

## Los Angeles Chapter of the WaterReuse Association MEETING SUMMARY



**Location:** City of Malibu, Malibu Civic Center  
**Address:** 23825 Stuart Ranch Rd.  
Malibu, CA 90265  
**Purpose:** Bi-Monthly Meeting  
**Date and Time:** August 11, 2015 from 11:30 a.m. – 1:30 p.m.  
**Distribution:** Los Angeles WaterReuse Association Chapter Members

### **Lunch: Sponsored by RMC Water and Environment**

Below is a summary of highlights from the August 2015, bimonthly member meeting of the LA Chapter of the WaterReuse Association.

#### **1) Venue host presentation: Legacy Park Stormwater Reuse Project (*Bob Brager*)**

Bob Brager, the Public Works Director of the City of Malibu, presented on the Legacy Park Stormwater Reuse Project that is located near Pacific Coast Highway on about 17 acres of land. The project was constructed to protect the local water resources (beach and lagoon) from stormwater impacts by managing runoff from 337 acres of the watershed to meet total maximum daily limits and microbiological limits for total coliform bacteria, fecal coliform bacteria, *E. coli* and enterococcus.

Stormwater previously entered a stormwater collection channel and flowed to Malibu Creek and then the beach. Now, stormwater is captured by the Legacy Park Stormwater Reuse Project, which directs the flow through a sedimentation basin and pond before it enters a treatment facility. Large solids are removed by the sedimentation basin and the water is captured in the pond, which has a capacity of 8 acre-feet. The water from the pond is sent to the treatment facility at a flow rate of 3 ft<sup>3</sup>/sec.

The treatment facility uses media filtration, ozonation, and granular activated carbon to treat the water to Title 22 standards before it is pumped back to the park for irrigation. The system was sized using long-term flow simulation. Excess water not needed for irrigation is sent back to the pond. Water quality data has shown the project meets stormwater total maximum daily load requirements.

Legacy Park features six endangered habitats: vernal pools, woodland, coastal prairie, wet meadow, coastal bluff, and riparian. Educational elements, including an outdoor classroom, are included in the park, as are 1.5 miles of pathways and outlooks.

Total design and construction costs were \$16M, and about \$13M of that was paid for with grants and donations.

Questions:

- What are the operations and maintenance challenges with the park?
  - Park maintenance, which is handled by Parks and Recreation, is challenging. Solids that collect in the forebay must be removed, the filter media in the carbon filter must be replaced, and pumps must be maintained. There are power costs associated with the continuous circulation of the water through the system. Weed abatement was a challenge in the beginning and requires ongoing attention.

*Bob's presentation can be found on the LA Chapter WaterReuse website\*.*

**2) Sponsor presentation: The Protection of Highly Valued Water Resources Impacted by Groundwater-Surface Water Interconnections through Maximized Recycled Water Reuse (Steve Clary)**

RMC worked on a project with the City of Malibu to develop a centralized wastewater system to replace septic systems. The impetus for the project was to protect Surfrider Beach and Malibu Lagoon and to comply with requirements of the Los Angeles Regional Water Quality Control Board. The project also needed to provide an acceptable solution to the community and non-government organizations that protected public health, maximized water reuse and did not have an ocean outfall.

The project has three phases, with Phase 1 scheduled to be operational by June 2017, Phase 2 operation by November 2022 and Phase 3 operation by November 2025. Phase 1 includes commercial areas, Phase 2 expands into residential areas, and Phase 3 includes additional residential areas, although it might not be necessary if monitoring after Phases 1 and 2 show significant improvements.

The centralized wastewater system includes a collection system, a treatment facility using membrane bioreactor (MBR) technology to provide high quality product water that is suitable to well injection, treated water storage and a purple pipe distribution system. The injection wells can accommodate the entire flow, if necessary, but the goal is to reuse as much of the water as possible. Percolation ponds at Winter Canyon are another possible destination for the treated water.

The water reuse potential of every parcel of land in the city was evaluated for this project. The recycle potential rises from 25% in Phase 1 to 50% in Phase 3 because the extent of the distribution system will increase and access areas require more irrigation.

The new wastewater treatment facility will be located on Civic Center Way and will include denitrification to protect the groundwater, an ultraviolet (UV) light system for disinfection, and chlorine residual to prevent biogrowth in the distribution system. All properties within each phase of the project will have access to Title 22 water, but the property owners will

have to bring it onto their property. The Division of Drinking Water (DDW) granted approval to locate the recycled water mains in the same trench as the sewers, thereby reducing construction costs. When used, the well will inject the water into a 60,000 year old buried stream bed. Groundwater modeling has shown this injection site will protect the lagoon from potential contamination.

#### Questions

- What was the separation requirement between the sewer and the Title 22 pipe?
  - Not sure if the separation was 2 ft or 6 ft, but HDPE is being used on all wastewater pipes so there are no joints, which reduces the chance of leakage.
- Will the reuse water be used for anything other than irrigation?
  - It is Title 22 unrestricted water that will be used mostly for irrigation. Industrial uses are possible, such as a large laboratory that might use the water to feed cooling towers.
- Could the percentages of recycled water use estimates fluctuate?
  - Yes
- What are the flows for Phases 1, 2 and 3
  - Phase 1 = 191,000 gpd, Phase 2 = 361,000 gpd, and Phase 3 = 507,000 gpd
- How will the solids from the MBR be handled?
  - Solids will be thickened and transported to the City of Los Angeles' Hyperion Treatment Plant or to Las Virgenes Municipal Water District via trucks. Total truck trips from Malibu will be reduced significantly because there will be fewer truck trips required for draining septic tanks.
- What is the schedule for the project?
  - Phase 1 will be operational by June 2017. Bids are due at the end of August and construction will start in December.
- Where is sewage being collected?
  - Customers must connect through a sampling manhole that can be used to detect salt inputs from softeners due to concerns about brackish groundwater inputs. If a customer connects to the sewer system, that customer will need to demonstrate that their piping connection to the sewer system is bottle-tight.

*Steve's presentation can be found on the LA Chapter WaterReuse website\*.*

### 3) Water Recycling Legislative/Regulatory Updates (Raymond Jay)

- Upcoming legislative dates:
  - August 17 - Legislature reconvenes from recess
  - August 28 - Last day for fiscal committees to meet and report bills
  - September 11 - Last day for any bill to be passed
  - October 11 - Last day for Governor to sign or veto bills passed by legislature
- 2015 recycled water legislation being considered:
  - SB 471 - Water/energy bill that would allow a recycled water project to apply greenhouse gas reductions to the project

- AB 606 – Requires General Services and CalTrans to consider recycled water on their properties
- AB 888 – Reduces plastic microbeads in cosmetics and other products
- AB 954 – Creates a \$10M loan program to provide low interest financing to homeowners for conservation and recycled water projects
- AB 1173 – Ensure there are appropriate criteria for backflow prevention certification
- AB 1463 – Establish requirements for the use of on-site recycled water. The WateReuse Association is not supportive of using purple pipe for graywater and other water sources included in this bill.
- National legislation
  - California Emergency Drought Relief Act of 2015
    - Authorize \$1.6B over 10 years, including \$200M for Title XVI grants. Feasibility studies are required to request funding but there is no requirement for Congressional authorization. Would be administered by the Department of the Interior
    - Reauthorize Desalination Act and authorize \$50M
    - Authorize an additional \$100M for WaterSMART, which can be used for recycled water projects that are too small for Title XVI.
  - HR 2983 – Establish national water recycling program. Authorize \$500M for each fiscal year from 2016 to 2020. Would be administered by EPA and would be available to all states.
  - HR 1278 – Establish a grant program for water systems and authorize \$50M for each fiscal year from 2016 to 2020.
- Recycled Water General Permit
  - State Board is looking to revise the permit, which can be used for non-potable projects other than groundwater recharge.
  - There have been few users of the general permit because it may have more restrictions than some parts of the individual permit, reporting and monitoring requirements are significant, and consultation with the Regional Board is required to add new users.
  - The next meeting is scheduled for August 24, 2015.
- Title 17 and 22 changes
  - DDW is not ready for Title 17 changes but is open to non-controversial changes to Title 22.
  - DDW has a heavy workload, other high priorities, and limited staff.
  - WateReuse continues to work on these issues with DDW

*Raymond's presentation can be found on the LA Chapter WateReuse website\*.*

#### 4) Regulatory Agency Update:

Los Angeles County Department of Public Health (*Robert Bueras*)

- There are many construction projects being pushed through right now and the Los Angeles County Department of Public Health (LACDPH) wants to facilitate communication and frontload problems. Suggestions include having meetings with

LACDPH during the conceptual phase before plans are developed, meeting with water purveyors and city engineers, including LACDPH guidelines and names of relevant LACDPH personnel in project plans, and maintaining communication during the project as problems arise. LACDPH wants to be proactive about solving problems and does not want to slow projects. A preconstruction meeting with the contractor and LACDPH can help make sure the guidelines are understood.

- Before pipes are covered, call for a pipeline ID check because LACDPH needs to see all pipes before they are no longer visible. This allows them to see problems in the field that might not have been evident on the plans. If there is a cross-connection, it can take a long time to fix.
- There needs to be a meeting with the closing contractor that is brought onsite after the original contractor leaves to make sure they know the status of the project and LACDPH guidelines. This does not have to be a major meeting. Only 15 to 20 minutes at the project site with plans in hand should be sufficient.
- Please reach out to LACDPH by email, phone, or any other means if there are questions.

State Water Resources Control Board/Division of Drinking Water (*Kun Cheng*)

- Updated recycled water regulations
  - Cemeteries can now use hose bibs if the recycled water is treated to Title 22 standards and appropriate signage is provided.

#### **5) California State Section Update (*Monica Gasca*)**

- Board meeting on Friday
- CA conference in Santa Rosa in 2016
  - Let Monica know if you want to volunteer
- National conference is in Seattle in September

#### **6) Chapter Updates**

- June 2015 meeting notes approved by unanimous voice vote.

#### **7) Focus Areas**

- Funding Opportunities (*Judi Miller*)
  - See the handout prepared by John Robinson and distributed at this meeting.
    - Prop O funding can be found on page 2 of the handout.
  - There are many funding opportunities but utilities need to apply for them.

*John's handout can be found on the LA Chapter WaterReuse website\*.*

#### **8) Other Topics**

- Industrial Reuse Committee (*Elise Goldman*)
  - Some papers from Industrial Reuse Conference will be used in webinars.

- The location of the 2016 conference is undecided, but volunteer opportunities are available.

## 9) **Technical Topics:** IPR and DPR Technologies (*Fred Gerringer*)

Indirect potable reuse (IPR) and direct potable reuse (DPR) treatment includes many types of technologies, including secondary processes, filtration, oxidation/disinfection, and environmental buffers. This presentation limited its discussion to microfiltration/ultrafiltration (MF/UF), reverse osmosis (RO) membranes and advanced oxidation process (AOP).

Hollow-fiber MF/UF systems can be submerged in tanks or pressurized inside vessels. Some membrane suppliers provide proprietary systems that include membrane modules, membrane racks, supporting equipment, and a control system. Other membrane suppliers only provide the membrane modules, and a system integrator or original equipment manufacturer (OEM) provides the remaining components for a complete membrane system. This approach is similar to how RO membrane elements and RO membrane systems are supplied.

Non-proprietary, OEM-supplied MF/UF systems can be designed to accept only one module or they can be universal, meaning they can accept more than one type of MF/UF module with minimal modifications. The advantages of proprietary systems are the optimization of the system design around one type of membrane and the clarity regarding the responsible party for warranty issues. The advantages of non-proprietary systems are the ability to purchase membrane modules and the membrane system separately, typically lower capital costs and the potential for competitive bidding for future MF/UF module purchases. The preferred approach typically depends upon the priorities of a particular user.

RO membranes are known for their excellent chemical rejection of constituents including dissolved solids, trace organic contaminants and total organic carbon (TOC). However, pathogen removal credits are typically limited to 1 to 2 log removal because California regulations require continuous monitoring. This requirement can only be satisfied by online instruments such as conductivity meters or TOC analyzers. There is a lot of research investigating how to demonstrate higher pathogen removal. One such project is WRRF 09-06b-1 (Frenkel and Cohen), which has shown pulsed fluorescent markers could demonstrate 4 or higher log removal when added to the RO feed.

Another innovative development with RO membranes is Desalitech's patented approach to RO system operation. Closed-circuit desalination operates the RO system in a batch mode interspersed with periodic flushing of the RO system with RO feed water. With this approach, it might be possible to operate the RO system at higher water recoveries than traditional RO systems. It is important to note antiscalant and/or sulfuric acid addition is typically still required for RO systems using closed-circuit desalination.

In water reuse applications, AOP has typically included hydrogen peroxide addition followed by UV to form highly reactive hydroxyl radicals. Recent studies have investigated the use of sodium hypochlorite as an alternative oxidant for hydroxyl radical formation. Results of this research indicate UV with sodium hypochlorite might provide treatment at a lower cost than the traditional approach of UV with hydrogen peroxide.

*Fred's presentation can be found on the LA Chapter WaterReuse website\*.*

**10) Membership Roundtable (Kraig Erickson)**

- No discussion

**Los Angeles Chapter Officers for 2015**

Raymond Jay, President	213-217-5777	rjay@mwdh2o.com
Kraig Erickson, Vice President	805-550-5232	kerickson@rmcwater.com
Judi Miller, Secretary/Treasurer	213-228-8236	judi.miller@ch2m.com
Monica Gasca, Chapter Trustee	562-908-4288 x2838	mgasca@lacs.org
John Robinson, Past-President	626-375-9389	jrobinson@johnrobinsonconsulting.com

\* The presentations from this meeting can be found at:

<http://www.watereuse.org/sections/california/losangeles/meetings>

**Meeting Attendees**

Member	Organization
Bob Brager	City of Malibu
Bose Dafeta	City of Los Angeles/Bureau of Sanitation
Carlos Aguilar	Sequia Technologies
Chris Saenz	Valencia Water Company
Dawn Taffler	Kennedy/Jenks Consultants
Denise Chow	City of Los Angeles, Wastewater Engineering Services Div.
Dmitriy Ginzberg	State Water Resources Control Board, Division of Drinking Water
Dusty Moisio	Rowland Water District
Earle Hartling	Sanitation Districts of Los Angeles County
Elise Goldman	West Basin Municipal Water District
Eric Wood	Los Angeles County Dept. of Public Health
Fred Gerringier	Trussell Technologies
Gary Roephe	Cannon
Jared Lee	City of Burbank
Jason Yim	Castaic Lake Water Agency
Jocelyn Carrillo	Los Angeles/Bureau of Sanitation
Joe Walters	West Basin MWD
John Lockett	Los Angeles Dept. of Water and Power
Judi Miller	CH2M HILL
Kraig Erickson	RMC Water and Environment

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Kun Cheng	State Water Resources Control Board, Division of Drinking Water
Matt Elsner	Burbank Water and Power
Mike Agbodo	Black & Veatch
Mohammad Fatemi	City of Thousand Oaks
Monica Gasca	Sanitation Districts of Los Angeles County
Nataly Dakak	City of Los Angeles, Industrial Waste Management Div.
Paul Halushka	Castaic Lake Water Agency
Paul Tinhpheng	Kennedy/Jenks Consultants
Quang Ly	Los Angeles County Dept. of Public Health
Ray Mokhtari	Metropolitan Water District of So. Calif.
Raymond Jay	Metropolitan Water District of So. Calif.
Reymundo Trejo	Upper San Gabriel Valley MWD
Rita Kampalath	Heal the Bay
Robert Bueras	Los Angeles County Dept. of Public Health
Saba Saeed	Valencia Water Company
Shadi Bader	Burbank Water and Power
Sharona Sokolow	UCLA
Shieva Taat	Los Angeles/Bureau of Sanitation
Sunny Wang	Brown and Caldwell
Thierry Rivard	TreePeople

*TOTAL ATTENDEES:* 39