000

Sheet Title :	TAPIA WATER RECLAMATION FACILITY SUMMER DISCHARGE Las Virgenes		Dwg #:		
No.	**Item #8**	**Qty**	**Unit**	**M+L**	**Final Price**
	<u>line from 8" line to 1" line</u>				
61	core throw 8" pipe	(1 each)			1,000
62	weld 1" galvanize 1/2 nut to pipe	(1 each)			500
63	1" galvanized pipe	5 LF			500
64	1" 90 elbow galvanized	(1 each)			500
65	1" tee galvanized	(1 each)			500
66	1" 600lb steel ball valve eccentric plug valve	(2 each)			1,000
67	1"dielectric coupling metal to cpvc pipe	(2 each)			1,000
68	1" cpvc pipe	(40 lf)			5,000
69	90 elbow cpvc	(1 each)			250
70	tee 1-1/2"x1/2'x1-1/2"	(1 each)			250
71	reducer 1"to 1-1/2"	(1 each)			250
72	1/2" cpvc pipe	(20 lf)			1,000
73	½" backpressure valve	(1 each)			500
74	½" butterfly valve	(1 each)			500
75	1-1/2" cpvc	(50 lf)			1,000
76	1-1/2" 90 elbow	(2 each)			500

Sheet Title :	TAPIA WATER RECLAMATION FACILITY SUMMER DISCHARGE Las Virgenes		Dwg #:		
No.	**Item #8**	Qty	Unit	M+L	Final Price
	chemical diffuser				
77	1-1/2" union cpvc	(1 each)			500
78	3"x1-1/2"x3' tee cpvc	(1 each)			500
79	3" cpvc pipe	4 LF			500
80	150 lb flange with nuts rubber coated	(2 each)			1000
81	150 lb flange from cpvc to wall flange	(2 each)			2000
82	diffuser support.	(2 each)			3000
	Shelter & Chemical pumps assembly				
83	7'x7'x7' prefabricated shelter	(1 each)			40,000
84	AIT SAMPLE PUMP 5 GPM 1.5 with local control panel	(1 each)			30,000
85	AIT SAMPLE PUMP 5 GPH 1.5 with local control panel	(1 each)			30,000
86	CHEM FEED PUMP 1.5 GPH 1/4 with local control panel	(1 each)			20,000
87	CHEM FEED PUMP 4.5 GPH ¼ with local control panel	(2 each)			60,000
88	1-1/2" PVCP pipe	120 LF			20,000
	~~1-1/2" PVCP pipe~~	~~120 LF~~			
89	1" PVCP pipe	100 LF			15,000
90	1-1/2" PVCP pipe 90	(14 each)		$ 250	3,500
91	1-1/2" PVCP pipe union	(3 each)			1,500
92	1-1/2" PVCP pipe tee	(10 each)			2,500
93	1-1/2" check valve	(1 each)			500
94	1-1/2" starter	(1 each)			500

Sheet Title :	TAPIA WATER RECLAMATION FACILITY SUMMER DISCHARGE Las Virgenes		Dwg #:		
No.	**Item #8**	**Qty**	**Unit**	**M+L**	**Final Price**
	<u>(continue) Shelter & Chemical pumps assembly</u>				
95	1-1/2" to 1" reducer	(2 each)			500
96	1-1/2" ball valve	(5 each)			2,500
97	1-1/2" needle valve	(1 each)			500
98	55 gallon high density polyethylene (HDPE) tank, bolted and sealed cover	(1 each)			5,000
99	CPVC 2" pipe	20LF			2,000
100	1/2" bypass relief valve	(1 each)			500
101	1/2" pressure valve	(1 each)			500
102	2" CPVC tee	(2 each)			500
103	2" CPVC 90	(2 each)			500
	<u>Chemical valve box and chemical pipes</u>				
104	6" chemical containment pipe	(30 lf)			3,000
105	3/4" Chemical HDPE pipe throw existing 3' and 6' conduit fusion welded.	(2000 lf)		$90	180,000
106	1/2" Chemical HDPE pipe fusion welded inside 2" PVC containment pipe hanged 1' from top of basin with wall support anchored channel and clamps	(400 lf)		$150	60,000
107	coring 2" hole throw 24" wall	(2 each)			5,000
108	trench for ½"HDPE pipe to the manhole	(10 lf)			3,000
109	penetrate ½" HDPE pipe throw existing manhole	(1 each)			1,500
110	6" pvc pipe	(30 LF)			3,000
111	6" 45 degree	(2 each)			1,000
112	6" 90 degree	(1 each)			1,500
113	coring throw manhole to connect 6" pipe	(2 each)			3,000

Sheet Title :	TAPIA WATER RECLAMATION FACILITY SUMMER DISCHARGE Las Virgenes		Dwg #:		
No.	**Item #8**	Qty	Unit	M+L	Final Price
	(continue) Chemical valve box and chemical pipes				
114	¾" 90 HDPE	(8 each)			2,000
115	prefabricated valve box 4'x4' (1/2" thick PVC material with 2 doors.	(1 each)			10,000
116	stainless steel box base with 4 legs	(1 each)			2,500
117	drain pipe with valve from box to outside.	(1 each)			1,750
	TOTAL LINE Item #8				1,293,000

ITEM 10A

INFORMATION ONLY

September 13, 2021 JPA Board Meeting

TO: JPA Board of Directors

FROM: Facilities & Operations

Subject : Pure Water Project Las Virgenes-Triunfo: Final Report for Future Supply Actions Study on Artificial Intelligence

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SUMMARY:

In August 2018, the JPA and Carollo Engineers, Inc., collaborating with Yokogawa Electrical Corporation, submitted a grant application to the Metropolitan Water District of Southern California for its Future Supply Actions (FSA) Funding Program. The grant requested funding to implement and test artificial intelligence (AI) and machine learning (ML) control algorithms as part of the Pure Water Demonstration Project. Additionally, the application included an evaluation of model predictive control (MPC) at the Tapia Water Reclamation Facility, specifically evaluating Yokogawa's innovative Data-Driven Modeling for Optimization (DDMO) to achieve cost-savings in the operation of the aeration basins.

The goal of the project was to determine if AI/ML could provide intelligent system controls that would increase the resiliency, reliability and efficiency of the Advanced Water Treatment Facility through an additional virtual barrier, thus further protecting public health and reducing operational costs. The Metropolitan Water District of Southern California approved the grant application, and the partnership with Carollo and Yokogawa provided valuable data-driven information for both the Tapia Water Reclamation Facility and Pure Water Demonstration Project. The study was recently completed, and the final report has been prepared for submittal to Metropolitan Water District of Southern California.

Attached for reference is the final report for the FSA Study on Artificial Intelligence.

FISCAL IMPACT:

No

ITEM BUDGETED:

No

Prepared by: David W. Pedersen, General Manager

ATTACHMENTS:

Las Virgenes Municipal Water District
FSA Study on Artificial Intelligence

FINAL REPORT

August 2021

carollo

Las Virgenes Municipal Water District
FSA Study on Artificial Intelligence

FINAL REPORT

August 2021

Contents

Tables

Figures

Abbreviations

AI	Artificial Intelligence
C	Celsius
Carollo	Carollo Engineers
DDMO	Data Driven Model Optimization
DOC	dissolved organic carbon
gfd	gallons per square foot per day
IPR	indirect potable reuse
kWh	kilowatt-hour
LRV	log removal values
LVMWD	Las Virgenes Municipal Water District
MAPE	mean absolute percent error
MC	maintenance clean
METI	Ministry of Economy, Trade, and Industry
Metropolitan	Metropolitan Water District
MF	microfiltration
mg/L	milligrams per liter
mgN/L	milligrams nitrogen per liter
ML	Machine Learning
NWRI	National Water Research Institute
PMMoV	pepper mild mottle virus
RAS	return activated sludge
RMSE	root mean square error
RO	reverse osmosis
Tapia WRF	Tapia Water Reclamation Facility
TMP	transmembrane pressure
UF	ultrafiltration
UV AOP	ultraviolet advanced oxidation process
Yokogawa	Yokogawa Electric Corporation

Glossary

Artificial Intelligence (AI) – Systems that mimic human problem-solving by receiving data, learning from data, and taking action to achieve an objective.

Log Removal Values (LRV) – Removal of contaminants, typically pathogens, from water, expressed as the negative based 10 logarithm of the fraction remaining. For example, 90% removal is 1 LRV, 99% removal is 2 LRV, and so on.

Machine learning (ML) – Algorithms that build a model based on training data to make predictions based on new data.

Microfiltration (MF) – Filtration that can remove particles down to a minimum size in the range of 0.1 to 5.0 µm.

Pepper Mild Mottle Virus (PMMoV) – A plant pathogenic virus that affects many species of agricultural peppers but is not harmful nor contagious to humans.

Permeability – Flow through an RO unit, divided by membrane area and transmembrane pressure.

Return Activated Sludge (RAS) – Bacteria that are settled out after the biological treatment stage of a water reclamation facility, then pumped to an earlier stage of the water reclamation facility. This maintains the desired amount of bacteria within the water reclamation facility to biodegrade contaminants and remove nutrients.

Reverse Osmosis (RO) – A water purification process that removes ions and other contaminants from water by applying pressure across a selective, partially permeable membrane to overcome osmotic pressure.

Secondary Effluent – Water that has passed through the primary settling, biological treatment, and secondary setting stages of a water reclamation facility. Secondary effluent has not yet passed through *tertiary* treatment processes such as filtration or disinfection.

Transmembrane Pressure (TMP) – The difference in measured pressure on two sides (feed and permeate) of a membrane.

Ultrafiltration (UF) – Membrane filtration that can remove particles down to a minimum size in the range of 0.02 to 0.1 µm.

Ultraviolet Advanced Oxidation Process (UV AOP) – A family of water treatment processes that simultaneously expose contaminants to ultraviolet radiation and powerful oxidants. For example, hydrogen peroxide (H_2O_2) is commonly added, which reacts under ultraviolet radiation to form the powerful oxidant hydroxyl radicals (·OH).

Water Reclamation Facility (WRF) – A facility that treats wastewater from homes and business to stringent water quality standards so that the water can be beneficially used such as for maintaining ecologically desirable flow in a river, irrigation, or further purification for potable reuse.

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EXECUTIVE SUMMARY

The Las Virgenes Municipal Water District (LVMWD) and Carollo Engineers (Carollo) received a grant from the Metropolitan Water District (Metropolitan) for funding to devise and implement Artificial Intelligence (AI) and Machine Learning (ML) control algorithms at the LVMWD-Triunfo Joint Power Authority's Demonstration Facility (Demo) and the Tapia Water Reclamation Facility (Tapia WRF). The Demo was commissioned in June 2020 and work has been ongoing since that time, with data collected for AI/ML through December 2020. The total project budget was approximately $70,000.

The primary goals of the study include:

- To reduce energy consumption associated with biological and advanced treatment processes while maintaining water quality.
- To support operators as they are asked to achieve stringent water quality targets with increasingly complex treatment processes.

These goals were achieved by:

- Evaluating performance data from the Demo, which purifies tertiary effluent from the Tapia WRF with microfiltration (MF)/ultrafiltration (UF), reverse osmosis (RO), and ultraviolet advanced oxidation (UV AOP).
- Evaluating performance data from the biological nutrient removal system at the Tapia WRF, a conventional activated sludge wastewater treatment plant with tertiary filtration and chloramine disinfection.
- Using AI/ML to predict the performance of the membrane systems from the Demo and the biological treatment process from the Tapia WRF.

This project focuses upon two critical issues that California faces, energy and water. Through AI/ML implementation in water reuse, utilities across the state can reduce energy use in their biological and advanced treatment processes and create more reliable high-quality water.

The results described in this report build on both the original grant and previous AI/ML research that Carollo has conducted with the Yokogawa Electric Corporation (Yokogawa) and the National Water Research Institute (NWRI). This project was led by the LVMWD with support from Carollo and Yokogawa. Carollo and Yokogawa routinely collaborated with each other as well as with the LVMWD staff throughout the course of the project to gather data and share testing results. Findings of the study include the following:

- General Demo performance:
  - Extensive water chemistry sampling across the Demo demonstrates that the high-quality purified water meets all regulatory requirements for indirect potable reuse (IPR).
  - The performance of the MF/UF system was stable throughout the operational period without coagulant additional and at fluxes tested up to 50 gallons per square foot per day (gfd).

  - Pathogen monitoring:
    - Pepper mild mottle virus (PMMoV) log removal values (LRV):
      - 3.9 to 6.1 LRV across UF and 2.6 to 3.5 LRV across MF.
      - ~2 LRV across RO (limited by low PMMoV concentrations in the RO permeate).
    - Protozoa LRV across the MF/UF systems consistently exceeds ~4.5.
- Demo facility AI:
  - The initial AI model was able to predict the rise in MF/UF transmembrane pressure (TMP) over a 2-week period, which closely matched actual operational data.
  - A subsequent model revision allowed prediction of the entire month of December after training the model on the 40 gfd data set from November – the TMP data was predicted very well, but adjustments to the prediction parameters are needed to improve prediction of TMP recovery due to membrane cleaning. The AI underpredicted the effects of cleaning (i.e., the prediction was conservative, creating a safety margin).
    - Permeability predicted by the model was lower than actual operating data, including the recovery of permeability due to cleanings. This is advantageous as it means that predictions currently have a safety margin.
    - The capacity for model optimization and refinement and the improved accuracy of model predictions over time demonstrate significant promise for AI as a forecasting and operational tool for MF and UF membrane systems.
- Tapia WRF BioWin Modeling:
  - The plant-wide BioWin model (for the Tapia WRF activated sludge system) was initially updated to reflect the baseline operating condition (prior to the blower control change in June 2020). Coordination with operations staff supported further refinement and model calibration.
  - Aeration and return activated sludge (RAS) control could be further optimized to save on energy costs while maintaining and/or improving effluent water quality.
  - Installation of a secondary effluent ammonia probe would provide the online data that would further support process control/optimization.
- Tapia WRF Data Driven Model Optimization (DDMO):
  - DDMO demonstrated potential blower optimization (>10 percent energy savings) while maintaining effluent nitrogen concentrations less than discharge permit limits.
  - DDMO demonstrated that artificially setting the target effluent ammonium (NH_4-N) concentration to 1.0 milligrams nitrogen per liter (mg-N/L) (instead of 2.5) results in only a 3 percent higher energy cost.
  - A DDMO demonstration of blower control is planned for the summer of 2021.

The results of this study highlights the ability for AI/ML to improve operating efficiency with anticipated energy savings and benefits to water quality. This study's focus on common treatment processes such as aeration basins and MF/UF provides broad applicability to other utilities regionally, across the state, and nationally that either currently or intend to develop potable reuse. This project set the stage for future phases of work, now funded by other groups (e.g., the USBR) to further define and implement AI/ML solutions for biological and potable reuse treatment.

Conducting a full-scale DDMO demonstration will further refine the DDMO model and will also prove the effectiveness of the system under real-world operational scenario. This testing must occur

during the irrigation/reuse season as opposed to the winter months when the Tapia WRF is discharging and must meet discharge water quality limits. Initially planned for November 2020, the demonstration was not logistically feasible before the end of the irrigation season in 2020 and was postponed until irrigation season 2021, which is funded by other grants. Planning includes defining solutions for efficiently transferring operational data and control setpoint updates on a frequent basis during the demonstration period. Through this testing, the team will not only further validate initial results of the DDMO simulations, but the team will also establish a protocol for data transfer which will serve as an important basis for the future implementation of AI projects.

In 2021, the LVMWD-Carollo-Yokogawa team was awarded two additional grants to continue to advance this work – a new grant from the Ministry of Economy, Trade, and Industry (METI) as well as a grant from the U.S. Bureau of Reclamation. Each of these grants will support advancement of the AI algorithms for potable reuse processes and also build upon the scope of this project to develop a user interface and data transfer to support the eventual implementation of these AI tools. Without the original funding and support from MWD and LVMWD, these other grant opportunities may not have been successful.

Section 1

INTRODUCTION

1.1 Background

In August of 2018, the Las Virgenes Municipal Water District (LVMWD) and Carollo Engineers (Carollo) submitted a grant application to the Metropolitan Water District (Metropolitan) under the Future Supply Actions (FSA) Funding Program. The grant requested funding to implement and test Artificial Intelligence (AI) and Machine Learning (ML) control algorithms as part of the LVMWD-Triunfo Joint Power Authority's Demonstration Facility (Demo) project, with the goal of determining if AI/ML could provide intelligent system control that would increase resilience and reliability of the new advanced water treatment facility (AWTF), which could further protect public health and reduce operating costs. The grant application was approved by Metropolitan. This project builds on previous research conducted with the Yokogawa/NWRI/Carollo team with the following goals:

- To reduce energy consumption associated with biological and advanced treatment processes while maintaining water quality.
- To support operators as they are asked to achieve stringent water quality targets with increasingly complex treatment processes.

These goals were achieved by:

- Evaluating the performance of the Demo, which purifies Tapia Water Reclamation Facility (Tapia WRF) tertiary effluent with microfiltration (MF)/ultrafiltration (UF), reverse osmosis (RO), and ultraviolet advanced oxidation process (UV AOP).
- Evaluating the performance of the Tapia WRF (a conventional activated sludge wastewater treatment plant with tertiary filtration and chloramine disinfection).
- Using AI to evaluate and predict the performance of the membrane systems from the Demo and the biological treatment process from the Tapia WRF.

This project provides critical value on two critical issues that California faces, energy and water. Through AI/ML implementation in water reuse, utilities across the state can reduce energy use in their biological and advanced treatment processes and create more reliable high-quality water.

The results of this study/grant are summarized in this report.

1.2 Project Team

This project was led by the LVMWD, with support from Carollo and from Yokogawa. Darrell Johnson with LVMWD is the point of contact for this grant.

Section 2

PROJECT COST AND SCHEDULE SUMMARY

The project started in June 2020 and has been ongoing since that time. The overall project schedule is presented in Table 1.

Table 1 Overall project schedule.

Date(s)	Milestone
June 2020	Project kickoff. Demo commissioned; start of ongoing water quality testing.
July 2020	Start of AI training data collection.
August 2020	Start of MF/UF test plan implementation, conducted in monthly cycles. Start of ongoing update to BioWin and DDMO accuracy analyses.
October 2020	Comparison of AI-predicted October performance vs. real October performance. Start of October/November AI training data collection.
December 2020	Comparison of AI-predicted December performance vs. real December performance.
January 2021	End of data collection for the study.
June 2021	Final Report completed.

The total project budget was approximately $70,000. Approximately 36 percent of this amount was allocated to Yokogawa, who acted as a subconsultant for Carollo. The project was finished on time and on budget.

Section 3

STUDY RESULTS AND ANALYSIS

3.1 Demo Performance

The Demo was commissioned in late June 2020 and has been consistently operating and producing high quality purified water and valuable performance data. Figures 1 and 2 show the exterior and interior of the Demo, respectively. Grab sample and online monitoring systems demonstrate the high level of performance achieved with the treatment process transforming tertiary recycled water to potable water quality. MF/UF membrane operational data has been provided on a routine basis to Yokogawa to support ongoing AI analysis of the MF/UF membranes.

Figure 1 Exterior of LVMWD Pure Water Demonstration Facility.

Figure 2 Interior of LVMWD Pure Water Demonstration Facility.

A summary of relevant Demo operational details, providing important operational and performance information incorporated into the AI analysis includes:

- Water Quality:
  - Extensive water chemistry sampling has been conducted across the Demo, documenting the high-quality purified water that meets all regulatory requirements for indirect potable reuse (IPR).
- Operational performance conditions:
  - The MF/UF test plan was followed in monthly cycles, where either the target flux or maintenance clean (MC) frequency was adjusted, followed by a month of observation. Between each monthly cycle, recovery cleans were conducted on the MF/UF system. The MF/UF setpoints analyzed for August 2020 through December 2020 were:
    - August 2020 – 30 gallons per square foot per day (gfd), Twice Weekly MCs – Recovery Clean (RC) at end of August.
    - September 2020 – 35 gfd, Twice Weekly MCs – RC at end of September.
    - October 2020 – 35 gfd, Weekly MCs – RC at end of October.
    - November 2020 – 40 gfd, Weekly MCs – RC at end of November.
    - December 2020 – 40 gfd, Weekly Maintenance Cleans – Recovery Clean at end of December.

  - The hotter temperatures experienced until October resulted in the temperature corrected flux being approximately 5 gfd lower than the operational flux set point. Cooler temperatures at the end of 2020 resulted in the temperature corrected values converging.
    - Even with cooler temperatures, the performance of the MF/UF system was stable throughout the operational period without coagulant addition and at fluxes tested up to 45 gfd.
- Pathogen monitoring:
  - Preliminary sampling was conducted for pepper mild mottle virus (PMMoV), which is indigenous to wastewater at high concentrations.
  - PMMoV sampling has indicated that virus LRV across the low-pressure membrane systems of 3.9 to 6.1 for UF and 2.6 to 3.5 across MF. Removal of PMMoV by RO was about 2 LRV, limited by low RO permeate PMMoV concentrations.
  - Some initial PMMoV samples were subject to quality control issues which have since been resolved with improved sampling methods.
  - Protozoa LRV, as indicated by pressure decay testing, has been stable across the MF/UF systems with typical LRVs exceeding 4.5.

3.2 Demo Facility AI

On a routine basis, Carollo provided Yokogawa with operational data to support AI algorithm development, focused on the MF/UF systems. The preliminary analysis focused on the flux, TMP, and MC intervals with the goal of optimizing the MC frequency based on flux. The AI model used inputs as illustrated in Figure 3.

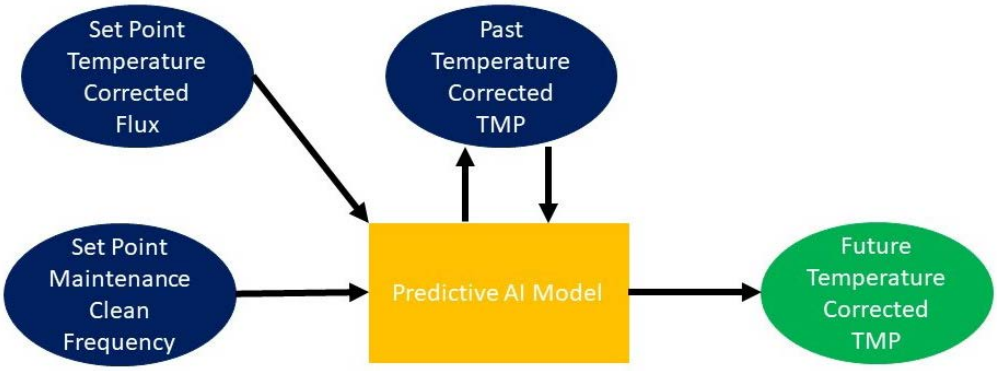

Figure 3 AI modeling approach currently trialed for TMP prediction.

Results of this analysis for temperature corrected operating fluxes of 26 and 30 gfd before October 2020 are presented in the following figures.

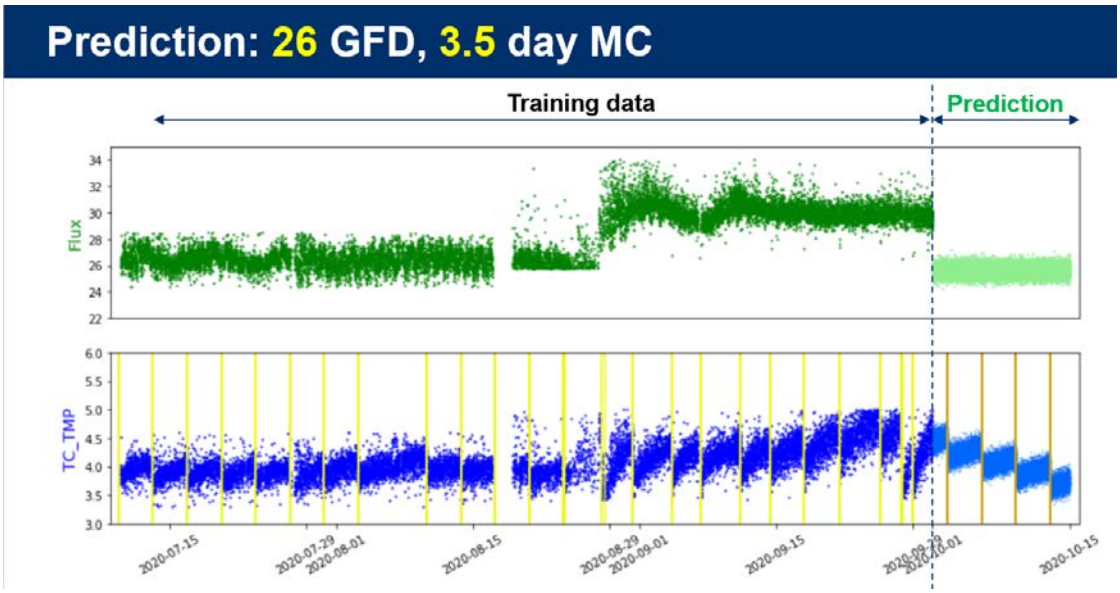

Figure 4 AI-predicted decreasing TMP over the prediction period suggests that the MC interval could be increased for a temperature corrected flux of 26 gfd.

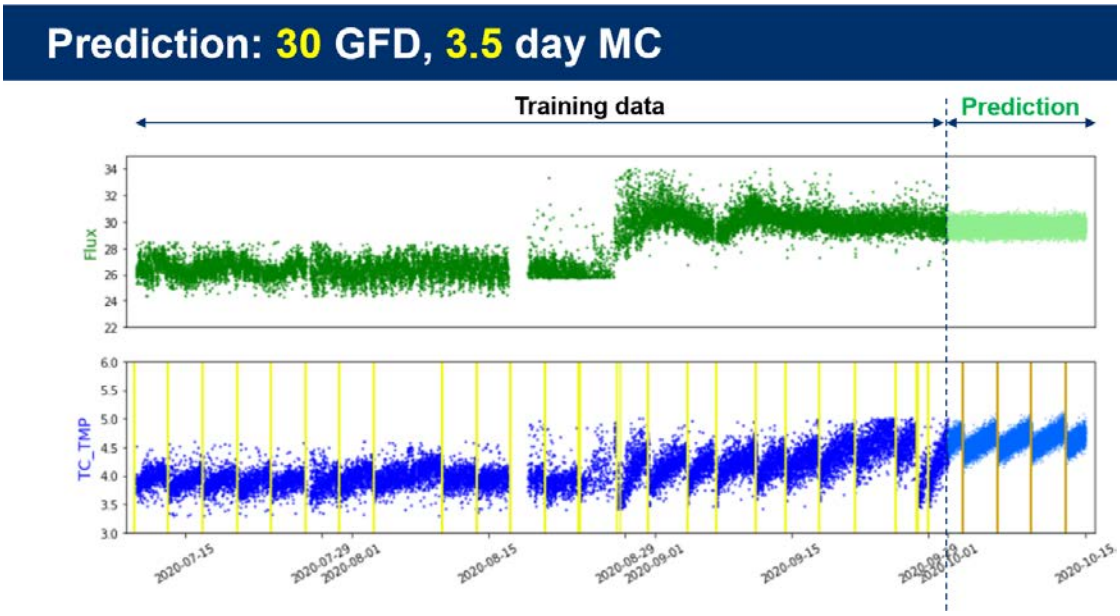

Figure 5 AI-predicted consistent TMP over the prediction period suggests that the MC interval is appropriate for a temperature corrected flux of 30 gfd.

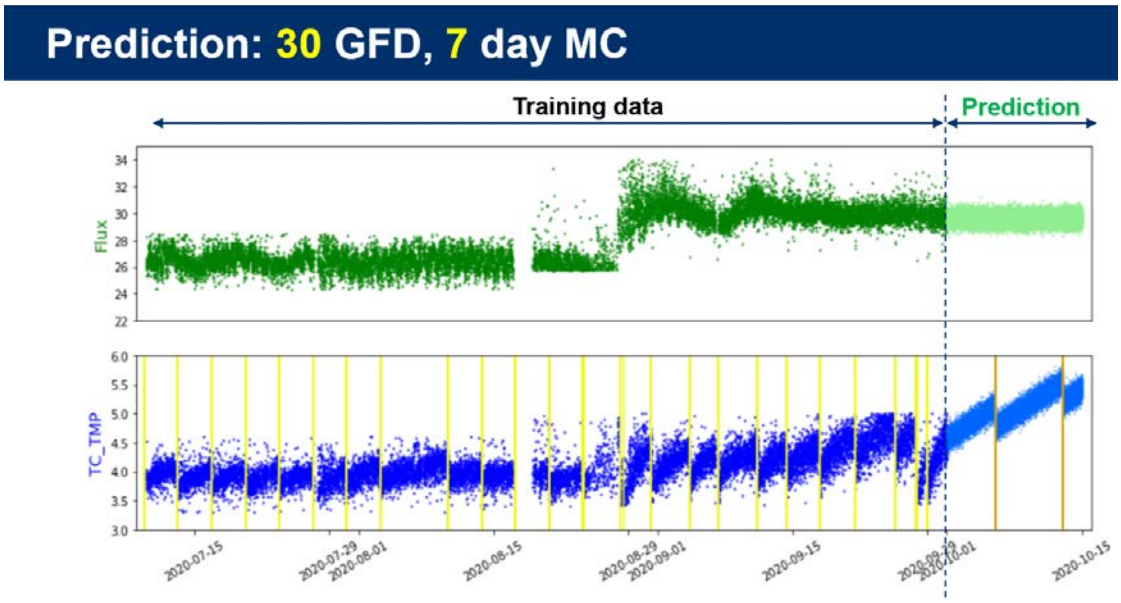

Figure 6 AI-predicted consistent TMP over the prediction period suggests that the MC interval should be decreased for a temperature corrected flux of 30 gfd.

The TMP predictions for early October were validated against recorded operating data as they coincided with an operational change. Prior to October, when the modeling took place, the test condition for a temperature corrected flux of 30 gfd with a 7-day maintenance cleaning interval had not been tested. Hence, it should be noted that the predictions were being made outside of the model calibrated range. In addition, the maintenance clean schedule was not established prior to modelling, and as a result, the predicted and actual maintenance cleans occur on different days, which impacted results by a fixed error.

A comparison of the actual operating flux, temperature-corrected flux and model input temperature-corrected flux is shown in Figure 7. Data were expressed as a 5-minute rolling averages and were filtered prior to averaging to ensure that non-operational data (i.e., backwash or maintenance clean values) were not included.

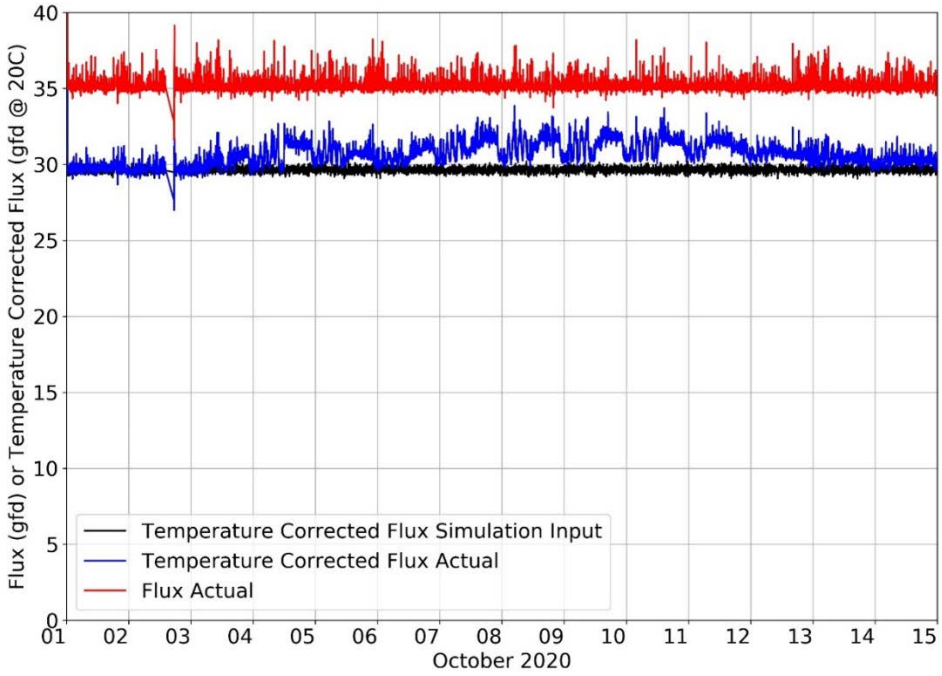

Figure 7 Comparison of model input temperature corrected flux (black), actual temperature corrected flux (blue), and operational flux (red) for the modeled period.

From Figure 7 the following observations can be made:

- The operational flux is approximately 5 gfd higher than the temperature corrected flux due to a feed water temperature typically higher than 25 degrees Celsius (C).
- The operational flux is the control variable and is more stable than the temperature corrected flux which varies according to feedwater temperature.
- Cyclic feedwater temperature variations have been noted and are due to the filling and drawdown cycles of the upstream Tapia WRF effluent reservoir.
- Operational data is more variable than simulation inputs. Nevertheless, actual temperature corrected flux was within 2.5 gfd (8.5 percent) of the simulated input throughout the predicted period.

Based on the information in Figure 7, it was recommended that normal operating flux (i.e., not temperature corrected) is used as a future model input as it is the more stable control variable.

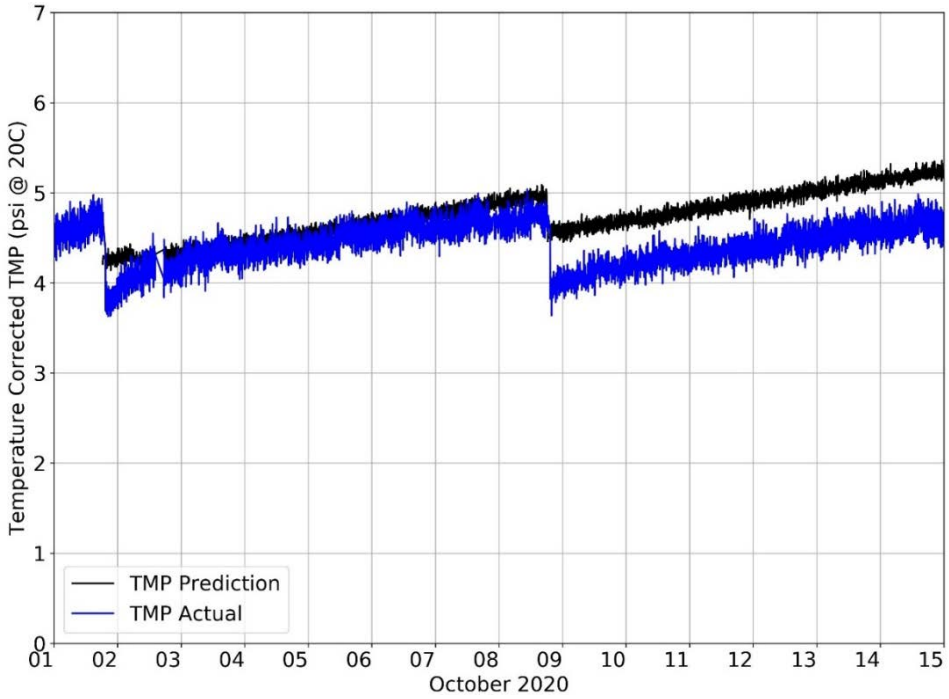

Figure 8 Comparison of model output temperature corrected TMP (black) and actual temperature corrected TMP (blue) for the modeled period. Step decreases on the 2nd and 9th of October are due to MC events.

From Figure 8 (above) the following observations can be made:

- The general reduction of TMP following a maintenance clean was more than that predicted by the model. It is suggested that analysis of permeability recovery achieved by maintenance clean may be a more effective predictor of TMP change following a maintenance clean and this resulted in higher discrepancies when predicting data further into the future (i.e., greater than 1 week or more than 1 MC).
- In general, the rise of TMP over time predicted by the model was similar to the rise noted in actual data which is promising when it is considered that the prediction extrapolated over two weeks into the future.
- It should also be noted that the prediction evaluated was outside of the model's validated range and that some error should be anticipated.

The comparison of predicted permeability is shown against actual permeability for the modeled period in Figure 9.

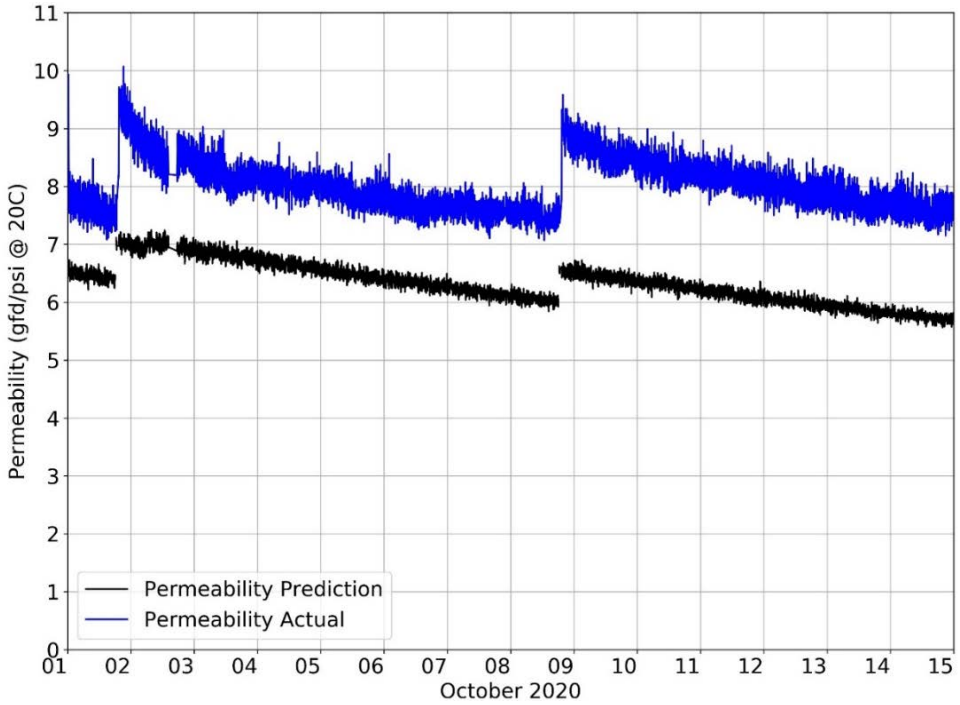

Figure 9 Comparison of model output temperature corrected permeability (black) and actual temperature corrected permeability (blue) for the modeled period. Step increases on the 2nd and 9th of October are due to MC events.

From Figure 9 the following observations can be made:

- The TMP slope for the AI prediction matches the actual data.
- Similar to the TMP model, the effectiveness of MCs to recover permeability has been under predicted by the AI model but the general trend in decline is similar.
- The permeability predicted by the model is lower (i.e., more conservative) than the actual operating data. This is advantageous as it means that predictions currently have a safety margin.

Initial modeling results demonstrated that there did not appear to be large deviations in performance over the two-week model prediction period and the predicted results included a safety margin.

Based the initial results, the next step in the analysis was to update the AI model with new data from October and November 2020. The recommendation was made to evaluate membrane permeability, instead of TMP, to account for small fluctuations in flux (due to system control tuning) that impact the sensitivity of the AI algorithm results. In addition, it was recommended that normal operating flux (i.e., not temperature corrected), was used as the control input. The system flux was increased by approximately 5 gfd every 30 days with a recovery clean prior to each flux increase. The data analysis and predictions are shown in the following figures.

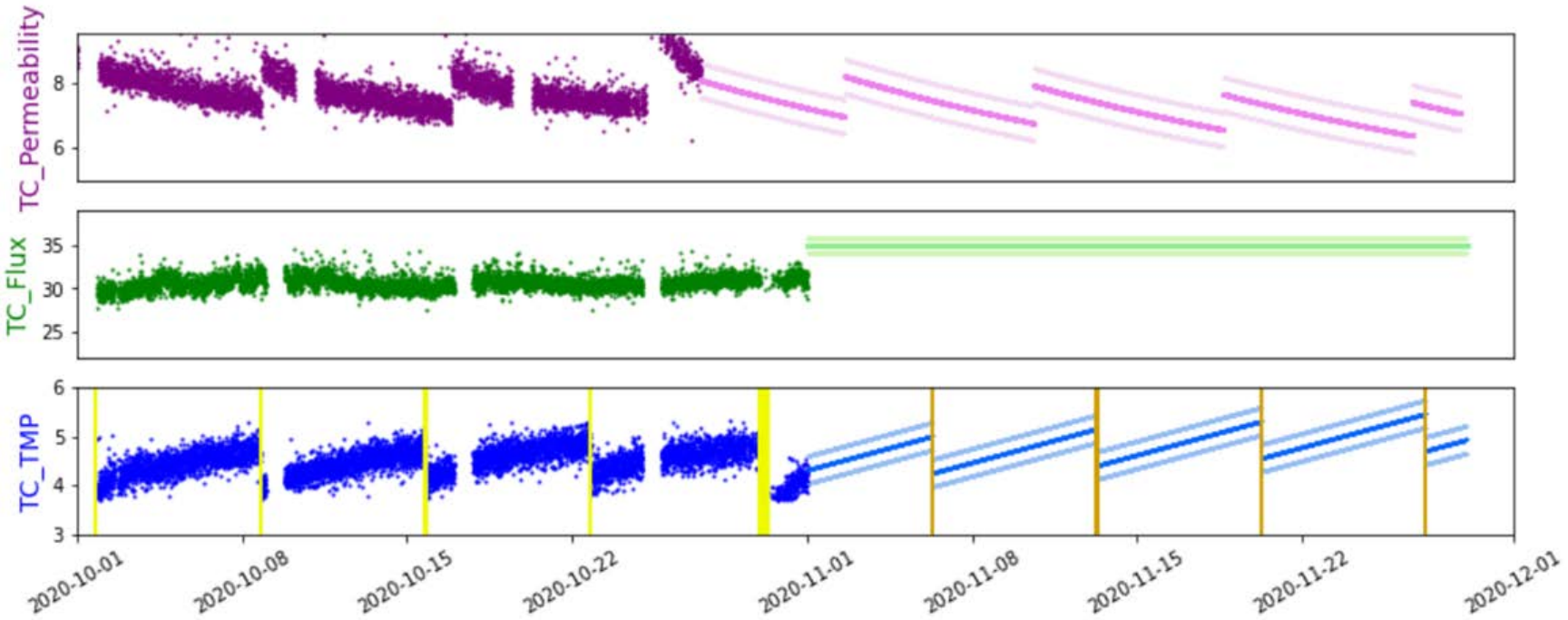

Figure 10 Update of Pure Water Demo AI model with October 2020 data for prediction of November 2020 data.

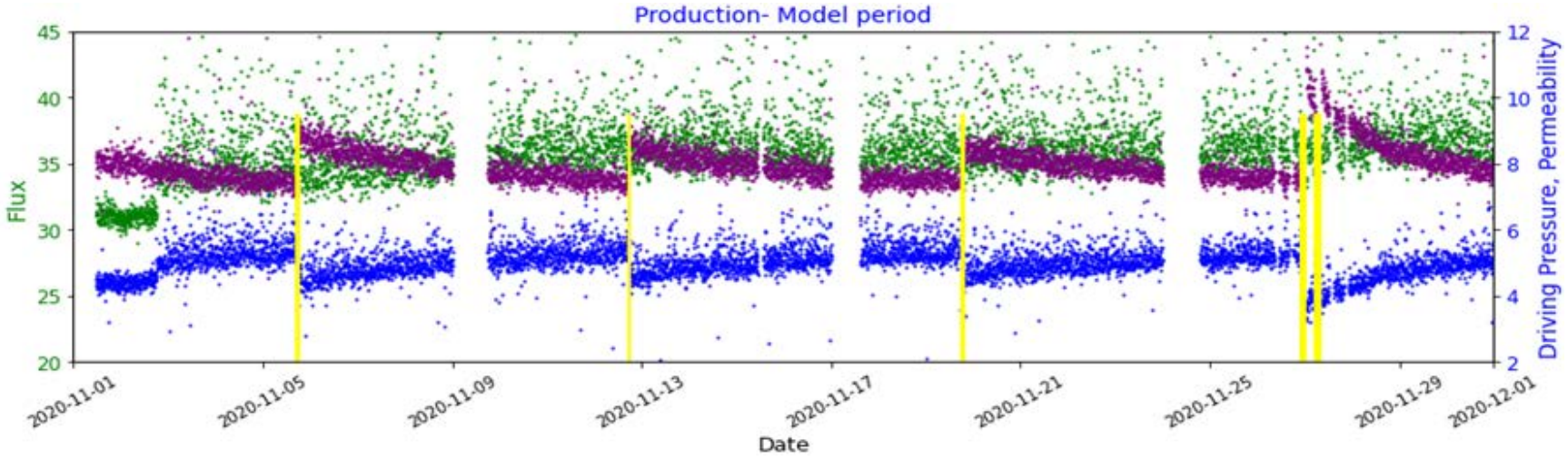

Figure 11 Plot of November 2020 model training data after outlier analysis.

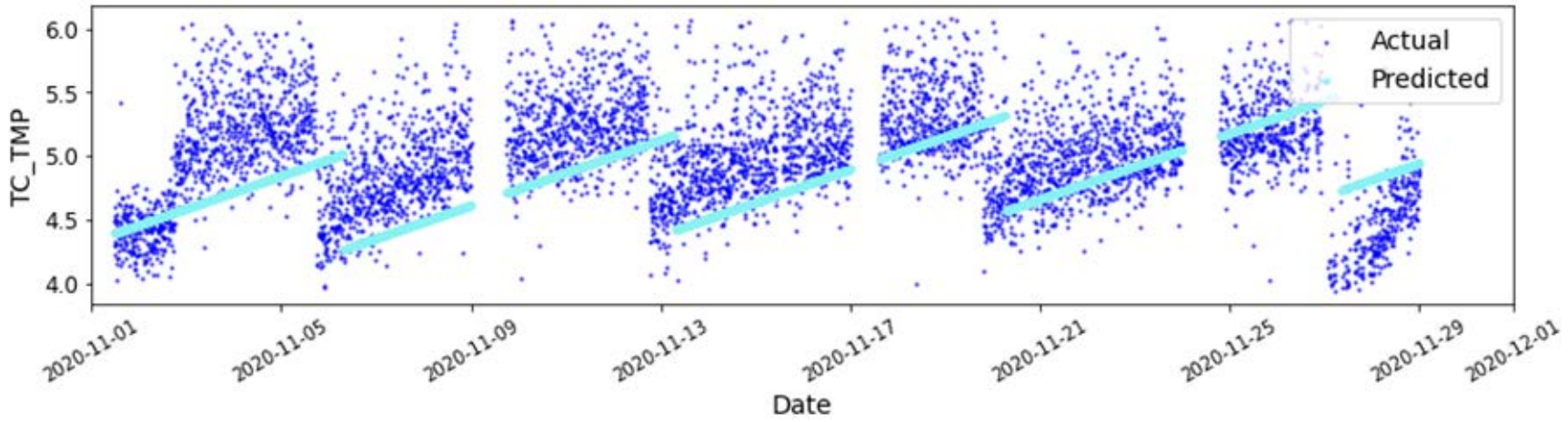

Figure 12 Comparison between actual (blue dots) and modelled (light blue lines) TMP for November 2020 training data.

Due to system issues, the MF/UF was operated at a flux set point of 40 gfd and a 7-day cleaning interval throughout December 2020. Yokogawa provided an estimate of the temperature corrected TMP for the entire month of December, using November 2020 as the training data set. The December flux, measured and predicted temperature-corrected TMP, and predicted and measured permeability are shown in Figure 13, Figure 14, and Figure 15, respectively.

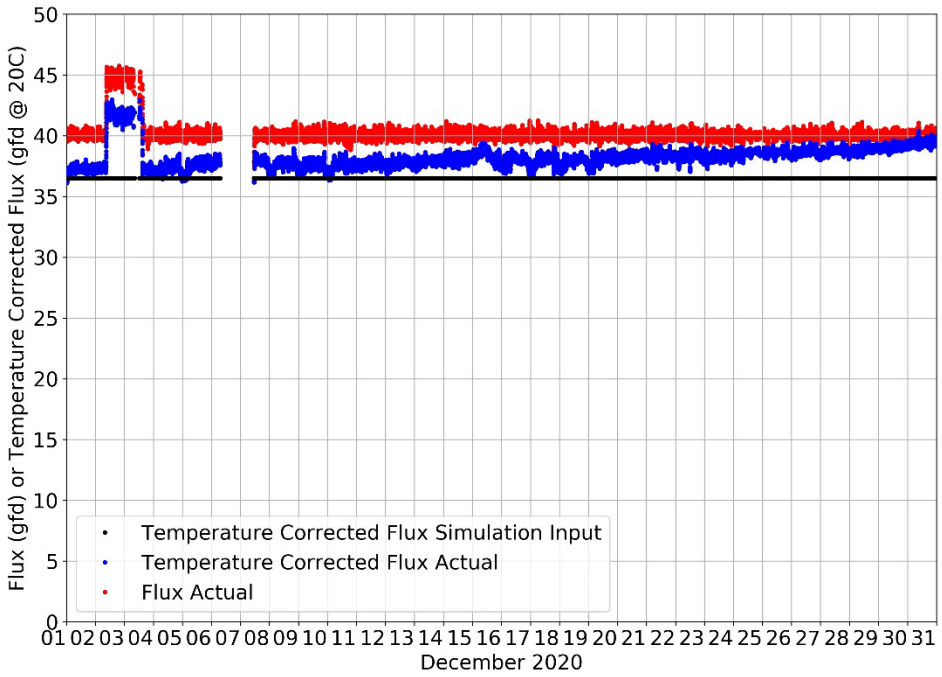

Figure 13 Comparison of model input temperature corrected flux (black), actual temperature corrected flux (blue), and operational flux (red) for the revised December model.

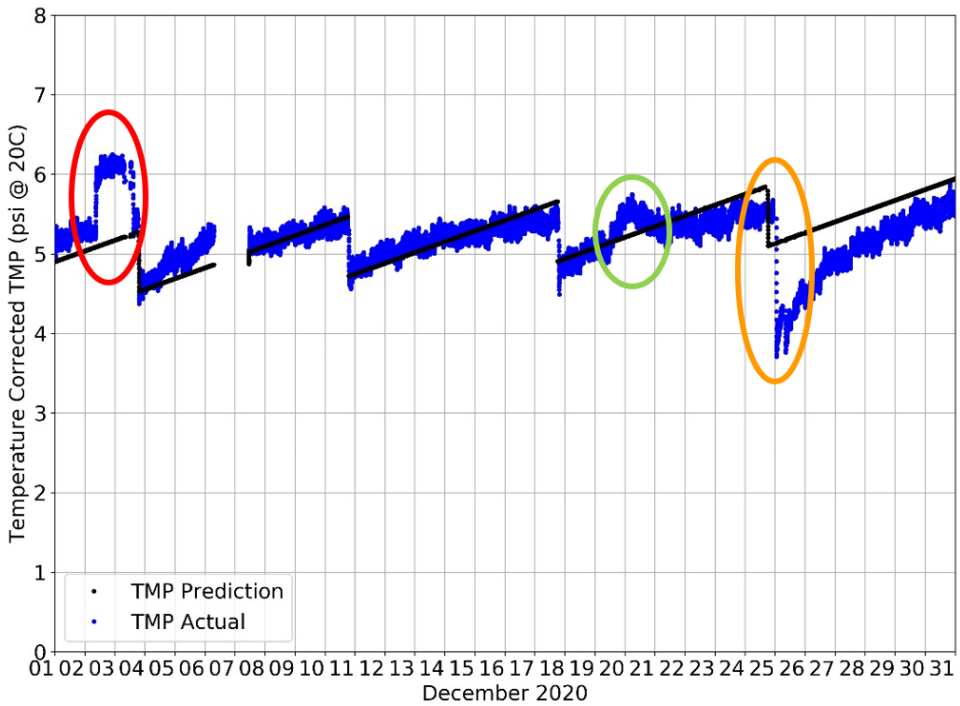

Figure 14 Model output (black) and actual (blue) temperature corrected TMP for the revised December model. Outlier events were an unscheduled flux increase (red) and a recovery clean (orange). Unknown outlier behavior also occurred (green).

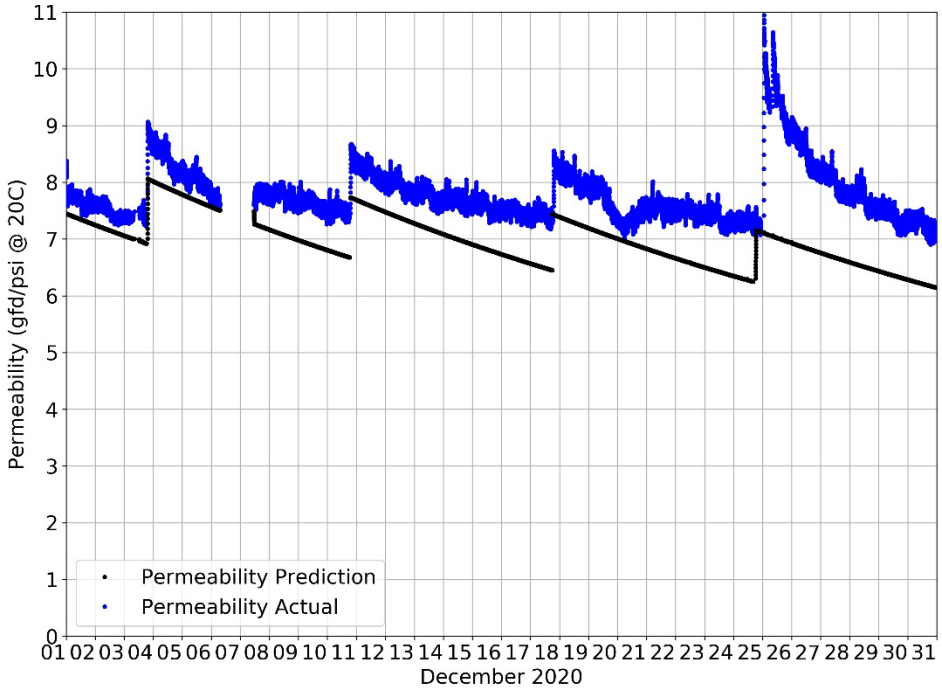

Figure 15 Model output temperature corrected permeability (black) and actual temperature corrected permeability (blue) for the revised December model.

The revised AI predictions for the December period were significantly improved. The following observations were made:

- The model was used to predict operating data set points for which it had been trained.
- TMP agreement was excellent with prediction of both the TMP rate of increase and absolute value, with the exception of three outliers (Figure 14).
  - Outlier 1 was due to an unscheduled flux increase that was not modeled and is not relevant (red circle).
  - Outlier 2 was due to an RC (orange circle) and indicated that there are potential model improvements for predicting TMP recovery by a recovery clean, relative to a lower strength and duration MC, which the model now appears to successfully predict.
  - Outlier 3 (green circle) could not be isolated to a specific cause. However, it is of note that discrepancies between the model performance and actual data could be used to detect operational events that require further investigation.
- Flux and temperature corrected flux began to converge towards the end of December coinciding with lower daily temperatures (Figure 13). It is likely that the discrepancy between actual temperature-corrected flux and predicted temperature-corrected flux were in part responsible for increasingly divergent permeability predictions further towards the end of December (Figure 15).
  - It is recommended to consider modeling the flux without temperature correction and to potentially use long term trends of ambient vs. feedwater temperature to learn and better predict future temperature corrected flux.
- As for the first set of validated forecasts, permeability prediction was conservative, which is advantageous for sustainable operational recommendations.

The following conclusions can be made based upon the AI modeling conducted in 2020:

- TMP predictions are possible with the AI model developed for the Pure Water Demo MF/UF system.
- The predictions are conservative (i.e., they underpredict performance), which provides a safety margin for operations.
- It is important to align the predicted and actual maintenance clean frequency for AI model accuracy.
- Flux without temperature correction is a controlled variable and should be used instead of temperature-corrected flux to predict TMP.
- Investigation of long-term trends in ambient temperature and feedwater temperature may help to forecast temperature-corrected flux (and permeability) more accurately.
- Temperature-corrected permeability may be more appropriate as the key AI parameter for this process since it is more stable than TMP, due to the fact that it is normalized for variation in flux.

Future development of AI for potable reuse include the advancement of the existing MF/UF process optimization as well as creating new algorithms for processes such as ozone/biofiltration or other advanced treatment processes. Expanding the scope of analysis to include key process indicator water quality characteristics (i.e., feed water turbidity and dissolved organic carbon [DOC]) and opportunities to optimize power demand and chemical feed will be a key component in developing a portfolio of AI algorithms that can be deployed for potable reuse systems. The long-term goal for updating the MF/UF AI algorithm is illustrated in Figure 16.

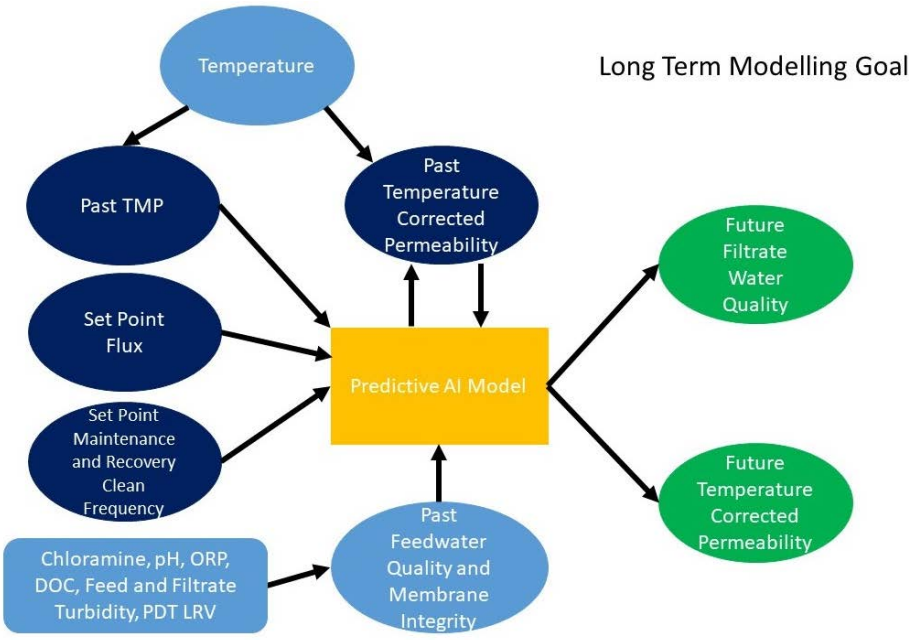

Figure 16 Proposed long-term goals for AI modeling that incorporate an assessment of both production efficiency (permeability) and water quality.

3.3 Tapia WRF BioWin Model and AI

The Tapia WRF has a four-stage Bardenpho configuration for biological nutrient removal with two trains in parallel (Figure 17). Tapia WRF secondary treatment has six basins, three for each parallel train. In each train, the first basin is unaerated (anoxic) for denitrification. The second basin is aerated (aerobic) for nitrification. There is internal recycle from the second basin to the first to send the resulting nitrate to the anoxic zone for denitrification. The third basin has an initial anoxic zone for further denitrification followed by aerated aerobic zone for further nitrification. The basins for one train are labelled 3, 2, 1 and for the other train are labelled 4, 5, 6 (Figure 18). Thus, basins 3 and 4 are anoxic/unaerated and basins 1, 2, 5, and 6 are aerobic/aerated.

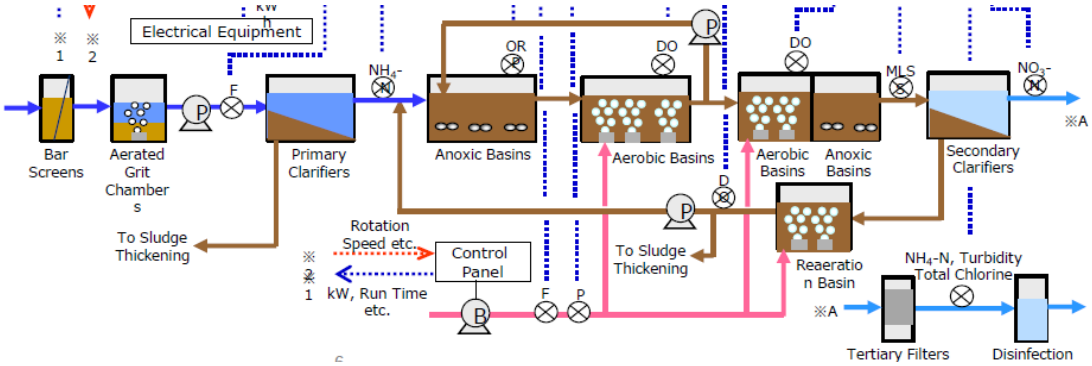

Figure 17. Tapia WRF – Process Flow Diagram.

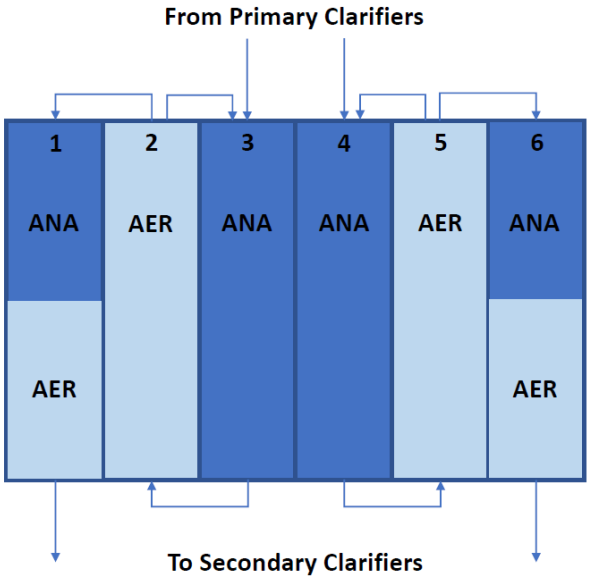

Figure 18. Diagram of Tapia WRF basin numbers.

During the August through October period of work, both an updated BioWin model and machine learning analysis for the Tapia WRF process was started. Prior to this project, the most recent version of the Tapia WRF BioWin model was completed in 2007. The project team gathered comprehensive operational data in July covering the September 2019 through June 2020 period. The Tapia WRF BioWin simulation configuration included the following assumptions (confirmed with Tapia WRF operations staff):

- Aeration tank dimensions and configuration based on 2018 *Process Air Improvements* project drawings.
- Each of the three passes represented as two complete-mix bioreactor elements.
- Biological selector channels out of service.
- Assumed typical settled sewage (primary effluent) carbon, nitrogen, and phosphorus wastewater fractions.
- Assumed default fine-bubble diffuser model parameters.
- May 17-23 selected as the performance data used for BioWin calibration to match DDMO selected period.
- 1-min data aggregated to calculate hourly- and daily-average values.
- IWA diurnal flow and load pattern tool used to estimate diurnal flow rates and COD, TKN, and TP concentrations for dynamic simulation.

Once the model was configured, the process variables were calibrated based on the operational data provided. The figures below show some of the key parameters and processes included in the updated BioWin model.

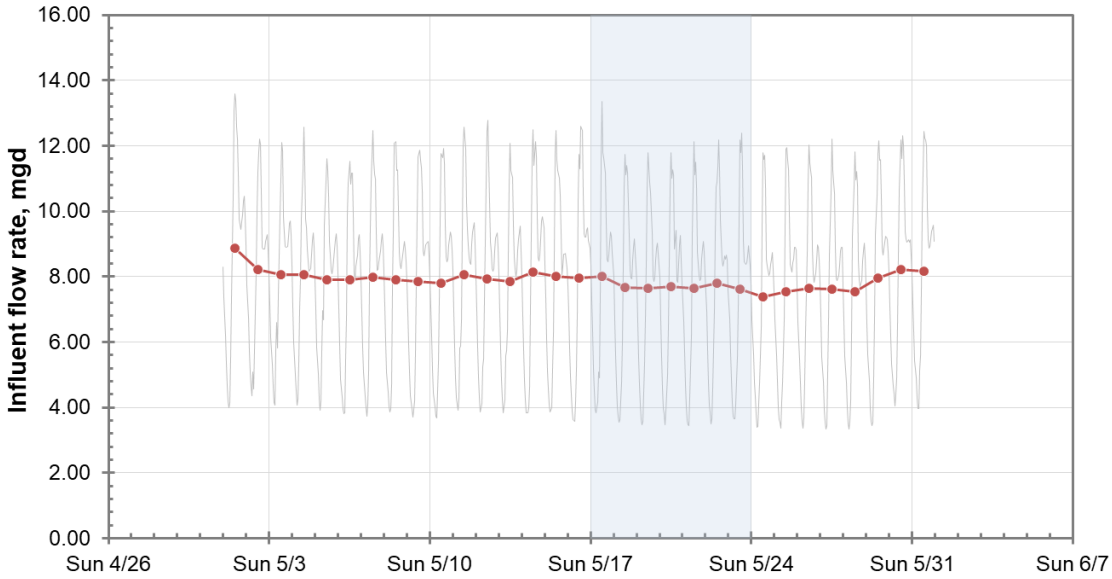

Figure 19 Tapia WRF influent flow (highly variable on a diurnal basis).

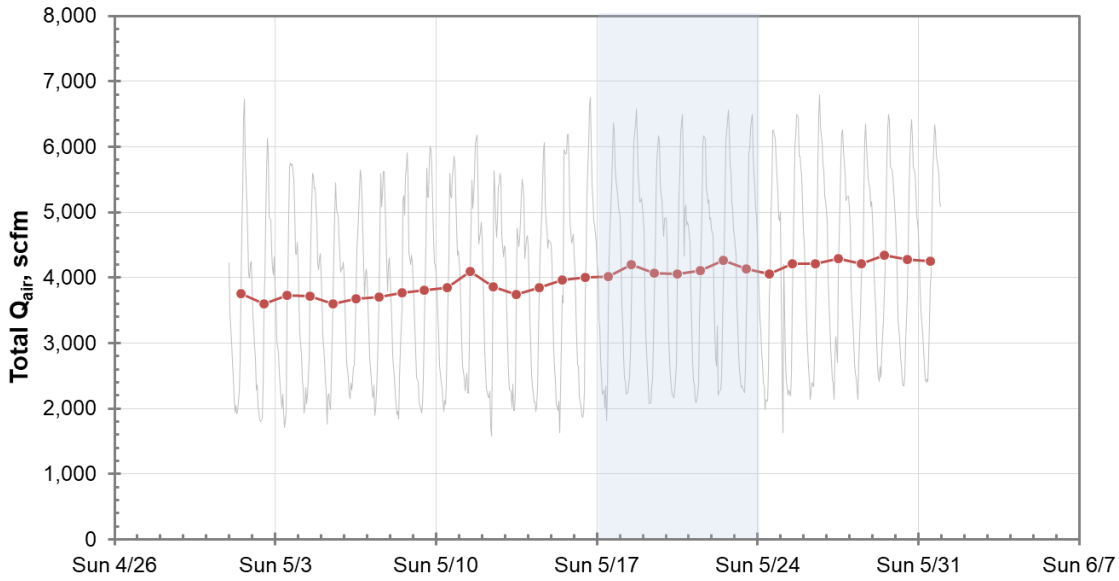

Figure 20 Tapia WRF total aeration flow (highly variable based on original DO setpoint control strategy)

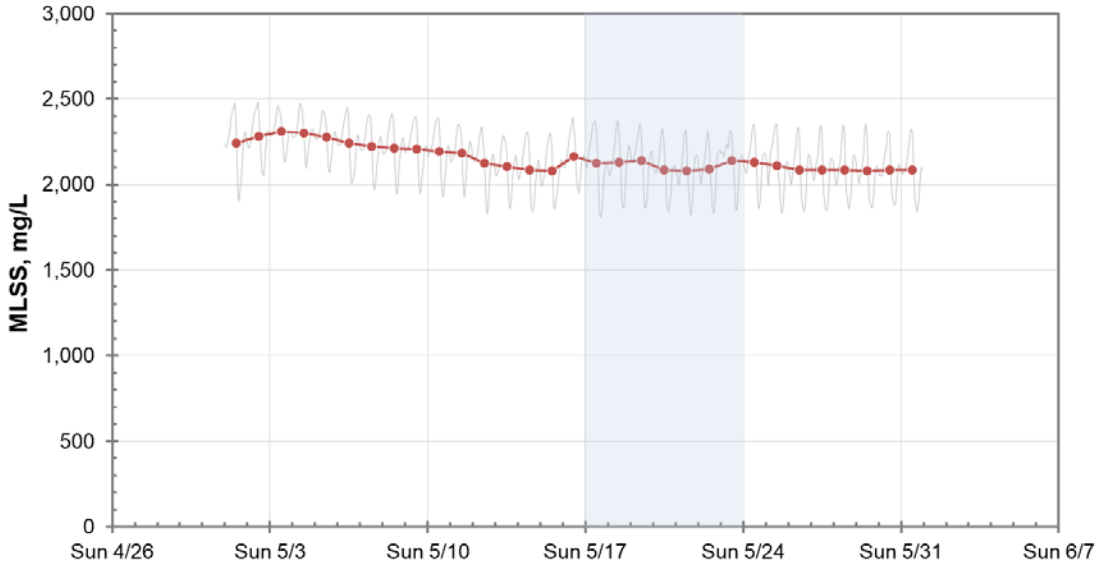

Figure 21 MLSS concentration.

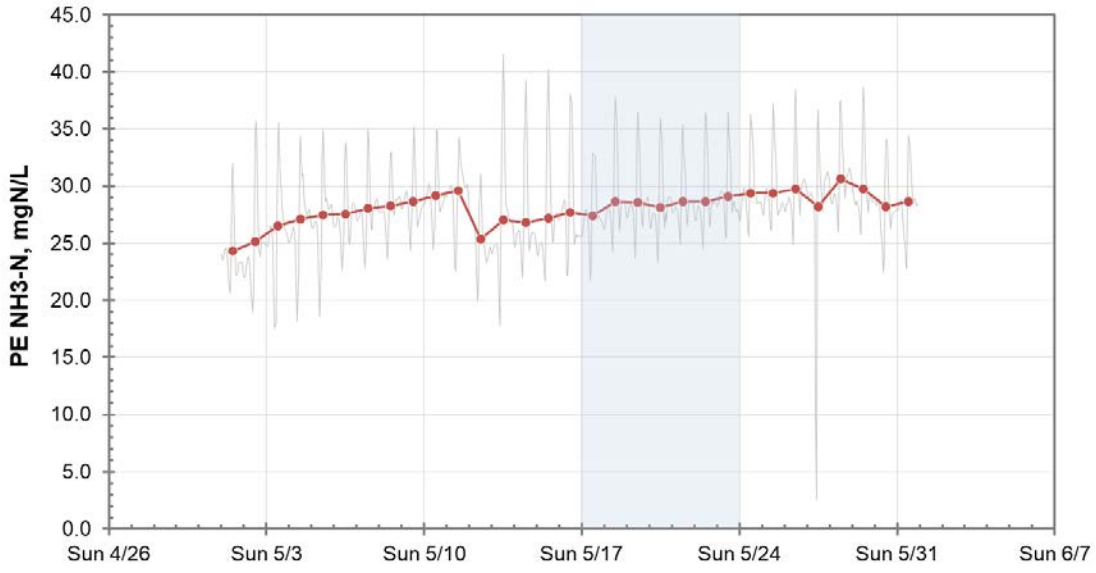

Figure 22 Primary clarifier effluent ammonia.

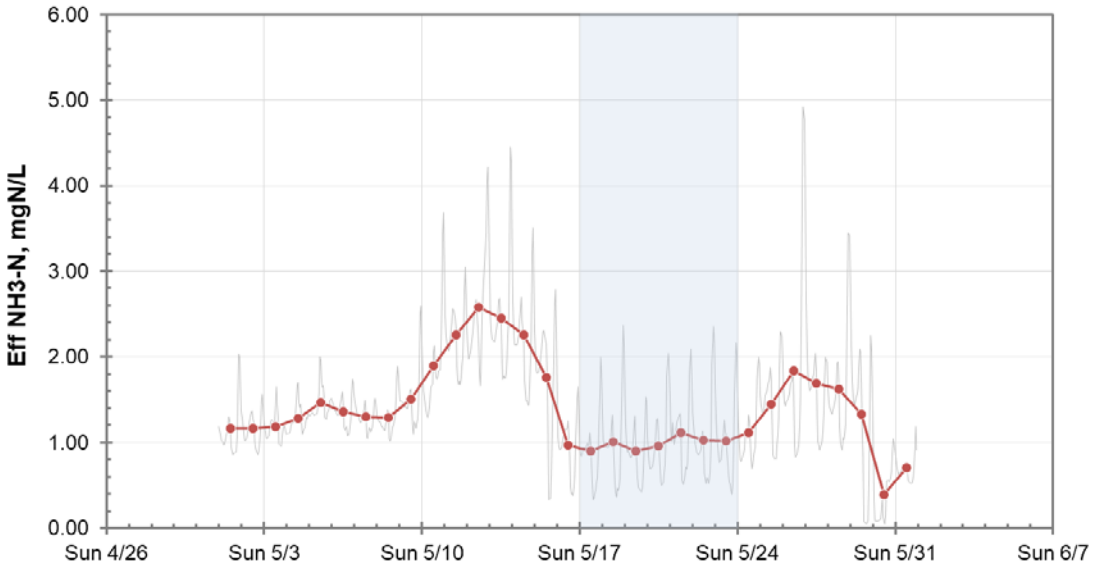

Figure 23 Tertiary effluent ammonia (mg/L as N). Note that this parameter is measured at the tertiary effluent so additional aqueous ammonia used for chloramine disinfection is included in this measurement (an ammonia probe on the secondary clarifier effluent is recommended to provide the necessary data to support future optimization of the aeration process).

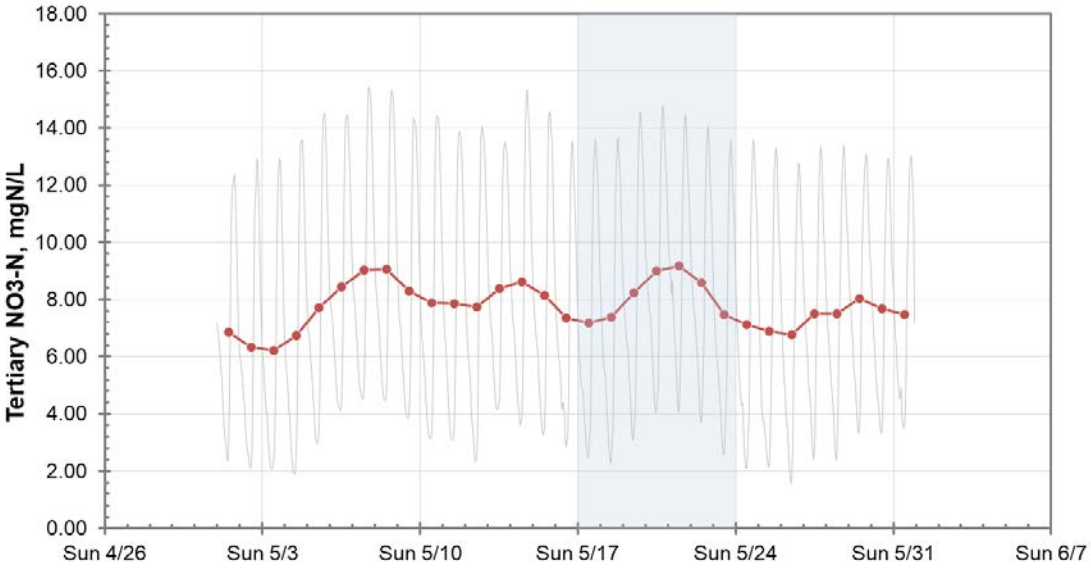

Figure 24 Tertiary influent (secondary effluent) nitrate (mg/L as N).

Table 2 Summary of steady-state BioWin parameters compared to actual plant data.

Parameter	5/17 - 5/23 average	Steady-state simulation	
MLSS, mg/L	2,111	2,213	+4.8%
RAS TSS, mg/L	5,619	5,504	-2.0%
WAS solids load, klb/d	6.22	5.99	-3.7%
SE NH3-N, mgN/L	0.99	0.18	-0.81 mgN/L
SE NO3-N, mgN/L	8.15	7.56	-0.59 mgN/L
$Q_{air, Pass 2}$, scfm	3,137	3,432	+9.4%
$Q_{air, Pass 3}$, scfm	986	829	-15.9%
$Q_{air, total}$, scfm	4,123	4,261	+3.3%

Notes:
klb/d thousand pounds per day mg/L milligrams per liter scfm standard cubic feet per minute

Table 3 Summary of steady-state and Dynamic BioWin parameters compared to actual parameters.

Parameter	5/17 - 5/18 average	Steady-State Simulation		Dynamic Simulation (daily average)	
MLSS, mg/L	2,111	2,213	+4.8%	2,125	+0.7%
RAS TSS, mg/L	5,619	5,504	-2.0%	5,790	+3.0%
WAS solids load, klb/d	6.22	5.99	-3.7%	6.28	+1.0%
SE NH3-N, mgN/L	0.99	0.18	-0.81 mgN/L	1.08	+0.09 mgN/L
SE NO3-N, mgN/L	8.15	7.56	-0.59 mgN/L	7.82	-0.33 mgN/L
$Q_{air, Pass 2}$, scfm	3,137	3,432	+9.4%	3,192	+1.8%
$Q_{air, Pass 3}$, scfm	986	829	-15.9%	966	-2.0%
$Q_{air, total}$, scfm	4,123	4,261	+3.3%	4,158	+0.8%

A steady-state simulation was able to match activated sludge solids inventory, but not effluent ammonia concentration. Dynamic simulation was able to match flow-weighted daily average effluent ammonia concentration:

- The relative proportion of RAS flow to primary effluent flow throughout the day causes significant diurnal change in aeration tank and reaeration tank solids inventory. The total solids inventory does not change significantly throughout the day, but a portion of the solids inventory shifts from the aeration basins to the RAS basins and back as the RAS flow and primary effluent flows change. This shift can affect aeration basin nitrification and denitrification performance.
- BioWin DO setpoint control achieves "perfect" control for process simulations, which is not representative of actual operating conditions that can be affected by actual performance of aeration air control valves, dissolved oxygen probes, and aeration air blowers.

The project team elected to utilize Yokogawa's statistical predictive model DDMO to optimize dissolved oxygen and chemical usage to meet target effluent water quality parameters while maintaining a reasonable margin of safety. The DDMO software is slightly different than the AI

algorithms used for the UF analysis but has a proven track record for this type of system optimization analysis. DDMO is a modeling software that can create a model from operation data automatically using statistical methods. DDMO extracts relationships among variables from data to generate characteristic equations. DDMO automatically adjusts these equations in response to changes in plant operations to derive optimal manipulated values such as airflow rate or DO.

DDMO provides continuous modeling of actual performance data, looking back up to one week while predicting targeted water quality and process parameters 10 hours into the future. In the characteristics of DDMO analysis for the Tapia WRF, linear characteristic equations were developed to optimize the airflow rate and DO setpoints based upon the known characteristics of the facility. The derived numerical formulas are redefined and automatically convert mathematical formulas that calculate optimum values.

After the raw data was sorted and analyzed, the DDMO model was developed based on a 1-week learning period (5/15/20 to 5/21/20) and a 1-week evaluation period (5/22/20 to 5/29/20). Figures 24 through 33 illustrate the initial DDMO evaluation which was set to optimize energy consumption (i.e., reduce airflow) while maintaining effluent ammonia, nitrate, total nitrogen, and turbidity within the discharge limits.

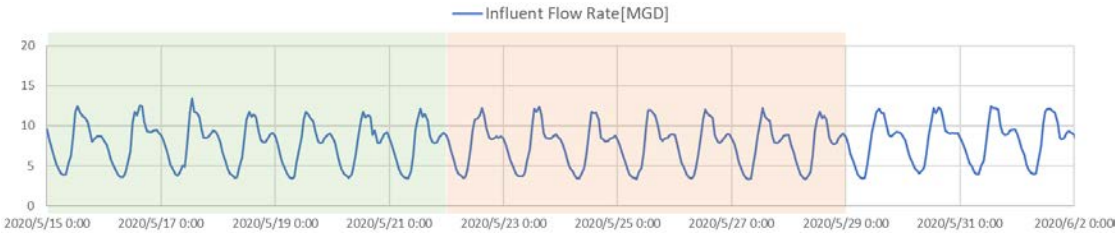

Figure 25 Example plot of the DDMO learning and evaluation period for the Tapia WRF influent flow rate.

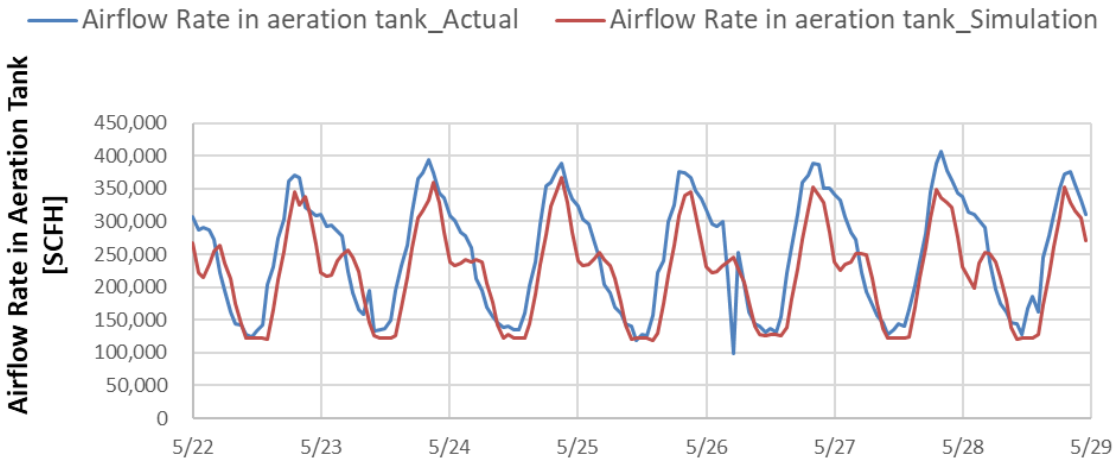

Figure 26 Actual and DDMO-optimized air flow rates for the evaluation period.

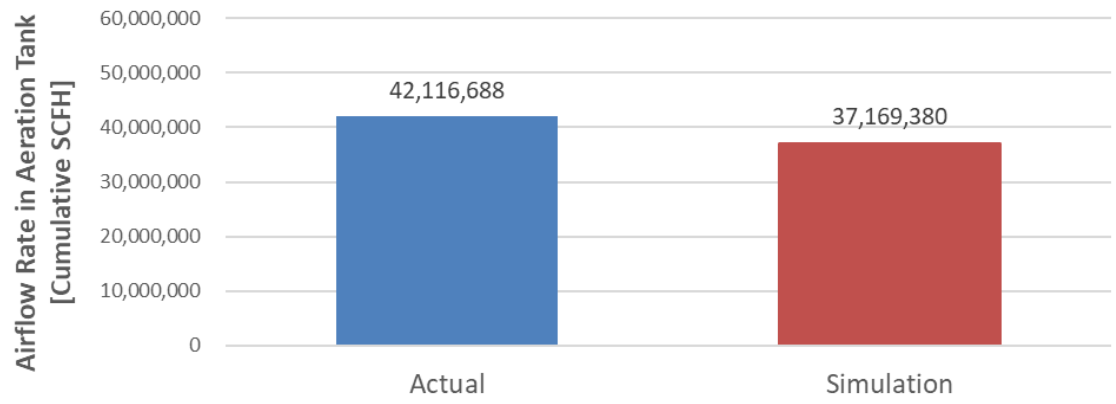

Figure 27 Actual and simulated air flow (cumulative scfh) for evaluation period.

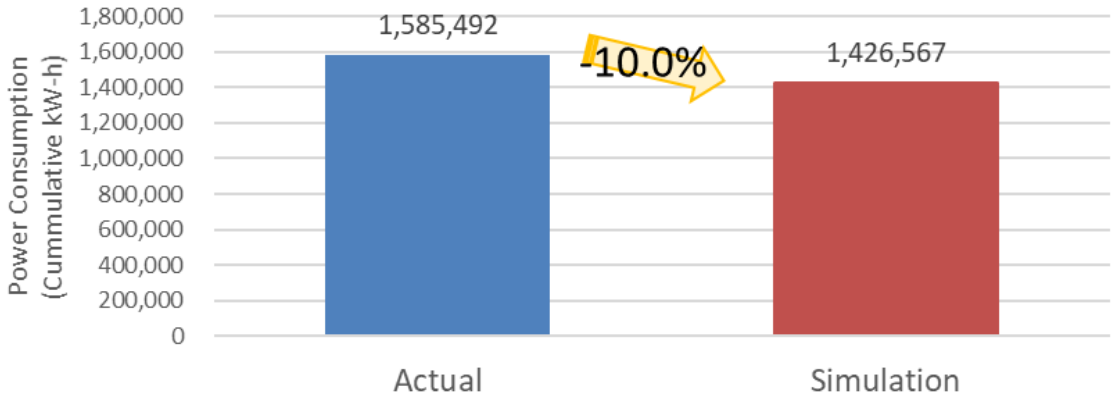

Figure 28 Estimated cumulative (kW-h) power consumption for the actual and simulated air flow rates during the evaluation period.

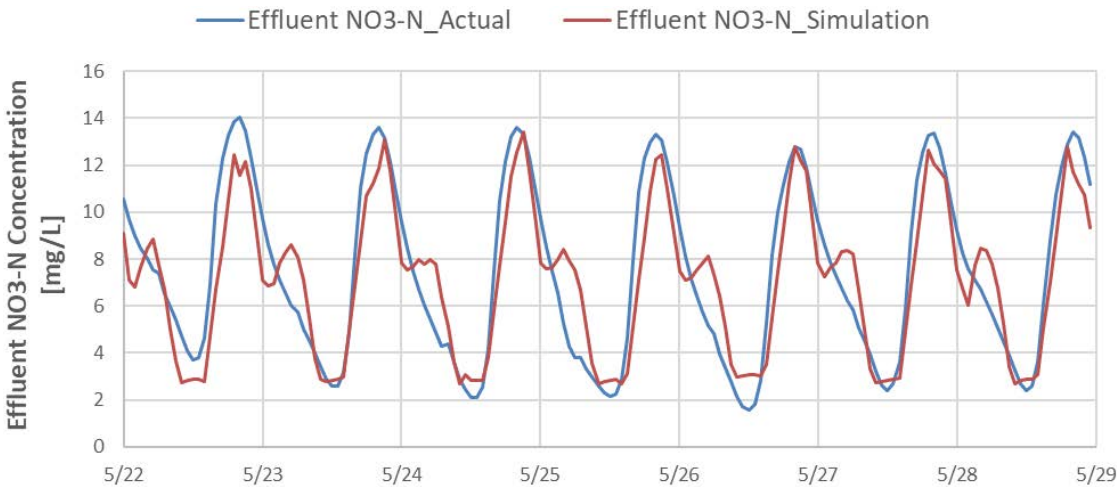

Figure 29 Actual and simulated effluent NO_3 concentrations for evaluation period.

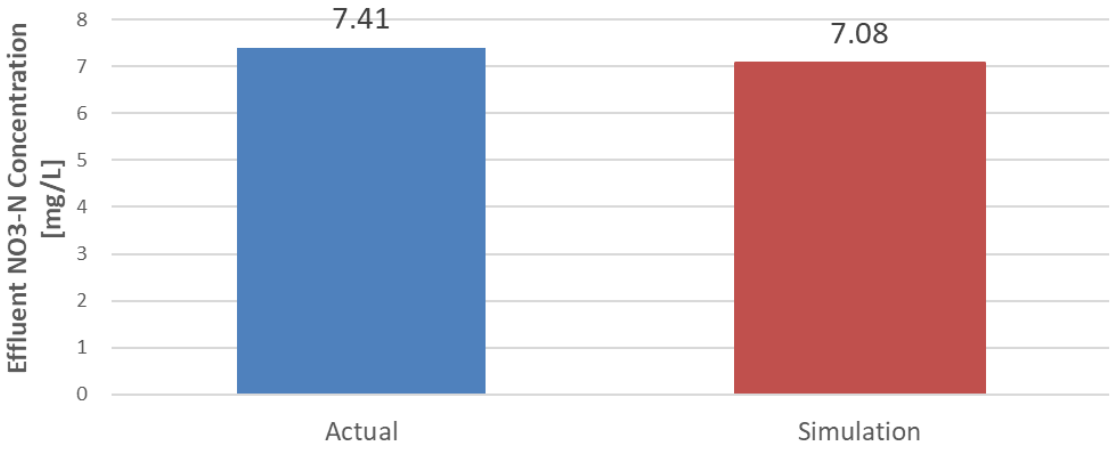

Figure 30 Actual and simulated effluent NO_3 concentrations (average) for evaluation period.

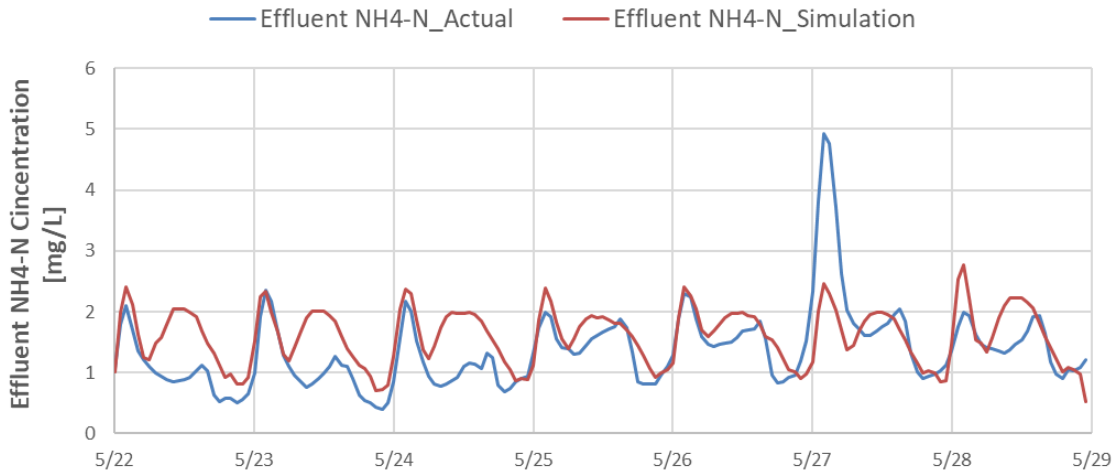

Figure 31 Actual and simulated effluent NH_4 concentrations during evaluation period.

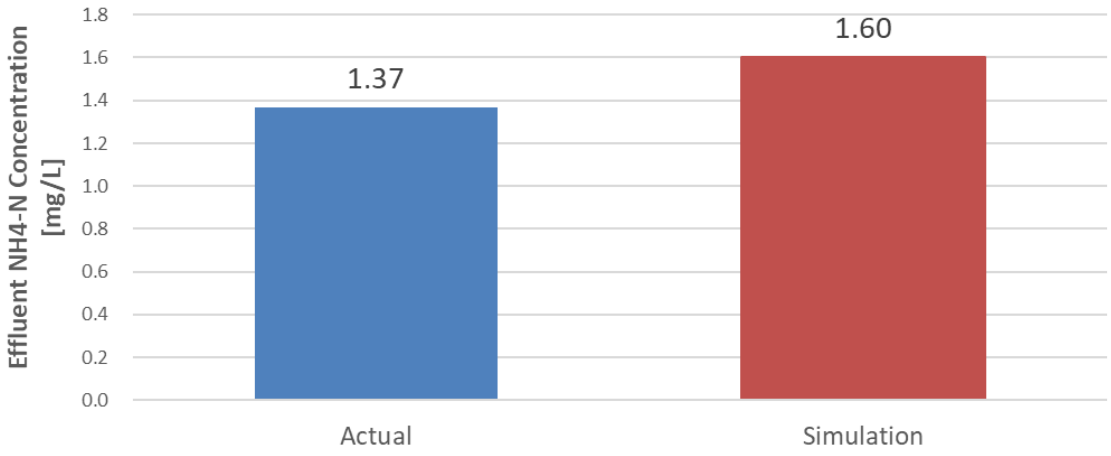

Figure 32 Actual and simulated effluent NH_4 concentrations (average) for evaluation period.

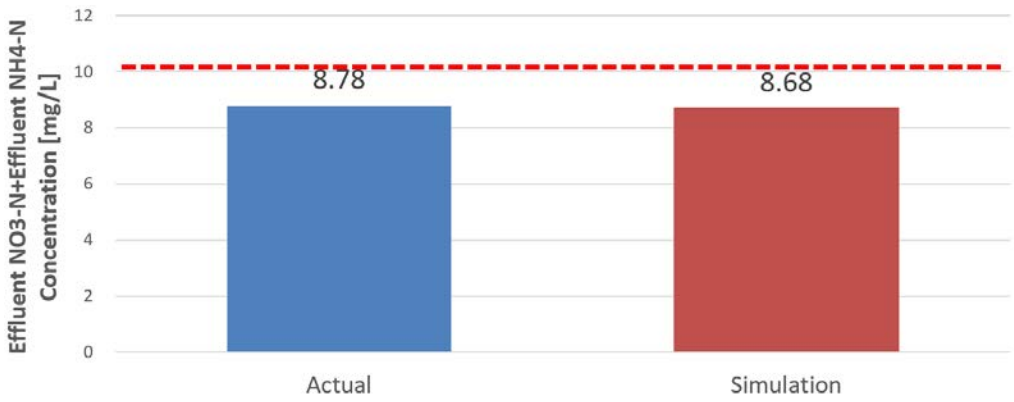

Figure 33 Actual and simulated effluent total nitrogen concentrations (average) for evaluation period.

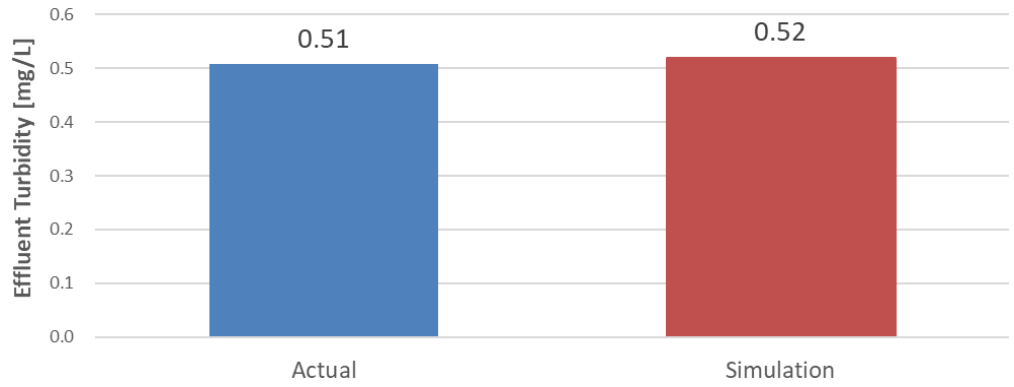

Figure 34 Actual and simulated effluent turbidity (average) for evaluation period.

In addition to the DDMO simulation results targeted to optimize energy consumption, an alternate simulation scenario was also run to reduce the effluent ammonia to the greatest extent possible. As expected, to achieve this target parameter goal, the air flow rate was increased leading to greater energy demand (estimated by DDMO to be 2.7 percent). The additional aeration also limited the denitrification process, and the effluent nitrate was predicted to exceed the maximum effluent limit (8.9 mg/L compared to the limit of 8.0 mg/L).

3.3.1 DDMO Accuracy Analysis

During the November through January period of work, both the BioWin and DDMO analyses for the Tapia WRF process were updated. As part of this follow-on, there was a greater focus placed on quantitative indicators for accuracy of the model. The mean absolute percent error (MAPE), correlation, and root mean square error (RMSE) are statistical values calculated for actual vs. DDMO simulated water quality parameters such as ammonia, nitrate, and turbidity. MAPE values less than 20 percent represent a model capable of good forecasting while RMSE correlations approaching 1.0 also demonstrate model accuracy when compared to the actual Tapia WRF data. RMSE were normalized from 0 to 1, based on the minimum and maximum values for each observed parameter. Examples of the actual data and DDMO model prediction as well as model accuracy (MAPE and correlation) are shown in Figure 35 and Figure 36 for ammonia and nitrate, respectively. The RMSE for effluent ammonia, nitrate, turbidity and total chlorine are shown in Figure 37 and effluent chlorine is shown in Figure 37.

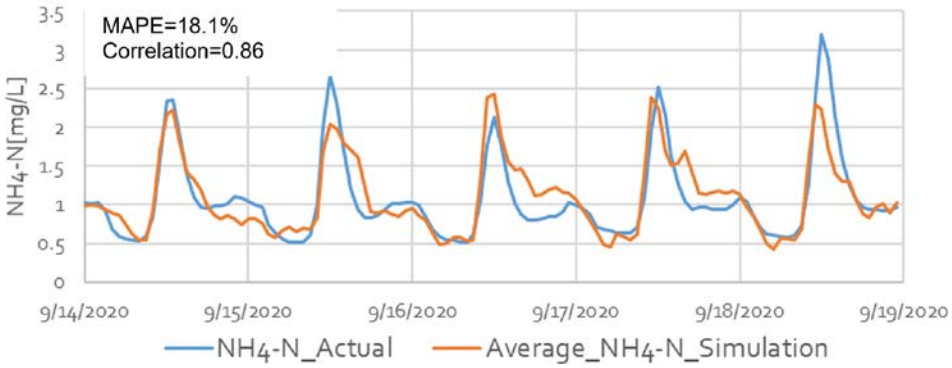

Figure 35 Actual (blue) and simulated (orange) effluent NH_4 concentrations during the May 2020 evaluation period.

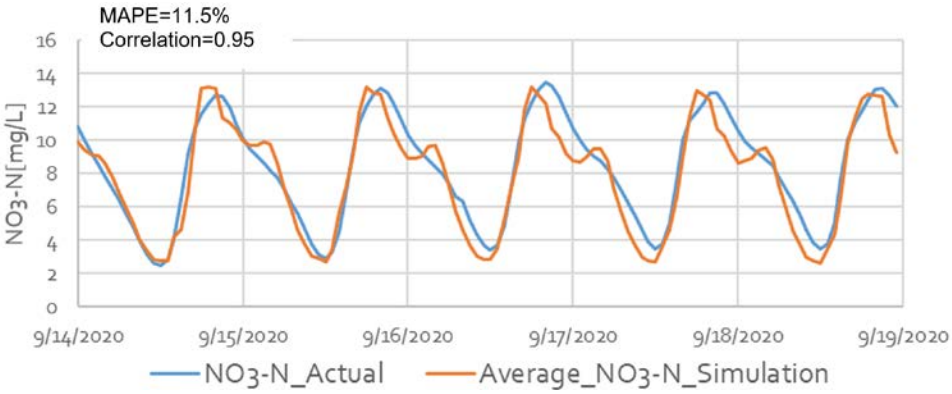

Figure 36 Actual (blue) and simulated (orange) effluent NO_3 concentrations during the September 2020 evaluation period.

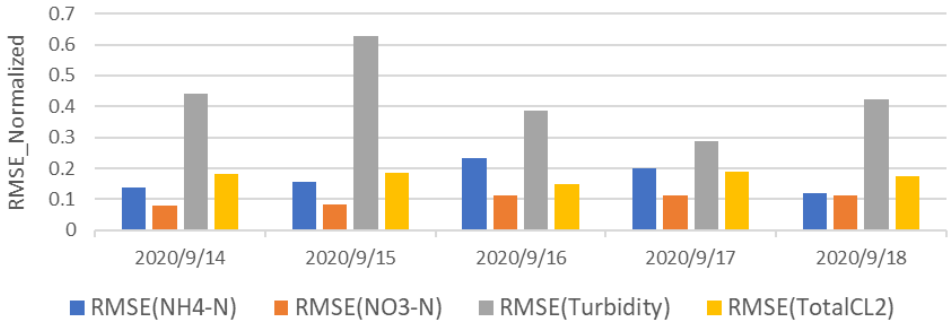

Figure 37 Normalized RMSE for each day during the phase 2 prediction period for effluent ammonia (blue), effluent nitrate (orange), effluent turbidity (grey) and effluent total chlorine (yellow). Lower values indicate a better prediction performance.

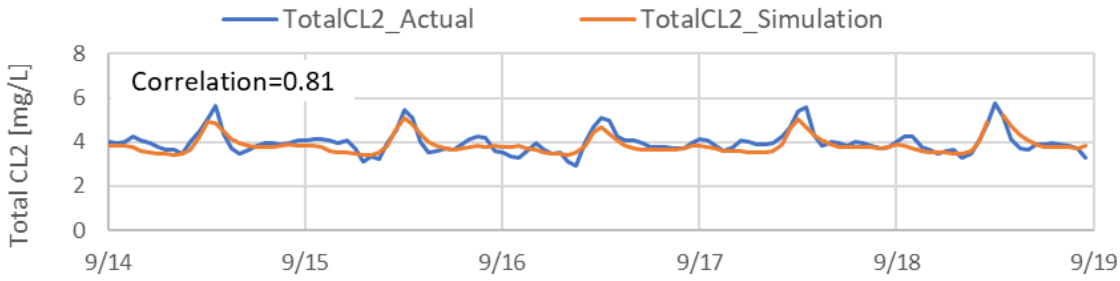

Figure 38 Actual (blue) and simulated (orange) effluent total chlorine concentrations during the September 2020 evaluation period.

The model accuracy analysis demonstrated that:

- Effluent ammonia was predicted well, with RMSE < 0.3, correlation = 0.86 and MAPE = 18.1%.
- Effluent nitrate was predicted very well with RMSE < 0.2, correlation = 0.95 and MAPE = 11.5%.
- Effluent total chlorine was predicted well with RMSE < 0.3 and correlation = 0.81.
  - Daily increases in total chlorine appeared to coincide with ammonia troughs and appeared to be captured by the model (Figure 26).
- Effluent turbidity was not predicted well with RMSE >0.3 and correlation = 0.3.
  - Inclusion of coagulant dosing as a DDMO input variable may result in improvements in filtrate turbidity estimates.

3.3.2 DDMO Results

Once the learning and calibration evaluations were updated for the new data set, DDMO was updated to achieve the same energy optimization scenario as previously shown in the May 2020 data. The results of this analysis are show in Figures 38 through 41.

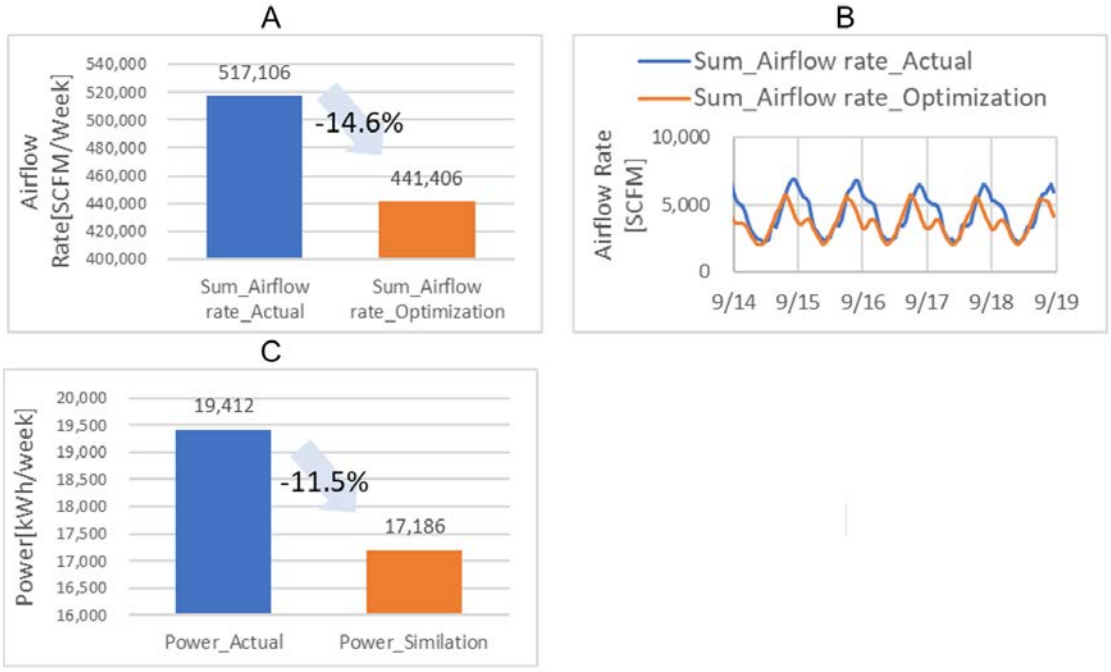

Figure 39 A) Air flow (cumulative standard cubic feet per week), B) Instantaneous airflow (scfm) and C) estimated power consumption (kilowatt-hour/week) for the Phase 2 DDMO optimization. Actual operational values are blue and DDMO optimized values are orange.

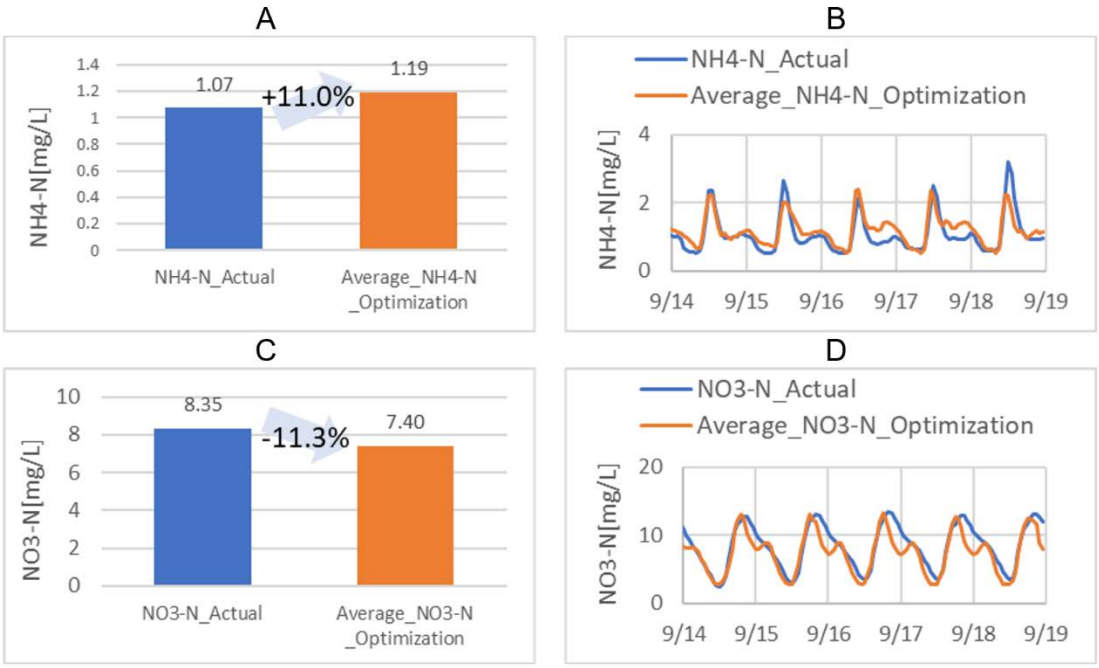

Figure 40 A) Average and B) Instantaneous effluent ammonia (mg/L). C) Average and D) instantaneous effluent nitrate (mg/L) for the Phase 2 DDMO optimization. Actual operational values are blue and DDMO optimized values are orange.

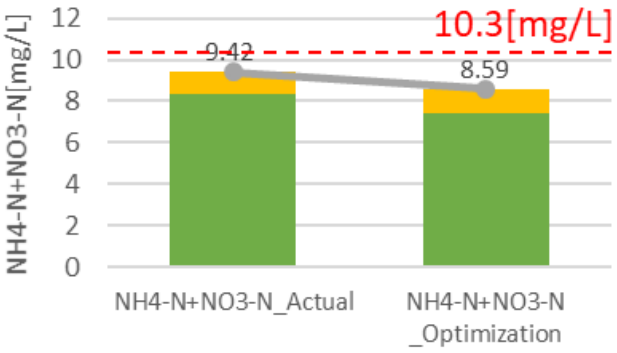

Figure 41 Actual (left) and DDMO optimized (right) effluent ammonia (yellow) plus nitrate (green) average concentrations for the Phase 2 evaluation period were maintained below the 10.3 mg/L limit.

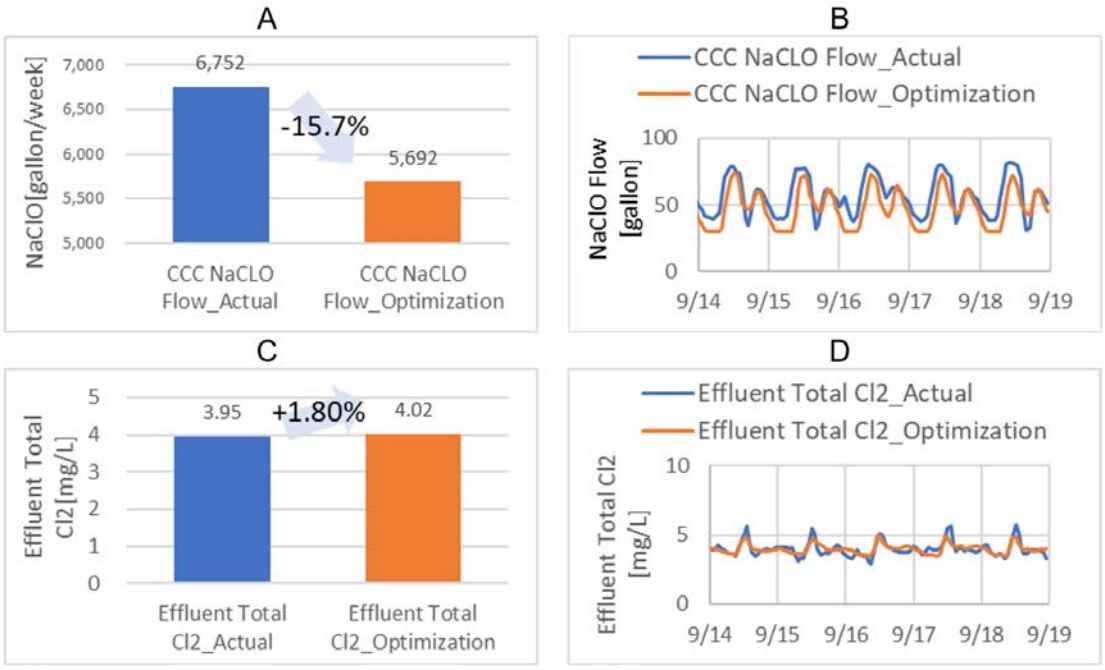

Figure 42 A) Average (gal/week) and B) Instantaneous sodium hypochlorite dosing flow (gph). C) Average and D) instantaneous effluent total chlorine (mg/L) for the Phase 2 DDMO optimization. Actual operational values are blue and DDMO optimized values are orange.

Although the Tapia WRF operations changed the blower control approach to a pressure setpoint, which was intended to smooth out fluctuations and increase efficiency, the DDMO simulation with optimized control demonstrated similar (and actually slightly better) results than the first phase of DDMO analysis (with DO setpoint control). The following observations were made during the optimization simulations of the November/December data:

- Optimized airflow resulted in an airflow reduction of 14.6 percent and estimated power reduction of 11.5 percent. Using a unit power cost of $0.14/kilowatt-hour (kWh), annual savings were estimated to be $22,750 per year (Figure 38).
- Optimized airflow resulted in a marginal increase in average effluent ammonia of 0.12 mg/L (11 percent), and a decrease in effluent nitrate by 0.95 mg/L (11.3 percent) (Figure 39). Overall, the average sum of effluent ammonia and nitrate decreased from 9.4 to 8.6 mg/L, remaining below the discharge limit of 10.3 mg/L (Figure 40).
- A preliminary analysis was conducted to simultaneously optimize sodium hypochlorite dosing based on meeting the same effluent total chlorine target. Results indicated that the DDMO optimized dosing requirement was on average 15.7 percent lower during the Phase 2 period. Assuming a sodium hypochlorite unit price of $0.79/gallon, extrapolated annual savings were estimated to be $43,500 per year (Figure 41).
  - Further investigation should be carried out to ensure that the desired chlorine residual is maintained.

An average effluent turbidity increase of 0.08 Nephelometric Turbidity Unit (NTU) (14.2 percent) was predicted as a result of the DDMO optimized conditions. However, given that this turbidity change is marginal and well within an acceptable range, as well as the fact that the learning period did not satisfactorily correlate with effluent turbidity, additional analysis, model refinement, and prediction of this parameter is recommended.

Section 4

CONCLUSIONS

4.1 Key Findings and Considerations

The following conclusions can be made based upon the information collected and analyzed in this project:

- Demo Facility AI:
  - The initial AI model was able to predict/extrapolate the rise in TMP over a 2-week period which closely matched actual operational data. Operational data is more variable than simulation inputs however the actual temperature corrected flux was within 2.5 gfd (8.5 percent) of the simulated input throughout the predicted period.
  - A subsequent model revision allowed prediction of the entire month of December after training the model on the 40 gfd data set from November. The subsequent TMP model tracked the central tendency of the actual operational data very well. However, it was noted that some improvement in the prediction of TMP recovery due to membrane cleaning was needed, in particular for higher intensity recovery cleans, which occur once per month.
  - Similar to the TMP model, the effectiveness of maintenance cleanings to recover permeability has been under predicted by the AI model but the general trend in decline is similar.
  - The permeability predicted by the model is lower (i.e., more conservative) than the actual operating data. This is advantageous as it means that predictions currently have a safety margin.
  - The capacity for model optimization and refinement and the improved accuracy of model predictions over time demonstrate significant promise for AI as a forecasting and operational tool for low pressure membrane systems.
- Tapia WRF BioWin Modeling:
  - The plant-wide model has been updated to reflect current operating conditions.
  - Aeration and RAS control could be further optimized to save on energy costs while maintaining and/or improving effluent water quality.
  - Installation of a secondary effluent ammonia probe would provide the online data necessary to support process control/optimization.

- Tapia WRF AI – DDMO:
  - DDMO demonstrated potential blower optimization (10 percent reduction in power) with effluent nitrogen maintained less than permit values (2.5 mgN/L as NH_3-N and 8 mgN/L as NO_2-N + NO_3-N).
  - DDMO demonstrated that artificially setting the target effluent NH_4-N concentration to 1.0 mgN/L (instead of 2.5) results in a 3 percent higher airflow, energy cost, and effluent nitrate concentration.
  - A demonstration of blower control with remote DDMO simulation and feedback is planned for the summer of 2021.

4.2 Lessons Learned

Successful operation depends reliable instrumentation, which is well maintained and calibrated, and strategically located within the treatment process. One of the fundamental lessons learned during this study is the importance of collecting and transmitting the right data for analysis to successfully development the AI/ML algorithms.

The stable performance and consistent LRVs of the Demo over time indicates that MF/UF systems can consistently produce water meeting IPR quality requirements. The Demo data underpredicted the performance of the MF/UF systems (particularly after membrane cleanings) in terms of TMP and permeability. The accuracy of the predictions is expected to improve over time however the current underprediction of system performance provides a margin of safety.

The Tapia WRF Biowin modeling and DDMO simulation showed that treatment performance can be improved by using AI without compromising effluent discharge limits. A future demonstration of blower control with remote DDMO feedback will further evaluate the benefits of DDMO. Overall, the data collected over the course of this study demonstrate that the AI models can effectively predict treatment performance parameters in potable reuse and wastewater treatment systems, supporting high quality product water, efficient operations, lower energy use, and operational cost savings.

Looking broadly at these results coupled with the energy and water challenges faced by California, this study demonstrates that AI/ML can reduce energy use and provide greater confidence in water quality for wastewater treatment and water reuse. Applying AI/ML regionally or state wide can provide a substantial benefit to all Californians.

4.3 Next Steps

The work presented in this report was funded by the MWD grant and additional funding was leveraged from the Japanese government (the Ministry of Economy, Trade, and Industry [METI]). The 2020 METI grant expired at the end of January 2021 and although testing at the Demo is ongoing, the work funded by both grants is considered to be completed.

The LVMWD-Carollo-Yokogawa team has been awarded two additional grants in 2021 to continue to advance this work – a 2021 METI grant and a grant from the U.S. Bureau of Reclamation. Each of these grants will support advancement of the AI algorithms for potable reuse processes and the DDMO demonstration testing. The team will also expand the scope of the project to develop a user interface and data transfer to support the eventual implementation of these AI tools.

Conducting the DDMO demonstration will further refine the DDMO model and will also prove out the effectiveness of the system in a real-world operational scenario. This testing must occur

during the irrigation/reuse season as opposed to the winter months when the Tapia WRF must meet discharge water quality limits. Initially planned for November 2020, the demonstration was not logistically feasible before the end of the irrigation season in 2020 and was postponed until irrigation season 2021. Planning and coordination for this trial is underway, focused on addressing the logistical hurdles required to efficiently transfer the operational data and provide control setpoint updates on a frequent basis during the trial period. Through this testing, the team will not only further validate initial results of the DDMO simulations, but the team will also establish a protocol for data transfer which will serve as an important basis for the future implementation of AI projects.