

## Our Mission

The San Diego Chapter of the WaterReuse Association provides a forum for the exchange of information to promote the beneficial use of recycled water in the San Diego region.

## SD Chapter Judges Local School Science Fair Projects

Volunteers from the San Diego Chapter gathered at the Balboa Park Activity Center on Wednesday, March 20, 2013, to judge science projects related to recycled water, desalination, and water quality at the Greater San Diego Science and Engineering Fair (GSDSEF). For the past 59 years, the GSDSEF has promoted scientific literacy and interest in the fields of science and engineering to the students of San Diego and Imperial Counties. Future engineers and scientists from grades 7-12 presented their project display boards and notebooks, which were judged based on creativeness, scientific thought, thoroughness, skill, and clarity. Each year over 100 professional organizations, including WaterReuse, participate in the judging. The San Diego Chapter would like to thank those



Front Row (left to right): Karen Svet, Maria Mariscal, Jamie Fagnant Back Row (left to right): Mike Wykosky, Emily Davis, Harold Bailey, Scott Lacy

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## WaterReuse San Diego Spreads the Word at Earth Fair

Many thanks to the volunteers who helped staff the WaterReuse San Diego Chapter at the Earth Fair on April 21, 2013. The weather was perfect, and our booth, once again in a prime location in front of the reflecting pond was a hit! At times there was a line-up of people waiting to take our 'quiz' and receive a purple grocery bag tote. Wendie James of Carollo Engineers was instrumental in starting our new quiz, likely to become a WaterReuse Earth Fair tradition! This really drew people in and got the conversation started. Many more people in San Diego now know what purple pipe stands for, that most of our water is imported from the Colorado River, and that recycled water is a key element in reducing our dependence on imported water.

Elmer Alex, of the City of Vista, staffed a tough morning slot. It seemed all the hard questions were posed in the morning hours and Elmer was well equipped to handle them all. Tom Bloomer, of DN Tanks staffed the mid-day slot with Wendie, the two of them deftly handling the thick mid-day crowds. Karen Svet tackled the late afternoon slot and helped Jamie Fagnant, of IEC, break down the display and make the long trek out of the park.

Thanks again to all who helped make our Earth Fair outreach effort a success!

-Article contributed by Jamie Fagnant, IEC

## Meeting Announcements

### NEXT MEETING:

May 8, 2013 9:00am-11:00am  
Location: San Diego County  
Water Authority Board Room  
4677 Overland Ave.  
San Diego, CA 92123

### AUGUST MEETING:

August 14, 2013 9:00am-11:00am  
Location: TBA

## SD Chapter Judges Local School Science Fair Projects Continued

who participated in this year's GSDSEF event for volunteering. This year's judges included Mike Wykosky, Emily Davis, Harold Bailey, Scott Lacy, Karen Svet, Maria Mariscal, Jamie Fagnant, Mike Wykosky, Emily Davis, and Harold Bailey. Karen Svet and Mike Wykosky volunteered additional time to narrow the complete list, which included almost seven hundred projects, down to those projects that related to recycled water, desalination, and water quality. The award-

winning students will be attending the upcoming May chapter meeting to display their exhibits and discuss their projects with chapter members. If you are interested in judging at next year's GSDSEF event, please contact Mike Wykosky at [mikewykosky@gmail.com](mailto:mikewykosky@gmail.com).

*- Article contributed by Mike Wykosky, WateReuse SD Director of Public Outreach*

## 2013 Annual Conference Recap

WateReuse held their Annual Conference in Monterey, California on March 17-19. Around 367 people attended the conference which was held at the Portola Hotel and Spa. The conference included sessions on indirect potable reuse, public outreach, reuse planning, salinity and nutrient management plans, desalination, agricultural reuse, energy efficiency, contaminants of emerging concern, regulatory affairs, and direct potable reuse.

Monterey offered attendees technical tours of the Monterey Bay Aquarium, Carmel Area Wastewater District's and Pebble Beach Community Services District's recycled water facilities, not to mention workshops on public acceptance as well as salt and nutrient management.



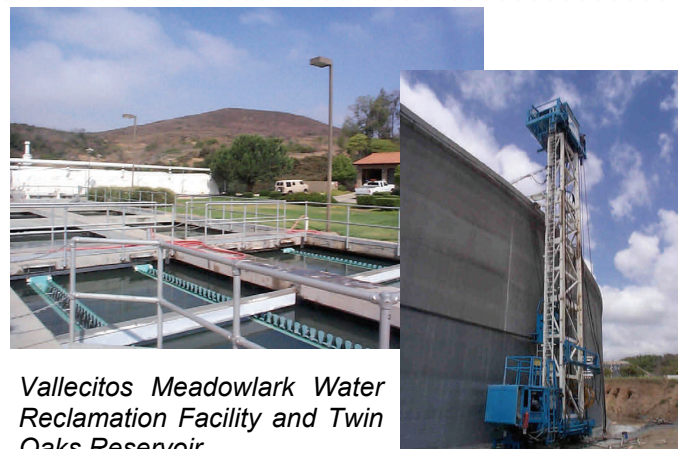
Did you miss the conference? The conference will be held a little closer to home next year, Orange County. Mark your calendars for March 16-18, 2014: Newport Beach Marriott Hotel & Spa.

*-Article contributed by Lisa Knox, Dudek*

## Vallecitos Earns Recycled Water Community/Public Education Program of Year

Vallecitos – your award-winning water and sewer service provider - has to make space on its wall for another accolade: 2013 Recycled Water Community/Public Education Program of the Year.

Prevailing through many worthy challengers from public agencies throughout the state, Vallecitos Water District's new "Water Academy" program earned this prestigious distinction from the WateReuse Association California Section, a nonprofit trade association whose mission is to advance the beneficial uses of high-quality, locally produced, sustainable water sources for the betterment of society and the environment.



*Vallecitos Meadowlark Water Reclamation Facility and Twin Oaks Reservoir*

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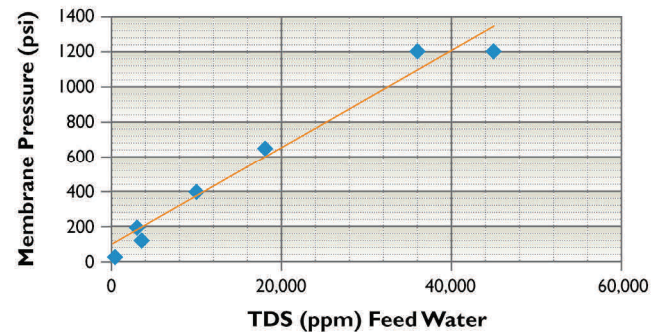
## Direct Ocean Repurification

### Marrying Ocean Desalination and Direct Potable Reuse Can Tap Abundant, Reliable Supply

Ocean desalination and direct potable reuse (DPR), or repurification of wastewater, represent two significant and relatively untapped sources of abundant, reliable, and drought-proof water supply to meet Southern California's increasing water demands. These two water supplies are approaching economic feasibility and public acceptance; however, both seem just out of reach for the near future. Ocean desal is challenged by energy costs and environmental regulations while DPR is confronted by health regulatory concerns and public acceptance.

A new concept, coined "*Direct Ocean Repurification*," envisions mixing these two sources into one common supply for treatment to help mitigate each supply's economic, regulatory, and perception challenges. This new hybrid supply offers a potential 20%-30% cost reduction compared to ocean desal alone, bringing it approximately to the \$1,000/acre-foot (AF) range and a more competitive price point with the Metropolitan Water District of Southern California's (MWD) rate.

Ocean desal removes salts (on the order of 35,000 ppm TDS) and other constituents, and delivers this supply into the potable water system. Excluding potential environmental issues and its high cost, the consumption of this supply is acceptable to the public. DPR of highly treated wastewater, by comparison, has acceptable costs due to lower energy requirements, but faces both regulatory and "Yuck Factor" challenges.



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## Recycled Water Site Supervisor Training

City of San Diego is offering Recycled Water Site Supervisor Training Certificate. The half day course (8:00am - 12pm) is designed to provide recycled water users in the State of California with the necessary information required to become confident in the operational practices of recycled water. The course is \$60 and includes learning materials and a supervisor identification card.

Upcoming classes are scheduled for:

- June 6, 2013
- July 18, 2013

Please contact Will Curcio for more information, [wcurcio@sandiego.gov](mailto:wcurcio@sandiego.gov) or 619.668.2091

## Vallecitos Earns Recycled Water Community/Public Education Program of Year Continued

District representatives accepted the award on March 18 at the WaterReuse Association's 2013 annual conference.

The organization's awards subcommittee recognized the District's "Water Academy" as an exceptional example of public outreach. The all-day, behind the scenes tour of the Vallecitos Water District features staff presentations covering the District, its projects, and guided, chartered bus tours of the District's award-winning Twin Oaks

Reservoirs and upgraded Meadowlark Water Reclamation Facility.

The Water Academy tour is FREE to all Vallecitos customers. Anybody interested in reserving a spot for our next "Water Academy" should contact Alicia Yerman at (760) 744-0460, ext. 223.

*-Article contributed by Torrey Webb,  
Vallecitos Water District*

## Direct Ocean Repurification Continued

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Treatment approaches for both ocean desal and DPR are very similar with reverse osmosis (RO) at the heart of the treatment train. RO is required to remove salts for desalination and viruses for repurification. Pretreatment, microfiltration (MF) and ultrafiltration (UF) being favored methods, is typically required to reduce organics in the influent stream to minimize fouling of the RO membranes. Disinfection for final treatment is common to both. Combining water repurification with ocean desal will reduce the energy requirements of seawater RO due to significantly lower TDS content of the blend, and may mitigate the “Yuck Factor” and need for a storage buffer due to dilution.

Reliability is very important as we consider the potential disruption of Bay Delta water supply, cutback of Colorado River supply, a major shutdown of MWD’s Diemer Filtration Plant due to earthquakes or terrorism, and future localized droughts. Even with an MWD subsidy, a 65%-plus increase in water supply cost for seawater desal, on the order of \$1,500/AF-\$2,200/AF, is still hard to swallow. However, when is the appropriate time to pay for water reliability? When supplies are plentiful, additional water supply has no value. Upon catastrophic reductions of water supply, new water supply is, well, priceless.

**Direct Ocean Repurification:** Rather than developing ocean desal and DPR independently, it appears that combining these two sources and treating as *Direct Ocean Repurification* can help bring the cost of ocean desal down into a feasible range, and mixing and diluting DPR with seawater may make DPR more, well, palatable.

**TABLE 1: Direct Ocean Repurification (DOR) Cost Comparison**

|                                | SWRO (1)<br>Cost/Acre Foot | DOR<br>Cost/Acre Foot |
|--------------------------------|----------------------------|-----------------------|
| Capital Recovery               | \$570                      | \$570                 |
| Energy                         | \$585                      | \$293                 |
| Membrane Repl                  | \$113                      | \$113                 |
| Maintenance                    | \$98                       | \$98                  |
| Chemicals                      | \$75                       | \$75                  |
| Labor                          | \$60                       | \$60                  |
| Subtotal                       | \$1,500                    | \$1,208               |
| Less MWD Rebate                | (\$250)                    | (\$250)               |
| <b>Net Supply Rate (\$/AF)</b> | <b>\$1,250</b>             | <b>\$958</b>          |

(1) Source: WaterReuse Nov, 2011

Assumes 50-50 blend of supply, similar pretreatment requirements, and 50% reduction of energy cost

The RO treatment process for the *Direct Ocean Repurification* approach requires less pumping and significantly reduces the energy cost by nearly the same ratio that reuse water is blended with source seawater. A 50-50 blend could reduce treatment costs down to the \$1,000/AF range for a 15-20 mgd plant. This offers a 20%-30% savings, is drought-proof, reduces the “Yuck Factor”, and provides dilution to help mitigate CDPH concerns.

By creatively leveraging the independent benefits of ocean desalination and those of direct potable repurification to offset the other’s inherent challenges, the combination may be complimentary and result in a financially feasible approach to expand our water supply today. With regards to regulatory hurdles, *Direct Ocean Repurification* may provide that baby step toward our inevitable water supply future.

-Article contributed by Bob Ohlund,  
Vice President of Dudek

## GOT NEWS??

For more information on submitting articles please email Mike Metts at [mmetts@dudek.com](mailto:mmetts@dudek.com) or Lisa Knox at [lknox@dudek.com](mailto:lknox@dudek.com)

For more information about our local section please visit  
[www.watereuse.org/sections/California/sandiego](http://www.watereuse.org/sections/California/sandiego)

## Our Members

Membership forms are available at [www.watereuse.org/sections/california/sandiego/membership](http://www.watereuse.org/sections/california/sandiego/membership)

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| ARCADIS—Malcom Pirnie                  | Mellano & Company                                  |
| Atkins (formerly PBS&J)                | Olivenhain Municipal Water District                |
| Bailey Environmental Associates, LLC   | Otay Water District                                |
| Black & Veatch Corporation             | Padre Dam Municipal Water District                 |
| Brown & Caldwell                       | RBF Consulting, A Baker Company                    |
| Carollo Engineers                      | RMC Water & Environment                            |
| Carlsbad Municipal Water District      | San Diego County Water Authority                   |
| Chambers Group                         | San Diego Golf Course Superintendent's Association |
| City of Encinitas                      | San Dieguito Water District                        |
| City of Escondido                      | San Elijo Joint Powers Authority                   |
| City of Poway                          | Santa Fe Irrigation District                       |
| City of San Diego                      | Separation Processes, Inc.                         |
| City of Vista                          | Surfrider Foundation                               |
| Coombs-Hopkins                         | TRG & Associates                                   |
| Dudek                                  | Trussell Technologies                              |
| D N Tanks formerly DYK Incorporated    | Vallecitos Water District                          |
| Fallbrook Public Utility District      | Valley Center Municipal Water District             |
| GHD                                    | Water Conservation Technology International        |
| Habitat Restoration Sciences           |  |
| Helix Water District                   |  |
| J-Power USA                            |  |
| Infrastructure Engineering Corporation |  |
| KEH & Associates                       |  |
| Kennedy/Jenks Consultants              |  |
| Katz & Associates                      |  |

## WaterReuse Officers

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|                          |                        |                       |                          |   |                       |
|--------------------------|------------------------|-----------------------|--------------------------|---|-----------------------|
| <b>Elmer Alex, PE</b>    | <i>President</i>       | <i>(760) 726-1340</i> | <b>Mike Thornton, PE</b> | <i>Trustee to WaterReuse California</i>                       | <i>(760) 753-6203</i> |
| <b>Jack Bebee, PE</b>    | <i>President-Elect</i> | <i>(760) 728-1125</i> | <b>Mike Wykosky, PE</b>  | <i>Director of Public Relations &amp; Membership Outreach</i> | <i>(858) 866-0128</i> |
| <b>Chris Trees, PE</b>   | <i>Treasurer</i>       | <i>(760) 753-6203</i> | <b>Mike Metts, PE</b>    | <i>Editor-in-Chief of Chapter Newsletter</i>                  | <i>(760) 479-4111</i> |
| <b>Jamie Fagnant, PE</b> | <i>Secretary</i>       | <i>(858) 413-2400</i> |                          |   |                       |
| <b>Toby Roy, PE</b>      | <i>Past President</i>  | <i>(858) 522-6743</i> |                          |   |                       |

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