

LOS ANGELES CHAPTER WATERREUSE CALIFORNIA

Chapter Newsletter

FEBRUARY 2014

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**NEXT
MEETING**

Tuesday
February 11
11:30 a.m.

LOCATION:

**Las Virgenes Municipal
Water District**
4232 Las Virgenes Road
Calabasas, CA 92302

Lunch sponsored by RMC
Water and Environment

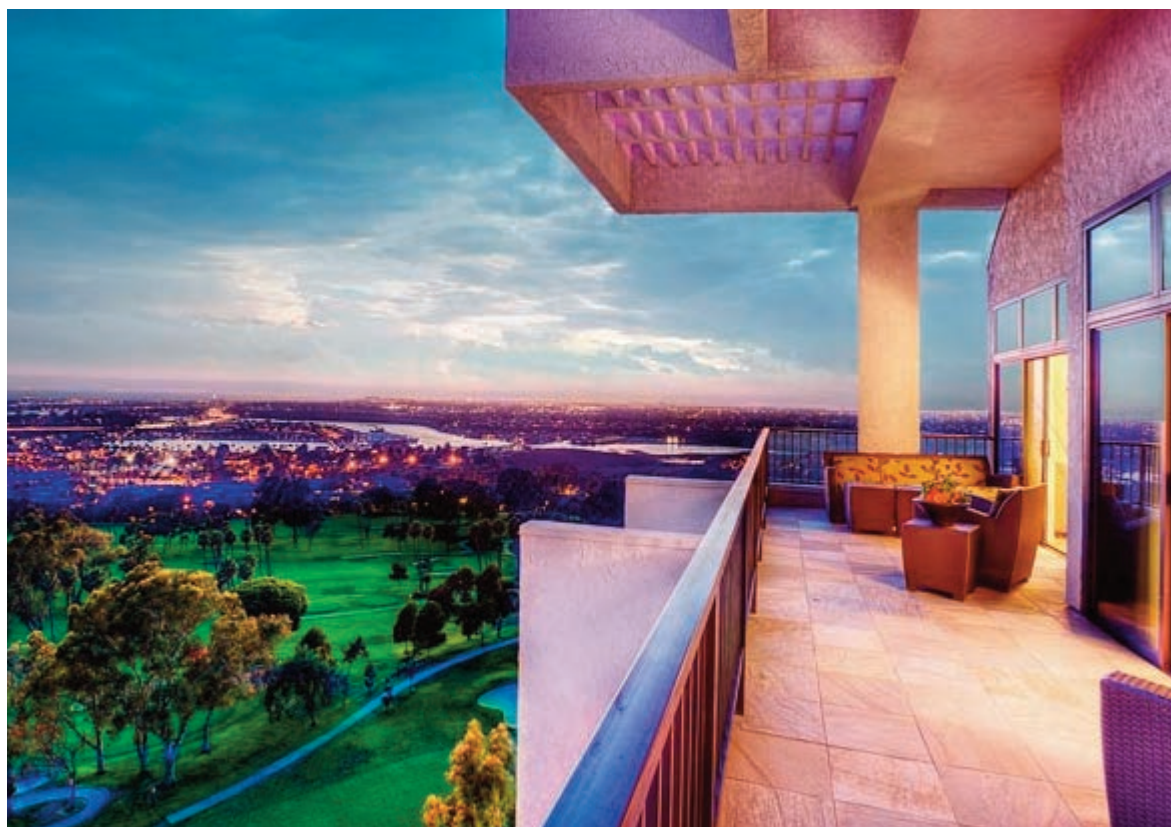
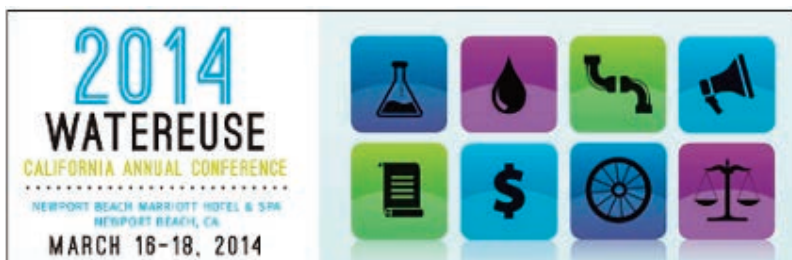
2014 WaterReuse California Annual Conference

The WaterReuse California Annual Conference is the premier statewide conference devoted to sustaining supplies through water recycling and desalination. The conference is designed for individuals, organizations, and agencies that are associated with or interested in the design, management, operation, and use of water recycling and desalination facilities and project in California.

Join WaterReuse March 16-18, 2014 at the Newport Beach Marriott in Newport, Beach, CA for a great conference!

The conference will feature technical presentations, educational workshops, a technical tour, receptions, an awards luncheon, the annual Gordon Cologne Breakfast, a plenary session about direct potable reuse, and the popular exhibition component.

March 16-18, 2014
Newport Beach Marriott Hotel
Newport Beach, CA
For more information on workshop agenda and to register for the event go to watereuse.org/conferences/california/14



President's Column

“

I want to thank the Los Angeles Chapter members for their continued support. 2013 was a productive year thanks to you and the LA Chapter Officers. The LA Chapter held meetings at new locations, hosted the Managing Director of California WaterReuse, and provided updates on funding opportunities, groundwater replenishment regulations, industrial reuse, legislation, plumbing codes, public health, and other important topics. The Chapter was strongly represented through many great presentations at state conferences, the newsletter, our webpage, and other meetings.

2014 is gearing up to be a challenging water year as indicated by the Governor's drought declaration due to record low rainfall. Many water agencies are going to be more dependent on recycled water



and conservation to meet water demands. Although this is a challenge, it is also an opportunity for the water community to expand recycled water use. I anticipate several significant issues being resolved in 2014 including the potential move of CDPH's Drinking Water Program to the SWRCB, adoption of new groundwater replenishment regulations, and an amended water bond for the November ballot.

Our Chapter's mission to expand recycled water and educate the public is as important today as when it was established. I want to give a special thanks to our newly re-elected Chapter Officers for their continued commitment to expand recycled water and engage members of the public.

I look forward to working with all of you to advance the safe use of recycled water.

— Raymond Jay

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Spotlight: Las Virgenes Municipal Water District

Las Virgenes Municipal Water District (LVMWD) was a pioneering agency in using recycled water as a valued resource.

In 1972, LVMWD replaced some of its imported potable water with recycled water from the Tapia Water Reclamation Facility to be used for irrigating golf courses, parks, school grounds, highway landscapes and common areas of certain housing developments. Today, 20% of water served by LVMWD is tertiary-treated recycled water used for irrigation, reducing the region's dependence upon imported water. LVMWD's recycled water system consists of four tanks, five pumping stations, three reservoirs and 66 miles of pipeline.

Water recycling has been a great success in the watershed. During peak summer demand, every drop of the 9-million gallons of recycled water available daily is used to irrigate public landscapes. In 1997, this achievement became a mandate as a result of environmental regulations

that prohibit recycled water from flowing to Malibu Creek from April 15 to November 15 each year.

Complementing the production of recycled water is the transformation of the biosolids by-product of wastewater treatment at the Tapia Water Reclamation Facility into Class A compost. The Tapia Water Reclamation Facility is operated in partnership with Triunfo Sanitation District, its counterpart in Ventura County, as a Joint Powers Authority (JPA).

4232 Las Virgenes Rd,
Calabasas, CA 91302
(818) 251-2100
www.lvmwd.com

Recycled water pump station



Tapia Water Reclamation Facility



District headquarters campus irrigated by recycled water

Earle Hartling
is the Water
Recycling
Coordinator
for the
Sanitation
Districts of Los Angeles
County, and has been
involved with water reuse
for 32 years and counting.
Ask your questions before
it's too late!



Ask the Guru

Question: *Can recycled water be dual-plumbed into hospitals, and can it be used for the hospital laundry?*
- Doctor Feelgood

Dear Doc,

While I think that hospitals would technically qualify for dual-plumbing under the Title 22 Water Recycling Criteria, I believe this particular application would have numerous practical hurdles.

First would be the enormous potential for cross-connections. Unlike an office building with discreet and limited restroom facilities which can be readily isolated both during construction and for the initial and mandatory follow-up cross-connection shut-down tests every 4 years, hospitals have bathrooms in almost every patient's room. Not only would it be extremely difficult to keep track of all the recycled and potable plumbing during construction, but shutting down the entire facility for a cross-connection test would be virtually im-



source of any post-op infections, mystery illnesses and so on, which could potentially expose the hospital to more litigation than it might normally get. This is not to say that recycled water would or could be the source (of course not!); however, I can see how it could most likely get stuck with the blame.

External use for landscape irrigation and for cooling towers (with no mist that might drift towards staff, patients or visitors) would be a more economical, efficient and practical use of recycled water in a hospital or health care setting.

possible once the hospital is placed in operation.

Furthermore, under current L.A. County Health Department policy, dual-plumbed facilities that must remain in operation 24/7 (not only hospitals, but also airport terminals, prisons, etc.) must have an on-site reservoir for the recycled water used for toilets that is also equipped with an air-gapped potable backup supply (which adds significant costs to construction).

Second would be the perception issue. Sick people in proximity with treated recycled water may open questions as to the

While I don't have personal knowledge of how a hospital laundry operates, I have to believe that such facilities must utilize something in the laundry process (high temperature wash and dry, soap and disinfectants) to insure that the infectious agents carried by the last users of the hospital linen aren't transmitted to the next set of users. Therefore, our virtually pathogen-free tertiary effluent would also be exposed to this disinfecting process, making it that much less likely to be a health issue for hospital patients.

Legionella is a specific concern in hospital settings. As you know *Legionella spp.* are endemic to nearly all water supplies and, for the most part, do not cause illness; it is the *Legionella pneumophila* that is the causative agent of Legionnaire's Disease, and it is promoted by warm (not hot) water. The disease is transmitted via aerosols and not by contact with heat dried bed linens or person-to-person (per Center for Disease Control).

I believe it is safe to assume that the hospital laundry facilities are not located near the patient care areas, so the hospital patients would not be exposed to water aerosols from the laundry facilities.

Therefore, our virtually pathogen-free tertiary effluent would also be exposed to this disinfecting process, making it that much less likely to be a health issue for hospital patients.

Now, the subject of washing hospital linen with recycled water becomes more interesting. As you know, Title 22 allows for tertiary treated recycled water to be used in commercial laundries. But what about health concerns with patients having contact with linen washed with recycled water? For me this becomes much less of an issue when one considers that the towels, bedding, gowns, etc. that are going through the hospital laundry have already had very intimate contact with **SICK PEOPLE!**



Direct Potable Reuse – Development of Public Health Criteria and Treatment Train Evaluation

By Fred Gerringer, D.Env, P.E., BCEE
Trussell Technologies, Inc

Across the U.S. and the world, uncertain water supplies and increasing demand are motivating water utilities to move forward on potable water reuse projects. Most existing potable reuse projects practice indirect potable reuse (IPR), which requires an environmental buffer, such as an aquifer or reservoir, to provide additional contaminant reduction and response times if process upsets occur. Research has shown IPR treatment can provide a safe, alternative supply of potable water. If designed properly, direct potable reuse (DPR) can offer a number of advantages by replacing the environmental buffer of IPR with an engineered buffer while still protecting public health. However, more research is needed to advance DPR as an acceptable alternative to IPR.

The WaterReuse Research Foundation project entitled Equivalency of Advanced Treatment Trains for Potable Reuse (WRRF 11-02) is researching many areas of interest for DPR. The objectives of this project include summarizing the state of the science for potable reuse, developing recommendations for public health criteria for DPR, producing a computer model that simulates the product water quality of integrated IPR and DPR treatment trains, and evaluating the technical feasibility of several pilot-scale DPR treatment trains. The state of the science and public health criteria reports can be downloaded for free from WaterReuse Association's website.

The focus of the public health criteria was to establish requirements for DPR that would provide the same level of public health protection from chemical and microbiological contaminants as IPR and drinking water. These criteria were developed using ex-

isting requirements for IPR, drinking water standards, and input from a National Water Research Institute Independent Advisory Panel. Microbiological requirements included minimum criteria of 12-log inactivation for enteric virus, 10-log inactivation for *Cryptosporidium*, and 9-log inactivation for total coliform bacteria. Any single unit process was limited to a maximum inactivation of 6 logs. Chemical criteria required compliance with all drinking water standards, such as maximum contaminant limits for disinfection byproducts, as well as demonstrating a level of trace organic contaminant removal that is typically achieved by an advanced oxidation process using ultraviolet light and hydrogen peroxide (UV/H₂O₂).

The computer model, or toolbox, will be publically available upon completion and will allow the user to specify influent water quality, configure treatment trains using multiple unit processes, and evaluate how well those treatment trains satisfy the public health criteria. Unit processes available for selection include microfiltration (MF), ultrafiltration (UF), reverse osmosis (RO), UV/H₂O₂, ozonation (O₃), biological activated carbon (BAC), and free chlorine disinfection (Cl₂). An early version of the toolbox was used to help screen potential DPR treatment trains for pilot-scale validation testing at Los Angeles County Sanitation Districts' San Jose Creek Water Reclamation Plant in Whittier, California.

The pilot-scale treatment trains will be fed unfiltered secondary effluent from a conventional activated sludge process. The six treatment train configurations being tested are listed here: MF-RO-UV/H₂O₂-Cl₂

O₃-MF-RO-UV/H₂O₂
UF-O₃-BAC-UV
O₃-BAC-UF-UV
MF-O₃-BAC-UV
O₃-BAC-MF-UV

The first two treatment trains are based on the proven approach to IPR treatment taken by West Basin Municipal Water District and Orange County Water District. Cl₂ or O₃ are added to achieve the additional virus disinfection required by the microbiological requirements. The remaining treatment trains investigate treatment options that avoid RO, which is energy intensive and produces a significant flow of concentrate that requires disposal.

Preliminary results have indicated these treatment trains can satisfy the chemical criteria if designed properly. More analysis of the microbiological data is required to evaluate compliance with those criteria, but initial results appear promising. Operations data have shown the order of unit processes has minimal effect on satisfying the public health criteria but can significantly affect the performance of those processes. For example, UF performs much better after O₃-BAC, which could have a significant effect on full-scale designs, capital costs and operation and maintenance costs.

Data from the pilot study will help determine the ability of the treatment trains to satisfy the public health criteria and help identify critical issues needing further attention before the full-scale implementation of DPR. Overall, this project should help advance the acceptance of DPR and move it closer to being another tool available to water agencies for addressing current and future water supply challenges.



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GOT NEWS?

We're always looking for interesting stories and informational articles to keep our members up to speed on all that's happening in water reuse and reclamation. Email articles or ideas to Matthew Elsner (melsner@ci.burbank.ca.us) or Shelah Riggs (sriggs@dudek.com)

WaterReuse Association: www.watereuse.org/sections/california/losangeles

NEWSLETTER DESIGN BY **DUDEK**