Meeting Agenda
October 20, 2022
11:00 a.m. – 1:30 p.m.

Location: **SoFi Stadium**
3599 W. Century Blvd.
Inglewood, CA 90303

The mission of Los Angeles Chapter of the WateReuse Association is to enhance the resiliency and sustainability of Los Angeles County by increasing the safe, beneficial use of recycled water. Its objectives shall be to promote water reclamation and recycling as a sustainable supplemental source of water for the state; to work for the adoption of legislation and regulations that allow the safe use of recycled water; to facilitate the development of technology aimed at improving water recycling; to promote legislation that would increase funding for water recycling projects; to provide mutual assistance and support between and among Chapter members involved with water recycling projects; and to increase public awareness and understanding of related water problems and solutions.

Lunch……11:30 a.m.

Welcome, Introductions and Instructions……..…….…..… 12:00 p.m.

1. Water Recycling Legislative/Regulatory Updates *(Raymond Jay)*
2. California State Section Update *(Rafael Villegas)*
3. Chapter Updates *(Judi Miller and Scott Lynch)*
    a. August 2022 LA Chapter Member Meeting Summary
    b. Volunteer Opportunities
    c. Upcoming Elections
4. Sponsor Presentations
    a. Comprehensive, Collaborative, and Coordinated: Lessons Learned from the Central Coast Blue Project Environmental Proc *(Annaliese Miller Torres)/Rincon Consultants)*
    b. Technological Features of the AQQA System *(Bill Morton/Pacific Filtration Systems)*
    c. Sustainable Water Resource Management System *(Andy Komor/PACE Engineering)*
5. Regulatory Agency Updates
6. Next Meetings
    - LA Chapter: December 6, 2022 – Host: Santa Clarita Valley Water Agency; Sponsor: TBD
    - OC Chapter: December 15, 2022 – Santa Margarita Water District
7. Group Photo/Adjournment ……..…….. 1:00 p.m.
8. Multi-purpose Lake Tour……1:00-1:30 p.m.

Los Angeles Chapter Officers for 2020/2022

Fred Gerringer, President	626-319-1107	fgerringer@hazenandsawyer.com
Jared Lee, Vice President	626-379-8443	JLee@burbankca.gov
Judi Miller, Secretary/Treasurer	213-228-8236	judi.miller@jacobs.com
Rafael Villegas, Chapter Trustee	213-367-1289	rafael.villegas@ladwp.com
Raymond Jay, Past-President	213-217-5777	rjay@mwdh2o.com

Orange County Chapter Officers for 2020/2022

President: Scott Lynch	949-292-7454	slynch@jcsd.us
Vice President: Hannah Ford	949-837-7050	hford@etwd.com
Secretary/Treasurer: Kraig Erickson	949-420-5306	KErickson@woodardcurran.com
Chapter Trustee: Joone Lopez	949-444-6994	jlopez@mnwd.com
Past-President:Jason Dadakis	714-378-3364	Jdadakis@ocwd.com
Legislation/Regulation Committee Member: Alicia Dunkin	714-378-8232	adunkin@owd.com

WateReuse California
Los Angeles Chapter Meeting

WATEREUSE
LOS ANGELES

October 20, 2022
Legislation & Regulation Update

Raymond Jay
Metropolitan Water District of Southern California
(213) 217-5777 or rjay@mwdh2o.com

2022 California Legislative Calendar

- Jan. 1 — Statutes take effect
- Jan. 4 — Legislature reconvenes
- Jan. 10 — Governor submits budget to Legislature
- Feb. 18 — Last day for bills to be introduced
- Apr. 29 — Last day policy comm. to report fiscal bills
- May 6 — Last day fiscal comm. to report fiscal bills
- June 4 — Last day for bills to pass house of origin
- June 15 — Last day to pass budget
- Sept. 10 — Last day for any bill to be passed
- Sept. 30 — Last day for Governor to sign or veto bills
- See: http://assembly.ca.gov/legislativedeadlines

2022 Water Legislation of Interest

WRCA Responds to 2022 Legislation on Water Recycling

It has been a busy legislative session thus far and WateReuse California (WRCA) is active in the state capitol advancing and protecting the interest of water reuse. See below for the bills WRCA is following. Contact Jennifer West at jwest@watereuse.org if you are a member would like to participate in the WRCA Legislative-Regulatory Committee meetings

Bill Number	Title	WRCA Position Letters (see below)
AB 1845 (Calderon)	Design Build	Support
AB 2387 (E. Garcia)	Climate Bond	Watch
AB 2787 (Quirk)	Microbeads/microplastics	Support
AB 2811 (Bennett)	Onsite reuse/dual plumbing	Oppose Unless Amended
SB 12 (McGuire & Stern)	Local Government: Planning and Zoning	Watch
SB 230 (Portantino)	CEC Program	Support
SB 991 (Newman)	Design Build	Support
SB 1144 (Wiener)	Graywater	Seek Amendments
SB 1157 (Hertzberg)	Indoor Residential Water Use Standard	Oppose Unless Amended
SB 1197 (Caballero)	Water Innovation	Support
AB 2247 (Bloom)	PFAS Source Database	Support

- https://watereuse.org/sections/watereuse-california/legislativeregulatory-committee/

2022 Water Legislation Outcome

- SB 1157 (Hertzberg): Hertzberg. Urban water use objectives: indoor residential water use; WRCA = neutral after amendments; Approved by Governor & Chaptered 9/28/22
- SB 991 (Newman): Public contracts: progressive design-build: local agencies; WRCA = Support; Chaptered 9/02/22
- SB 230 (Portantino): SWRCB: Constituents of Emerging Concern in Drinking Water Program; WRCA = Support; Approved by Governor & Chaptered 9/28/22
- AB 2247 (Bloom) PFAS disclosure; Amended to intentionally added PFAS; WRCA = Support; Enrolled & sent to Governor 09/12/22; Vetoed by Governor 9/29/22

California Budget and RW Funding

- Governor's FY22-23 Budget
  - ~$300 billion
  - $49 billion projected budget surplus
  - $1.63 B for Drought & Water Resilience
  - $80 Million for Pure Water Southern California
  - Final https://www.ebudget.ca.gov/
- $400M for recycled water & groundwater recovery (WRCA requests 50% for RW)
  - $200M in FY 21-22
  - $100M in FY 22-23 & FY 23-24
- $100M for PFAS support
- WRCA request $750M for RW in FY22/23

Regulatory Update

- CWSRF & DWSRF Intended Use Plan
  - WRCA & CASA Comment Letter
    - Adjust funding list to include more projects
    - Adjust future lending capacity
    - Increase leveraging of available funding
    - Include safeguards from adverse deferrals of projects
    - Transfer CWSRF PFAS funding to DWSRF

Regulatory Update

- Direct Potable Reuse Regulations
  - Expert Panel meeting
  - WRCA is seeking clarification
    - Some concerns remain:
      - LRV requirements
      - Treatment flexability
      - Reduction of duplicative reports
      - Sewer shed monitoring
      - Operator requirements
  - https://www.waterboards.ca.gov/drinking_water/certlic/drinkingwater/dpr-criteria-panel.html

Federal Update

- FY23 Appropriations
- Large Scale Water Recycling program
- Alternative Water Supply program
- BABAA Waivers
- Industrial Tax Credit
- PFAS

Questions?

If you have any questions, please contact:

Raymond Jay, Past President

WATEREUSE LOS ANGELES

c/o Metropolitan Water District of Southern California
700 N Alameda Street
Los Angeles, CA 90054
(213) 217-5777
rjay@mwd.h2o.com

Chapter Trustee Updates
WateReuse LA Chapter – October 20, 2022

Last Board of Trustees Meeting: September 11, 2022

Next Board of Trustees Meeting: November 18, 2022

Initial Recommendations for WRA 22' Strategic Plan (February 2022)

- Delivery of Excellent Core Services to CA Section
- Maintain California Section Primacy in all State Level Policy Decisions
- Revenue Enhancement and Dues Management Strategies
- Bolster Alliances with other Association on Funding and Legislative Initiatives

Additional Comments on WRA 22' Strategic Plan (August 2022)

- WRA Full Time CFO and Improved Conference Financial Reporting
- Need for In-House WRA Conference Support
- Supplemental Funding to Support WRCA Conference

Chapter Trustee Updates
WateReuse LA Chapter – October 20, 2022

2022 - WateReuse California Annual Conference Awards

Joyce Lehman - Recycled Water Staff Person of the Year

Principal Engineer/Interim Team Manager,
Metropolitan Water District of Southern California

Chapter Trustee Updates
WateReuse LA Chapter – October 20, 2022

2022 - WateReuse California Annual Conference Awards

Valero Wilmington Refinery - Recycled Water Customer of the Year

Valero

Chapter Trustee Updates
WateReuse LA Chapter – October 20, 2022

WRCA Letter to DDW in Response to June 28, 2022 Draft Criteria:

- Expansion on Alternatives Clause
- Revisiting Pathogen Control Requirements
- DDW intends to release another set of regulations in early 2023

Save the Date

MARCH 5-8, 2023

38th Annual WateReuse Symposium
Marriott Marquis Atlanta
Atlanta, Georgia

NOVEMBER 5-7, 2023

2023 WateReuse California Annual Conference
Hyatt Regency Indian Wells
Indian Wells, California

LA Chapter Update *(Judi Miller)*

- August Meeting Summary Approval

- Volunteer Opportunities
  - Meeting Summaries
  - Ad Hoc Urban Irrigation Manual Update Committee Chair

- Board Elections
  - 2-year terms
  - During December 6th Meeting
  - Voting by one rep from each member org

- Emerging Professionals Committee Update
  - Chair: *Alex Waite*
    alex.waite@smgov.net

- Communications Lead
  - Chair: *Oliver Slosser*
    oslosser@lvmwd.org

- Awards Champion
  - Chair: *Everett Ferguson*
    eferguson@wrd.org

- Technical Topics Committee
  - Chair: *Alex Franchi*
    alex.franchi@aecom.com

WATEREUSE LOS ANGELES

TECHNOLOGICAL FEATURES OF THE AQQA SYSTEM

AQQA®-filter for water treatment

Pacific Filtration Systems LLC

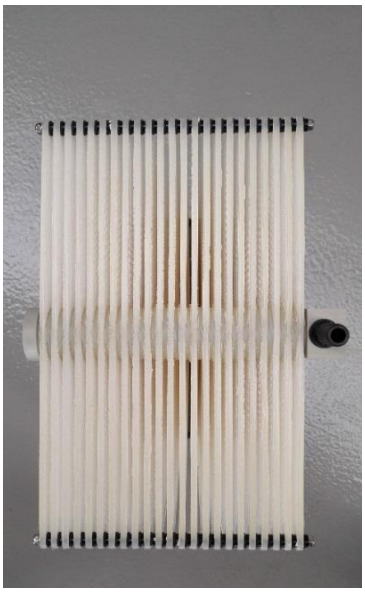
2945 Townsgate Road, Suite 200

Westlake Village, CA 91361

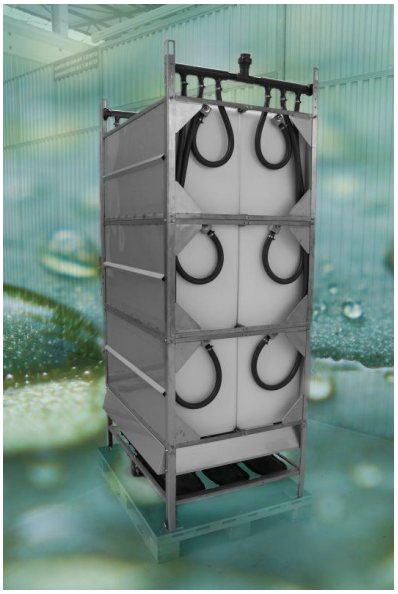
AQQA®-System

Function

The AQQA®-system is a submerged ultrafiltration system of the next generation, which combines proven and new, unique features. The filter is submerged into the untreated water. With a gentle pressure the water is sucked into the filter, leaving all particles and



PIC. 1: stack of AQQA®-plates



PIC. 2: complete AQQA®240 with filtrate outlet and aeration unit

bacteria on the outer surface of the membrane. An optimized flow of air bubbles and water cares for a constant cleaning effect with high shearing forces on the membrane surface. This cleaning effect alone can keep the filter clean for up to one year. The AQQA®-filter is the first filter with solid plates that can be back-flushed by reversing the flow and pressing a cleaning liquid into the filter. By doing this, all pores are kept open and the filter can operate sustainable with a much higher output. In normal operation, the filter remains in the water and does not have to be removed from the tank, as it was the case with filters of the first generation.

Applications:

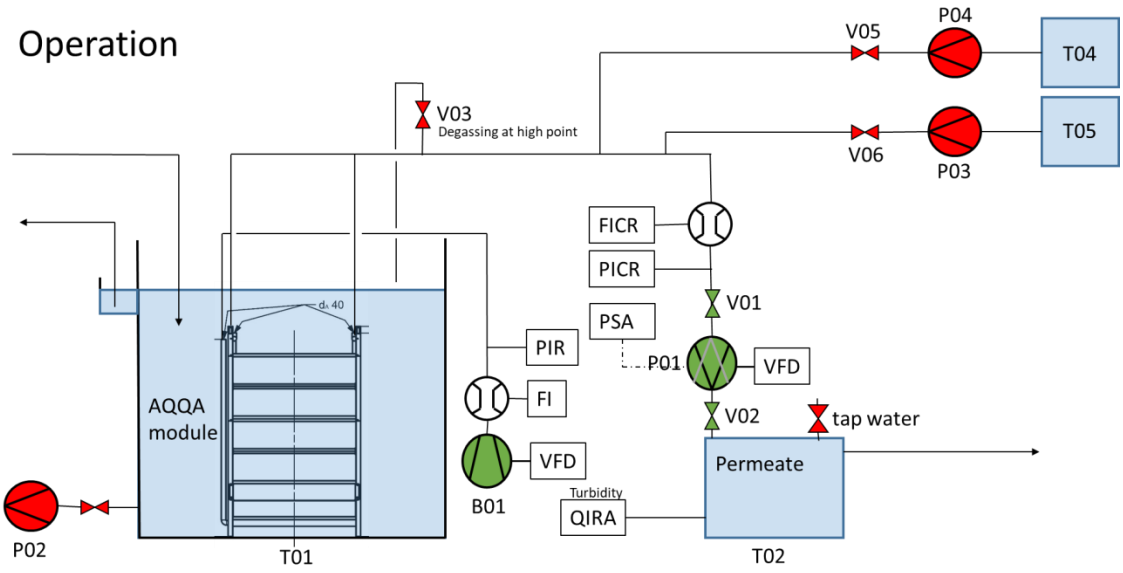
- Treatment and reuse of waste water, municipal and industrial
- Reuse of Greywater
- Treatment of cow or pig manure
- Sludge thickening
- Treatment of surface water for production, irrigation or drinking water applications
- Pretreatment of water for desalination plants

Design

The AQQA®-filter is made up of stacks of filter plates. These stacks are preassembled and the filter plates are connected with a snap-on system. A stack can be easily lifted out of a frame and filter single filter plates can be removed within minutes.

The stack builds an extremely robust unit, which ensures straight plates and a uniform gap of 6 mm. No matter how tough the operating conditions are, this setup does not change its geometry. Together with the optimized aeration system, this system is not prone to clogging and can be operated under very harsh conditions.
The complete unit is submerged into the mixed liquor, either directly into the aeration tank or in an externally placed membrane tank.

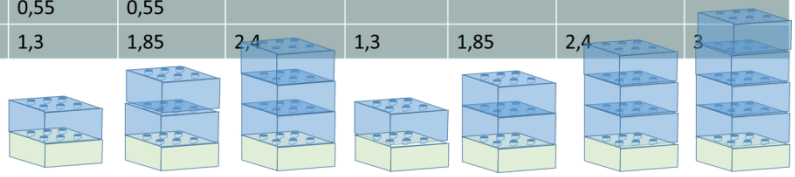
In normal operation the filtrate is removed with a self-priming pump (PIC3, P01). A fraction of the filtrate is stored in the filtrate tank and can be used for the cleaning of the filters. The AQQA®-system is back-flushable with 350 mbar (5 psi). It combines the robustness of a plate system with the advantage of easy cleaning by pumping a cleaning liquid into the filter. PIC 3. shows a possible setup for the operation.



PIC. 3: P&I scheme for an AQQA®-filter in operation

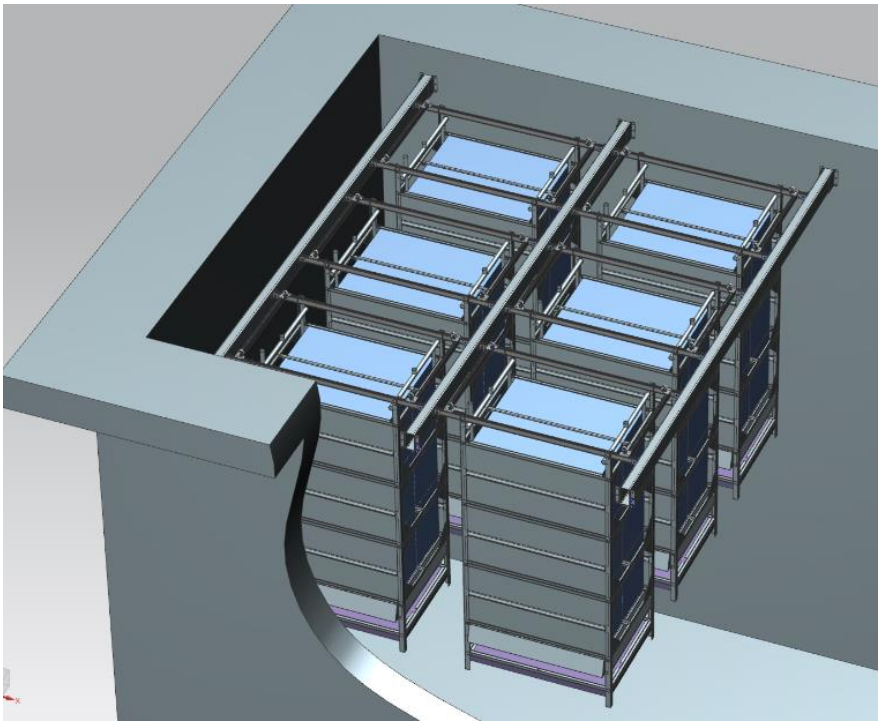
The AQQA®-system is designed as a modular construction system. Three basic blocks are available. AQQA®xx (xx stands for 1,5 up to 8 m²), AQQA®25 (25, 50, 75 m²) and AQQA®80 (80, 160, 240 and 320 m²). Always one aeration element (light green) is combined with the resp. number of basic filter blocks.

	AQQA®4	AQQA®8	AQQA®25	AQQA®50	AQQA®75	AQQA®80	AQQA®160	AQQA®240	AQQA®320
membrane surface m²	4	8	25	50	75	80	160	240	320
footprint m	0,45 x 0,2	0,45 x 0,3	0,76 x 0,55	0,76 x 0,55	0,76 x 0,55	1,2 x 1	1,2 x 1	1,2 x 1	1,2 x 1
height	0,9	0,9	1,3	1,85	2,4	1,3	1,85	2,4	3



PIC. 4: AQQA®-System

With a standardized mounting system the AQQA®-filter can easily be installed into an existing tank. The system hangs on two bars, that are supported with brackets at the wall. The system is secured against swinging and buoyancy.

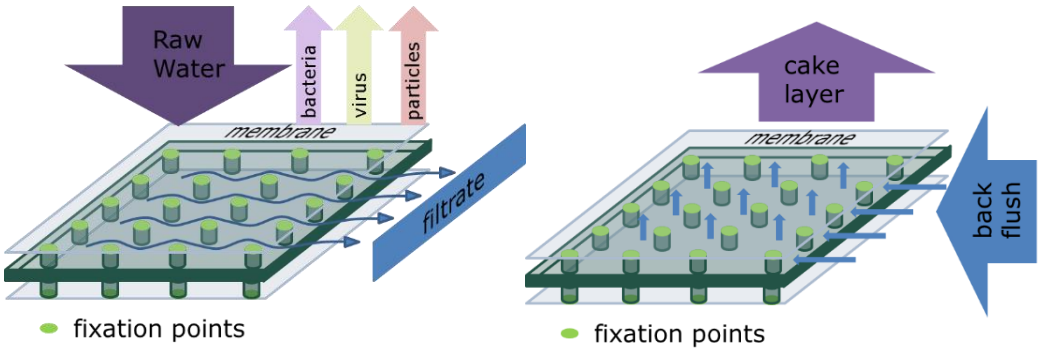


PIC. 5: installation of 6 AQQA®160 into a tank

Features of the AQQA®-system

1. The membrane of the AQQA®-system is fixed to the plate not only at the edge, but with fixation points, that are distributed evenly over the complete surface. This leads to a number of advantages. The membrane can be back-flushed and does not tear. While the membrane is relaxed (no filtration pressure), the aeration can be kept running and the membrane does not flutter. The membrane is made of 2 layers, the active filtration layer and an extremely robust backing, that is bonded to the filter frame with a molten polyolefin.

   Advantages for the operator:
   - the filter membrane is anchored to the plate and cannot tear.
   - the hygienic safety is significantly higher, than filters made with conventional welding technologies.

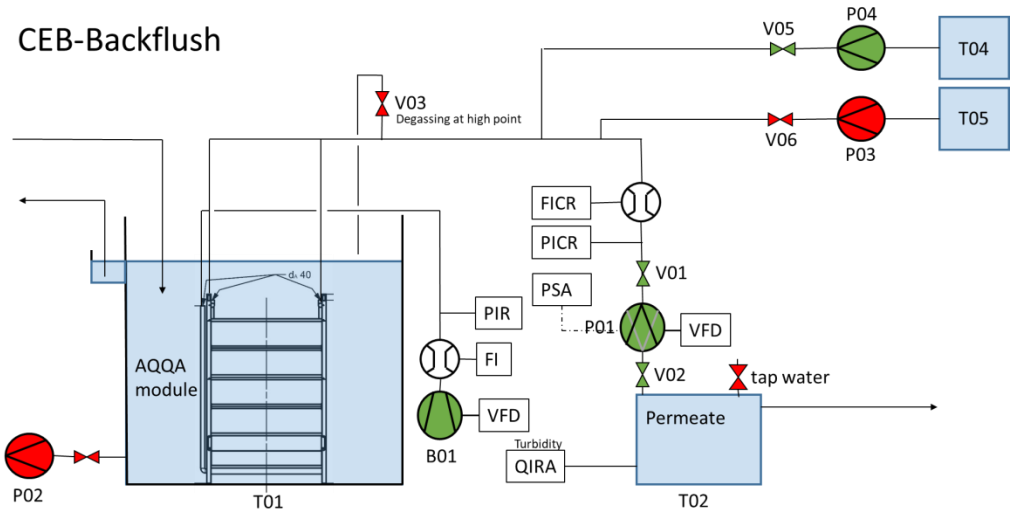


PIC. 6: sandwich plate design

With the unique fixation point technology, water can flow through the filter plate in two directions. In filtration mode the water flows from the outside to the inside. The untreated water is filtrated through the membrane, which retains bacteria, virus and particles. The filtrate can flow to the outlet with practically no pressure loss.

In backflushing mode the flow direction is reversed and filtrate flows from the inside to the outside, removing the dirt layer and particles. Adding a chemical to the backflush (chemical enhanced backflush) allows for an efficient cleaning of the membrane, while the filter remains in place. This makes maintenance a lot easier and effective.

For cleaning filtrate is used, that has been stored in the filtrate tank. It is pumped into the filter with a backflush pump. Optional the filtration pump can be reversed and the filtrate is pumped into the filter with the filtration pump. Simultaneously, a cleaning chemical is added with a dosing pump. This process takes approx. 40 minutes. In most installations, this procedure is carried out every two to four weeks.

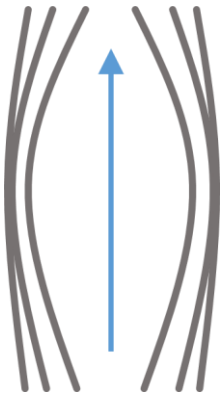


PIC. 8 P&I scheme for an AQQA®-filter during backflush

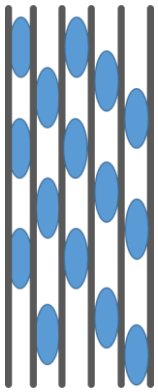
Advantages for the operator:

- a robust filter plate with full backflush capability up to 350 mbar. Replacement of existing hollow fiber systems without changes to the sytem.
- the cleaning of the filter can be done in the membrane tank. It is not necessary to remove the filter from the tank. Cleaning cycles can be automated.

2. The filter plates are rigid and do not bend. This cares for a defined gap between the plates, which guarantees optimised flow conditions. It is not possible, that plates or fibers stick together or form bundles of sludge, hairs and filter elements.



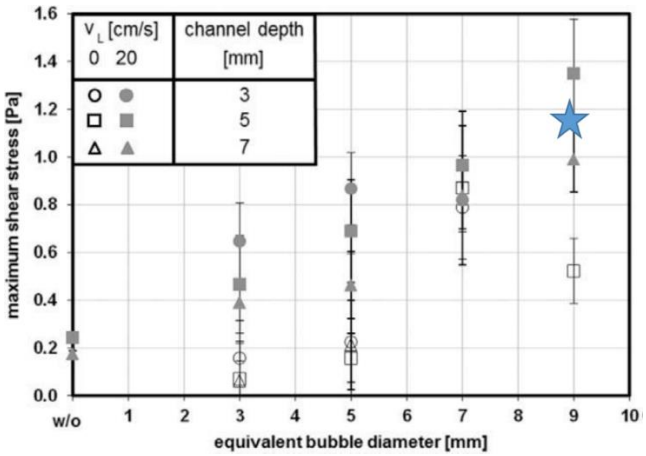
bending and sticking with flexible filter plates or fibers, that are not resistant to bending.



optimised upstream channels lead to higher shearing forces on the membrane surface of the AQQA®-filters

PIC. 8: difference of flexible and rigid plates

An examination carried out by the Technical University Berlin documents this situation very impressively:



PIC. 10: shearing forces on the membrane surface (blue star shows properties of the AQQA®-filter[1]

Advantages for the Operator:

- the AQQA®-filter does not plug with fibers, which ensures the operational safety and availability
- the mechanical cleaning of the filter plates with air bubbles is much more efficient. This minimizes the use of cleaning chemicals and the energy input is reduced.
- the filter plates do not stick together like known from to date systems. That is why 100% of the membrane surface of the AQQA®-filters is operating and not just partitions.

3. By the use of a membrane with a very high porosity (pores per sq.ft) and the filtrate removal almost without pressure loss, the permeability of the membrane is high when new and stays high. The output is up to 100% higher, than with known systems.

   Advantage for the Operator:

   - the total cost for the system (CAPEX) is lower and it needs less space

4. The installation of the system can be easily accomplished into new plants, but also into existing plants due to the modular design and the well thought out installation device. This enables the retrofit of plants that are equipped with filters of other manufacturers.

[1] The importance of fluid dynamics for MBR fouling mitigation;
Lutz Böhm, Anja Drews, Helmut Prieske, Pierre R. Bérubé, Matthias Kraume;
Bioresource Technology 122 (2012) 50–61

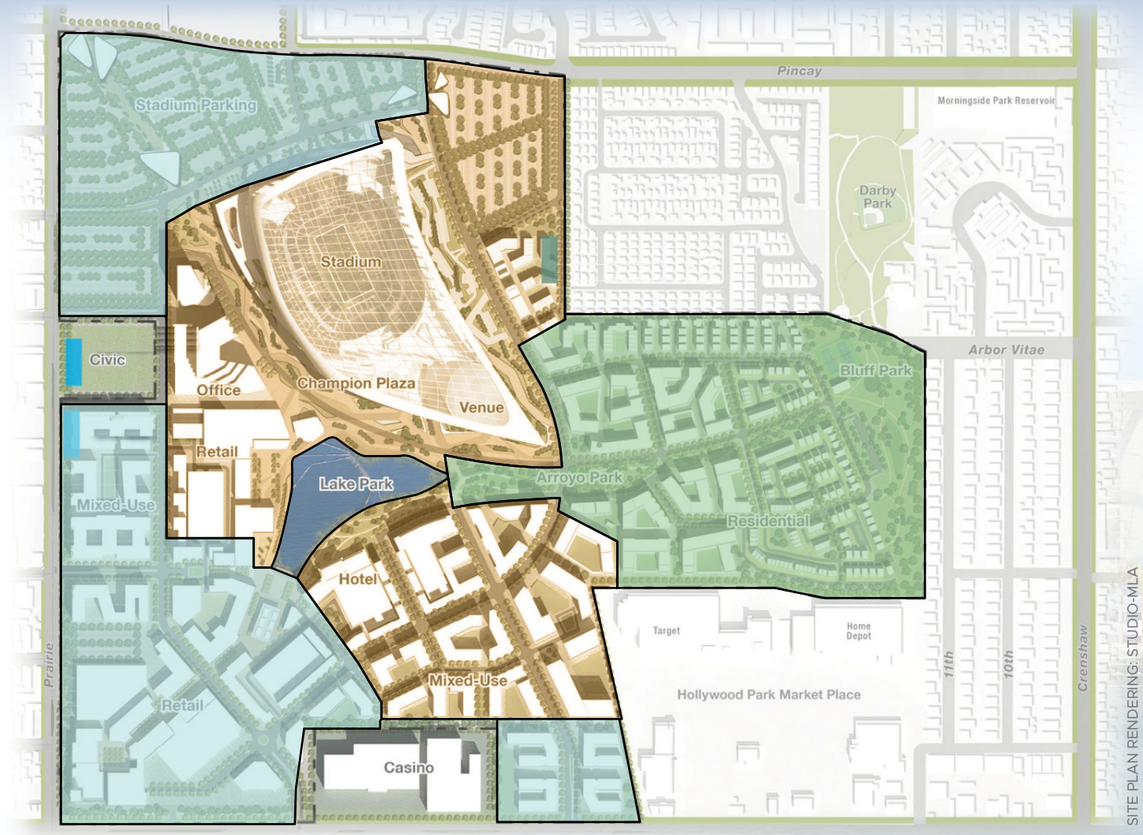
Advantage for the Operator:

- Retrofit with most modern filtration technology at lowest cost. No complex and time consuming alteration.

Specification Sheet

- Submerged ultrafiltration system for the use in municipal or industrial wastewater.
- Plate system with rigid plates made of PP and a uniform gap of 6 mm. Membranes cannot touch each other and stick together. No development of filter cake between the plates due to constant flow velocities.
- Single filter plates can be exchanged.
- The membrane is fixed to the base plate not only at the edge, but at numerous fixation points, that are evenly distributed over the complete filtration surface. Max. backflush pressure 350 mbar. Max. filtration pressure 500 mbar. Membrane cannot move at different differential pressures. During the relaxation phase, the membrane cannot flutter while the rising air bubbles create areas of suction.
- Permeability of a plate > 1000 l/m².h.bar, measured with tap water at 20°C, typical flux in municipal wastewater applications > 25 l/m²h (14,5 g/ft².d). Filtrate output does not depend on the MLSS concentration.
- Retention rate for bacteria > 99,9999% (tested with E-coli and GTW1 according to NSFP231).
- PES membrane, highly and permanently hydrophilic. pH resistant 1-12, chlorine resistance 500.000 ppmh. Membrane can dry after usage. Nominal pore size < 0,04 µm. Retention of > 90% of particles with a pore size > 0,04 µm.
- Max. operating temperature 50°C, 122° F
- Each filter leak tested with pressurized air at 0,3 bar, before it leaves the factory.
- Plate aeration system with uniform bubble distribution across the complete membrane area. Water enters into the upstream flow channel above the air diffusors to optimize the flow velocity. Medium sized air bubbles (approx. 8 mm) for maximum shearing forces on the membrane surface.
- Frame made of stainless steel 1.4301 (SS304), optional 1.4571 (SS316). Modular blocks that can be stacked on top of the aeration unit.
- Standardized installation device with two rectangular bars that are supported with brackets at the membrane tank wall. Easy lift out and installation without emptying the membrane tank.
- Necessary pre-screening 2 mm punch hole (or mesh wire). For different screening options please contact Weise Water.
- Mixed Liquor temperature 5° - 50°, MLSS concentration < 20.000 mg/l, FOG (fats, oil and grease) < 150 mg/l (emulsified), no free oil, less than 10 mg/L of mineral or non-biodegradable oil.

SITE PLAN AND TRIBUTARY DRAINAGE AREA



SITE PLAN RENDERING: STUDIO-MLA

Lake Surface Area: 6.3 Acres | Lake Volume: 50 AF | Stormwater Volume Treated: 11 AF

Arroyo Park Watershed
~60-acres
Draining to the lake via the Arroyo Park.

Stadium Watershed
~114-acres
Draining to the lake using the lake for BMP.

Other Onsite Watersheds
~106-acres
Not draining to lake, using site specific BMPs.

PACE Advanced Water Engineering
714.481.7300 | WWW.PACEWATER.COM

SOFI STADIUM

SUSTAINABLE WATER RESOURCE MANAGEMENT SYSTEM

MANMADE
LAKE FEATURE

STORMWATER
QUALITY
TREATMENT / BMP

STORMWATER
MANAGEMENT / DETENTION

RECYCLED WATER
TREATMENT
AND ONSITE REUSE

PACE Advanced Water Engineering

SoFi Stadium

SUSTAINABLE WATER RESOURCE MANAGEMENT SYSTEM

The NFL's newest stadium, SoFi Stadium, serving the Los Angeles market (home to the Los Angeles Rams and Los Angeles Chargers), features a state-of-the-art event facility and forward-thinking, as well as an advanced water resource management systems designed by PACE. PACE performed mechanical and water quality design for the multi-purpose 5-acre lake. The lake serves as the site's central stormwater management system and includes state-of-the-art water conservation and recycling features, making it a highly beneficial multi-benefit water resource management system.

The lake incorporates many advanced features to enhance water resource management at the site, including:

- The lake serves as a stormwater treatment system for much of the stadium and entertainment district, controlling pollutants and peak discharges to the environment.
- Recycled wastewater and stormwater are integrated seamlessly within the lake and fed into an onsite irrigation system.
- During dry weather, recycled water obtained from West Basin Water District will serve as the supply source for lake make-up water. An onsite treatment system provides further treatment of the recycled water using an innovative ion-exchange with zeolite treatment system before the water enters the lake.
- The lake water irrigates the surrounding site, eliminating the need for potable water use in irrigation.
- The lake serves as a short-term flood attenuation basin, minimizing flood risks.

▲ *Concrete Lake Edge*

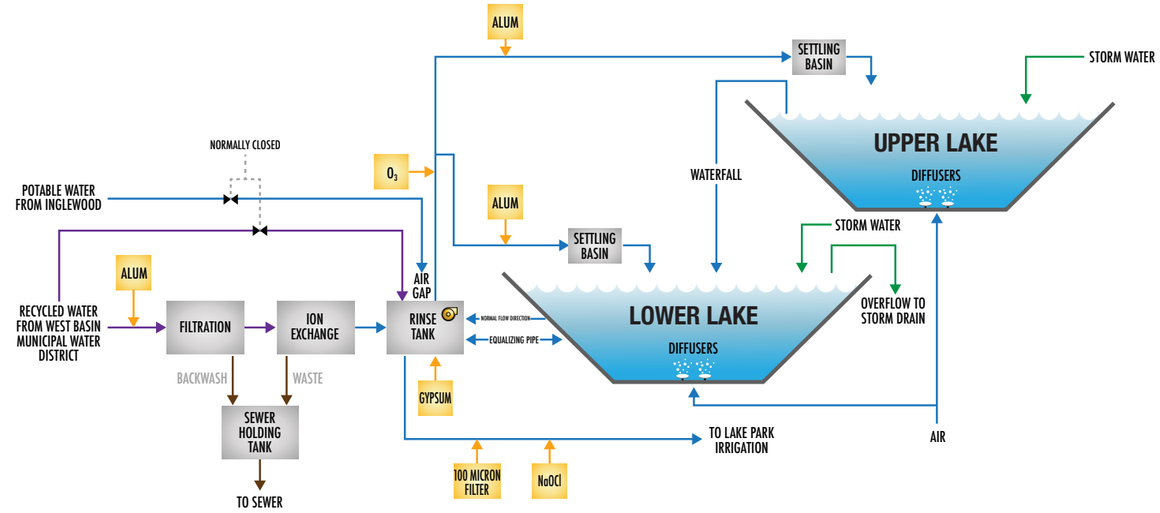
▲ *In-lake planters allow for the controlled growth of aquatic vegetation, which supports water quality management by consuming excess nutrients in the water.*

The combination of reclaimed water and stormwater in this lake system represents a first-of-its-kind in California. It is so advanced that current permitting regulations are not set-up to address this water resource management approach. Therefore, the lake's stormwater discharge required a unique and lengthy permitting process before an individual NPDES stormwater discharge for the lake was approved by the Los Angeles Regional Water Quality Control Board in June 2020. This permit authorizes the discharge of excess water from the lake during storm events, which will consist of a mixture of recycled water and stormwater. The individual permit represents a step forward for water recycling and illustrates the need for permitting rules to advance as technology advances.

ADVANCED RECYCLED WATER TREATMENT SYSTEM

▲ *Exterior View of Pump Station*

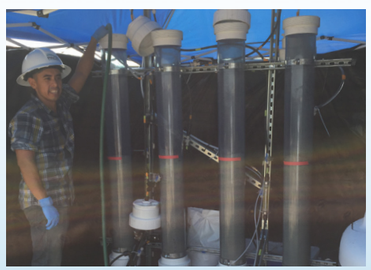
A 200 gpm recycled water treatment process was developed to improve the existing Title 22 rated effluent quality proposed for use in the lake system, saving approximately $1.5 million in capital cost (30%) compared to a previously proposed membrane treatment system. The recycled water source contains high levels of odorous ammonia, which colors water, is toxic to aquatic biology, and creates other water quality problems. The recycled water also contains high phosphorus levels, which could cause high levels of nuisance algae turning the water green and turbid.



▲ *Treatment Schematic*

A custom treatment solution was pilot tested to demonstrate its effectiveness. The treatment system consists of ion-exchange with zeolite, alum, and filtration to support nitrogen (ammonia) and phosphorus removal. Within the lake, the water is continuously recirculated and treated with ozone and additional alum. The lake and treatment system supports the lake make-up water needs and irrigation for the stadium property. Additionally, the system may be used for other non-potable water demands such as toilet flushing, cooling towers, and evaporative coolers in the future.

▲ *Top-Opened Chemical Totes as Simulated Lakes*



▲ *Pilot Treatment System Filter Columns*

▲ *Water Samples Collected from the Simulated Lakes (left to right: Tote 1, Tote 2, Tote 3)*