

Location: Las Virgenes Municipal Water District

Address: 4232 Las Virgenes Road

Calabasas, CA 91302

Purpose: Bi-Monthly Meeting

Date and Time: August 8, 2023 from 11:00 a.m. – 1:00 p.m.

Distribution: Los Angeles WateReuse Association Chapter Members and Supporters

Below is a summary of the highlight from the August 2023 bimonthly member meeting of the Los Angeles Chapter of the WateReuse Association.

The presentations from this meeting can be found at: http://www.watereuse.org/sections/california/losangeles/meetings

1. Host & Sponsor Presentation: LAS Virgenes –Triunfo Pure Water Project Summary and Update (Oliver Slosser, PE/Las Virgenes Municipal Water District)

The Triunfo Pure Water Project has three core objectives: protect Malibu Creek, create a local drinking water source, and balance seasonal variation. The Pure Water Project for Las Virgenes Municipal Water District is bringing the district's water full circle and closing up their sustainability loop as they use their recycled water resource to the fullest capability.

The Las Virgenes Municipal Water District will soon undergo stringent requirements to discharge into Malibu Creek from the Tapia Water Reclamation Facility. Due to the stringent nutrient effluent limitations anticipated by 2030, the Tapia Water Reclamation Facility (TWRF) has to find a new place to discharge their effluent. PURE Water is the wintertime compliance strategy. However, during summer time, a minimum fish flow is required in the Malibu Creek. Since effluent discharge will be removed, the summertime compliance requirement plan for the Las Virgenes Water District is to have a potable water outlet to the Malibu Creek with breakpoint chlorination. It is so that in times during the summer that discharge is needed, the Malibu Creek will be augmented with potable water after breakpoint chlorination.

In preparation for the full Pure Water project, the Las Virgenes Municipal Water District constructed a demonstration facility. It was completed in 2020 and provides multiple benefits for the district. It allows for full-scale equipment testing, gives operators experience running advanced treatment, allows for investigations on disinfection byproducts, scaling potential, and other elements of a full-scale facility, allows for public outreach and education, as well as system optimization. It has been a very successful facility for the Las Virgenes Water District.

Through the Pure Water Project, the Las Virgenes Municipal Water District is trying to accomplish indirect potable reuse for Las Virgenes Reservoir augmentation. It will serve as a discharge mechanism for the TWRF. TWRF will send any excess recycled water that is produced to the new advanced water purification facility, which will then be sent to Las Virgenes Reservoir for set amount of detention time and mixing. It will then go to the Westlake Filtration Plant before entering the potable water system. One of the key features of the program is that it is compliance driven and the water that will be treated through the AWPF is when they have surplus recycled water available in the Title 22 system. One of the more challenging aspects of the project is conveying the brine. It will be conveyed to the Calleguas Salinity Management Pipeline in Thousand Oaks through a 15-mile stretch, which is the district's longest pipeline. There will be four pipelines



overall: a purified pipeline, a raw water line, a small residual line for plant residuals, and a reverse osmosis concentrate line.

The Las Virgenes Municipal Water District is investigating additional sources of water from neighboring cities including impaired groundwater, excess reclaimed water, stormwater, and dry water diversions. These sources can help maximize use of the AWPF. Las Virgenes Water District has been very proactive with public outreach since the beginning of the Pure Water program back in 2016-2017. The Pure Water Project resulted from a stakeholder engagement process, which helped keep the process of engaging the public and the customers throughout project development. One of the more popular outreach events for the project was the Pure Water tasting series including "Pure Coffee", "Pure Gelato", and "Pure Beer" using Pure Water to make the products. They also have a "Full Circle Podcast" with eight episodes available to through the Las Virgenes Municipal Water District website and apple and Spotify.

In 2022, Las Virgenes Municipal Water District secured a \$10.2 million in Grant Funding from Bureau of Reclamation WaterSMART: Title XVI WIIN Water Reclamation and Reuse Program Funding. They are also pursuing SRF, WIFIA, and MWD's LRP Program. Current projected project cost is \$364 million. Funding and financing has been a key feature in reducing costs to ratepayers. The goal is to have a progressive design builder by February 2024 and start construction by 2025. The project is scheduled for completion by 2028. The compliance deadline is November 2030, which gives the Las Virgenes Municipal Water District two years of cushion.

2. Sponsor presentation: FRRO for High-Recovery: Next Stop, Reuse (Adam Zacheis, PE/Brown & Caldwell)

Currently, the City of Santa Monica gets 60% of their water supply locally, and 40% is imported. The goal is to increase California's local water supplies and increase production from the Arcadia Water Treatment Plant (WTP). Arcadia WTP currently treats groundwater from Arcadia and Charnock well fields, but the groundwater production is nearly capped. They are now trying to use water from their new Olympic Wells which require volatile organic compounds (VOC) and 1,4-dioxane treatment through an ultraviolet advanced oxidation process (UV/AOP) and to increase reverse osmosis (RO) system recovery from the plant. New modifications to the plant include an UV/AOP system that has downstream GAC and adding flow reversal technology to the four existing RO treatment trains.

Brown & Caldwell looked beyond conventional RO to increase RO system recovery to 90% or greater from 82-83% to minimize groundwater pumping. Pilot testing was completed to refine design criteria and confirm RO permeate water quality (contaminant rejection and adjustments to post treatment). Two systems were piloted side by side: Closed Circuit RO (CCRO) and Flow Reversal RO (FRRO). The FRRO system performed better.

FRRO employs two techniques to increase recovery: 1) flow reversal – pneumatic valves on each set of pressure vessels occasionally actuate to reverse flow to prevent scale formation in the concentrate and restart induction time; 2) stage rotation – each flow reversal cycle also rotates the last stage, which treats the most challenging water quality, within first stage of pressure vessels to reduce the load on any given set of pressure vessels.

The FRRO system takes a conventional RO system and rotates the pressure vessels around. It also allows for reverse flow in those vessels. Additionally, vessels are switched around the stage they are in through block rotation. Extensive data was collected from the FRRO pilot, which took place during COVID. The pandemic complicated the design process.

ROTEC can make the FRRO system from scratch but also retrofit existing RO skids. For the City of Santa Monica's four skids, some of the challenges of retrofitting included making sure the



pumping system could operate at the lower recoveries and the higher recoveries so the system could run as a conventional RO system and as a FRRO system. There were membrane element and support considerations such as thrust cones on both ends of the vessel, and proper shimming of the membranes. Comments from membrane vendors included Toray's patented "bi-directional" split ring brine seal and Hydranautics also looked at different membrane brine seals.

Testing the FRRO system for the facility is weeks away. The plan is to take one train to test recovery set points by optimizing the period of cycling and the rotation of blocks. The set points will be loaded into the other three trains.

Some potential application to potable reuse of the FRRO includes a higher recovery process with reduced scaling potential, potential reduced biofouling, more rigorous cleaning, and flow reversal versus "standard" RO operation mode.

Acknowledgements include City of Santa Monica's Alex Waite and Sunny Wang, the Walsh Group's Blayne Goodman and Shaun Jameson, and ROTEC.

3. Technical Presentation: DPR Regulations (Fred Gerringer, Hazen and Sawyer)

The direct potable water reuse (DPR) regulations process started back in 2010 with some legislation that required determining the feasibility of DPR and then the process moved forward where in the last couple of years it has become more robust with different versions of the draft regulations released. There is also an expert panel reviewing the draft regulations, many comments including WateReuse CA's comments, and landing last month with the most recent version of the DPR regulations and the beginning of the formal rulemaking process.

Now moving forward, the release of the third draft of DPR regulations on July 21, 2023 started a 45-day comment period. At that time, DDW released the regulations with an initial statement of reasons, which is about twice the length, but a lot more dense, a lot more content. There will be a workshop on September 7, 2023 that DDW will host, and the comment period will close on September 8, 2023. After the 45-day comment period ends, DDW has an option to open up a 15-day optional comment period to receive additional comments. The date for the optional comments has not yet been released. In the fall, the expert panel, who has been involved in the entire regulatory process, will review the regulations one last time and then presumably approve the regulations. At that point, it will go to the State Water Board in December to vote on and accept those regulations, and then it will go through the final process with the Office of Administrative Law (OAL) and come into effect sometime in the spring of next year.

There are five main provisions: organization, chemical control, pathogen control, monitoring and control, and technical, managerial, and financial capacity. There are no significant changes in the 2023 draft to the organizational provisions. There have been some changes in a few sections including the chemical control section that deals with treatment train requirements, blending of water, chemical peak attenuations, source control, and water quality monitoring. One notable change has to do with the biological activated carbon process. Originally, it had to be at least 15 minutes empty bed contact time (EBCT), either that or greater. There is now the option to do less than that if demonstrated during pilot testing that required removal is achieved with the lower contact time. There has been more flexibility built into this section. This topic was something that WateReuse CA had requested. Another WateReuse CA requested change has to do with the TOC monitoring interval. It was originally set at five minutes, which is a frequent interval, especially considering how TOC analyzers work. The time has been adjusted back to 15 minutes, which is much more manageable. In terms of chemical control, there is some blending that is allowed. If DPR water is blended with another water source and you have less than 10% DPR water, you can get away without using Ozone BAC. That was something that was included



already, but DDW added the following: "blending can be used to increase TOC critical limit above 0.5 mg/L".

In terms of source control, there were a couple of changes. The source control section originally required a continuous improvement process. That requirement was removed. Additionally, there was a sewershed surveillance program, which required entering the sewershed and doing online monitoring at particular nodes to try capturing any chemical release coming down the sewershed and be proactive about it. That requirement has been changed to an early warning program, which can be implemented at the head of the wastewater treatment plant, making it lot easier to implement. In terms of water quality monitoring, there are three sample points that are required. The first monitoring point used to be before the wastewater treatment plant, now it is after the wastewater treatment plant, which makes it a lot easier to get the lab analyses done. Looking at pathogen control, there has been additional flexibility on how long facilities can be between the two limits. It is okay to be between the two limits 10% of the time or less per month. Additionally, a section in the pathogen control that is completely new and something that WateReuse CA was requesting was to provide some allowances for a DPR scenario where projects are not necessarily doing flange-to-flange, 100% DPR going into the distribution system. It provides additional pathogen removal credit if agencies are doing some continuous blending, depositing water into a reservoir but it is too small to qualify for the surface water augmentation rules. Same thing for groundwater recharge, if agencies are putting it into the ground and it is coming out of the ground in less than 2 months, it is still considered DPR, but getting some credits is still possible.

In terms of monitoring and control there are no significant changes in the 2023 draft. In terms of technical, managerial, and financial capacity, it is required to demonstrate the financial viability long term of the project and the agency and how that is done is a little different from how it used to be shown in the engineering report, to make it a little easier on some agencies. There is also some streamlining in terms of reporting, so a little less reporting than expected which is also helpful for agencies. In terms of operator certification, one addition to the certification that is required is the chief operator and shift operator that has to oversee the entire treatment train. The chief and shift operators need to have a drinking water treatment certification, a T5 for the chief operator and a T3 minimum for the shift operator. There were some adjustments in terms of what the shift operators are required to have at each of the facilities. The chief and shift operators only need to have the certification advanced water Treatment (AWT) certification at the wastewater treatment plant or the drinking water plant if providing chemical control at those facilities.

No alternatives clause remains a concern. There is no general alternatives clause. There are some specific things that are built into certain sections where it allows for more flexibility, but there is no overall alternatives clause. If it does not change during the finalization of the regulations, everyone will be locked into the regulations as approved unless there is going to be some revisiting in the future.

4. Water Recycling Legislative/Regulatory Updates (Raymond Jay)

California Legislation

- CA Legislative Calendar: September 14, 2023, is the last day for any bill to be passed.
 October 14, 2023, is the last day for the governor to sign or veto bills.
 - (http://assembly.ca.gov/legislativedeadlines).
- California Legislative Information website: link to research bills, their status, and detailed description. Use key words to find bills. Link to web page below:



https://leginfo.legislature.ca.gov/faces/billSearchClient.xhtml?session_year=20232024&keyword=water%20recycling&house=Both&author=All&lawCode=All

2023 Water Legislation Introduced

- SB 366 (Caballero): The California Water Plan: long-term supply targets; WRCA = Support
- SB 745 (Cortese): Drought Resistant Building Standards; WRCA = Neutral after amendments to remain voluntary
- AB 682 (Mathis): SWRCB: online search tool: funding applications; WRCA = Support
- AB 1572 (Friedman): Potable water: nonfunctional turf; WRCA = Watch
- AB 1573 (Friedman): Water Conservation: Landscape Design; model ordinances;
 WRCA = Watch

Link to more information:

https://leginfo.legislature.ca.gov/faces/billTextClient.xhtml?bill_id=202310240AB1573 https://watereuse.org/sections/watereuse-california/legislative-and-regulatory-committee/

California Budget

- Budget due June 15th
- Estimated Budget deficit of ~ \$9B FY 23/24
- May Revise proposed to shift \$270 million in budget for recycled water to water bond(s)
- WRCA comment letter requests \$1.8B in Bonds
- Budget Trailor Bill with new RW fee expected

Regulatory Update

- Direct Potable Reuse Regulations
 - SWRCB to adopt regulations by December 31, 2023
 - Draft and Formal Rulemaking to begin; comments by in September 7th

https://www.waterboards.ca.gov/drinking_water/certlic/drinkingwater/dpr-criteria-panel.html

- Water Use Efficiency Regulations
 - Formal Rulemaking to begin in Summer 2023
 - Includes potential Potable Reuse Bonus Incentive up to 15%
 https://water.ca.gov/Programs/Water-Use-And-Efficiency/2018-Water-Conservation-Legislation/Urban-Water-Use-Efficiency-Standards-Variances-and-Performance-Measures
- On-Site Treatment and Reuse of Non-Potable Water
 - SWRCB overdue to adopt regulations by December 1, 2022
 - OAL rulemaking to begin Fall 2023; SWRCB adoption Spring 2024



https:/www.waterboards.ca.gov/drinking_water/certlic/drinkingwater/onsite_nonpotable_reuse_regulations.html

- Cross Connection Control Handbook
 - Allows swivel ell as a changeover device; Board Adoption Meeting: TBD
 https://www.waterboards.ca.gov/drinking_water/certlic/drinkingwater/cccph.html

Federal Update

- FY23 Appropriations concern over SRF funding
- Large Scale Water Recycling Program
 - Funding announcement this summer
 - Awaiting WS:WR&DP
- Alternative Water Supply Program
 - Initial funding proposed in FY 24 appropriations
- BABAA Waivers
 - Request additional waivers
- PFAS
 - WRA submitted comment letter
 - EPA Public comments period extended
- Local, State and Federal Funding Opportunities
 https://watereuse.org/wp-content/uploads/2023/03/Summary-of-funding-Opportunities-as-of-04-01-23.pdf

5. Regulatory Agency Spotlight – SWRCB Division of Drinking Water (Rebecca Christmann)

- Direct Potable Regulations (DPR) Regulations
 - July 21, 2023: Notice of Proposed Rulemaking
 - September 7, 2023, 9:30 am: APA Public hearing
 - o September 8, 2023, 12:00 pm: End of Public Comment Period
 - Contact: Jing Chao at Jing-Tying.Chao@waterboards.ca.gov
 - https://www.waterboards.ca.gov/drinking_water/certlic/drinkingwater/dpr-regs.html
 - Background information: https://www.waterboards.ca.gov/drinking_water/certlic/drinkingwater/direct_pot-able_reuse.html
- Recycled Water Regulatory Updates
 - Regulations for Onsite Treatment and Reuse of Non-potable Water
 - https://www.waterboards.ca.gov/drinking_water/certlic/drinkingwater/on site_nonpotable_reuse_regulations.html



- Water Recycling Criteria Update (Title 22, Division 4, Chapter 3)
 - www.waterboards.ca.gov/drinking_water/certlic/drinkingwater/waterrecycling-criteria.html
- Cross-Connection Control Policy Handbook
 - Second Public Comment Period ended December 9, 2022
 - Tentatively planning final pre-adoption workshop for Fall 2023
 - www.waterboards.ca.gov/drinking water/certlic/drinkingwater/cccph.htm
- Drinking Water Regulatory Updates
 - Proposed Hexavalent Chromium MCL of 10 ppb (0.01 mg/L)
 - https://www.waterboards.ca.gov/drinking_water/certlic/drinkingwater/S
 WRCBDDW-21-003 hexavalent chromium.html
 - PFAS: Per- and Polyfluoroalkyl Substances
 - https://www.waterboards.ca.gov/drinking_water/certlic/drinkingwater/pfa s.html
 - Metal Detection Limit for Purposes of Reporting
 - https://www.waterboards.ca.gov/drinking_water/certlic/drinkingwater/swr cbddw21-001-metal.html
- Updated Documents
 - Alternative Treatment Technology Report for Recycled Water
 - https://www.waterboards.ca.gov/drinking_water/certlic/drinkingwater/do cuments/recycled_water/alternative-treatment-technology-reportrecycled-water-2023.pdf
 - Replaces the September 2014 update
 - Guidelines for the Preparation of an Engineering Report for the Production,
 Distribution, and Use of Recycled Water
 - https://www.waterboards.ca.gov/drinking_water/certlic/drinkingwater/documents/recharge/ERGUIDE2023.pdf
 - Replaces the March 2001 document
- 6. CA State Section Update (Rafael Villegas)
 - Next Board of Trustees Meeting: August 11, 2023
 - Funding Opportunities
 - House Appropriations Bill includes first-time funding for nationwide water reuse program
 - Forecasted Information for 8/11/23 Meeting



- Board of Directors approved a new standing Potable Reuse and Compliance Committee
- On July 21, the California State Water Resources Control Board (Water Board) released a new draft of the Direct Potable Reuse regulations
 - Began the formal Administrative Procedure Act (APA) process to adopt the statewide regulations
 - The final Water Board vote and presumed adoption is planned for December 19, 2023
- 2023 WateReuse California Conference in Indian Wells, CA, November 5-7
 - Reminder: all reservations to the Hyatt Regency Indian Wells Resort & Spa must be made by October 5, 2023, to take advantage of the discounted rate!
 - Two Southern California conferences, one Northern California conference next year due to size
- WateReuse 2024 Symposium: Reimaging Water Together
 - Schedule and Technical Program are currently being continually updated
 - Looking at Tampa for 2025, Los Angeles for 2026
 - Call for Presentations: The WateReuse Association invites proposals for presentations at the 39th Annual WateReuse Symposium
 - September 14, 2023 Proposals Due via Online Submission Form
 - November 10, 2023 Speakers Notified
 - January 15, 2023 Deadline for Speaker Registration Discount
 - February 16, 2024 PowerPoint Presentations Due
 - Award submissions are open until August 15, 2023
- 7. Chapter Updates (Fred Gerringer)
 - Weymouth Treatment Plant Tour (in La Verne) November 1, 2023
 - o 10:00 am -12:00pm
 - Lunch planned after the tour
 - Emerging Professionals Committee
 - o Chair: Seto Cherchain <u>Scherchian@BrwnCald.com</u>
 - Communications Lead
 - Chair: Oliver Slosser <u>oslosser@lvmwd.org</u>
 - Newsletter released about a month ago; the next newsletter release will take place at the end of September; will include information about the November conference
 - Awards Champion
 - Chair: Everett Ferguson eferguson@wrd.org



- Awards nominations are due on the week of the August 14, 2023.
- Technical Topics Committee
 - o Chair: Alex Franchi <u>alex.franchi@aecom.com</u>
- Meeting Summary June 2023
 - Thank you Annie Chen and Karina Gonzalez (LA Sanitation and Environment)
- Volunteer Opportunity
 - Leg/Reg Updates
 - Thank you Raymond for 10 years of service!
- 8. Membership Roundtable (Alex Waite)
 - How does your organization champion public outreach?
 - Looking for host and lunch sponsors for October and December meetings
 - Thank you Brown & Caldwell

9. Next Meetings

- Tuesday, October 10, 2023
 - Host opportunity
 - Sponsorship opportunity
- Tuesday, December 5, 2023
 - Host opportunity
 - Sponsorship opportunity

10.	Adjournment	1:00 p.m.
11.	Tour of Pure Water Demonstration Facility	.1:15 p.m.

Los Angeles Chapter Officers for 2023/2024

Jared Lee, President	626-379-8443	JLee@burbankca.gov
Alex Waite, Vice President	424-399-6733	alex.waite@santamonica.gov
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Rafael Villegas, Chapter Trustee	213-367-1014	rafael.villegas@ladwp.com
Fred Gerringer, Past-President	626-319-1107	fgerringer@hazenandsawyer.com



Virtual Meeting Attendees (Total 31)

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Dan Bacani	dbacani@ph.lacounty.gov
Monika Merk# WateReuse Association (WateReuse Association)	zdorsey@watereuse.org



Tuesday, August 8, 2023 Las Virgenes Municipal Water District

LAST NAME	FIRST NAME	ORGANIZATION	INITIALS	EMAIL ADDRESS	Mailing List?
Villegas	Rafael	LADWP	Total Production	Rafael.Villegas@ladwp.com	
Waite	Alex	City of Santa Monica) MM	Alex.Waite@santamonica.gov	
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Zacheis	G. Adam	Brown & Caldwell		AZacheis@BrwnCald.com	
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Zhao	John	Los ungenos mus		JZhao Q LVMWO. Com	
GN-RELL	JASON	McCARTHY BULDING Co	75	JCANTRELL PO MICRETHY CON	
Jarvis	Steven	McCourtry Building Co	134	Sturvise mecarthy, com	
AZOVAN	2	GWP -WATER ENG.		AAZOYAN @GLENDALECA,GOV	S34 Common
RODKIBUEZ	SIMMER	7	SIG	REDKIEUEZ D &V. COM	Yes
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