

PRESIDENT'S MESSAGE

Melissa Barbosa, P.E.



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Hello ASCE Members,

Fall is here and the weather is finally starting to change. Cheers to all you who just recently took the PE exam, nice job!

This month on November 16th there will be a Happy Hour at the Presidential Lounge at Mission Inn in Riverside at 6 PM. Appetizers are on ASCE!

January 11th through the 14th 2018 there is an ASCE Leadership Conference in Las Vegas, if you never attended I'd highly recommend it. It's my favorite conference! Registration is now open too. There are three sections one for Students in College, there is a Younger Member section called WRYMC and there is a Branch section called WSBL. <http://www.wrymc2018.com/>

Our monthly Branch Board meetings are held on the first Friday of the month at TKE in Riverside and are open to everyone if you would like to join. The Younger Members meetings are held the first Wednesday of the month and are open to everyone as well, so please come along and introduce yourself.

Whether you're interested in monthly luncheons at the Riverside Convention Center, golfing, networking in the profession, technical development, K-12 outreach, community service, social events/happy hours, or sports we have it all, definitely something for you to get involved in.

We have a great year ahead of us! If you have any technical presentations topics or tours you'd like to see please let me know and I'll do my best to make it happen.

Thank you for your continued support and commitment to ASCE.

Sincerely,
Melissa Barbosa, P.E., M.ASCE
ASCE San Bernardino and Riverside Counties
Branch President



Semakau Landfill; The First Off-Shore Landfill



Photo Credit: New York Times

In February 2016, my husband and I were walking out of Gardens by the Bay in Singapore and found a large tent with lots of people milling about the entrance. We walked over to check it out and found that it was a temporary exhibit about the history the development of infrastructure in Singapore over the previous fifty years and culminating ideas for the future development of infrastructure. Being a curious civil engineer in a foreign country, I couldn't believe my luck in finding an exhibit on infrastructure. What a fortuitous find!

We went in a walked through the multi-media displays of history and the small-scale models of ideas for the future infrastructure development. Having worked in the waste industry for the last ten years, I was immediately attracted to the section of solid waste management in the development of future infrastructure. The models showed apartments in the skyscrapers where the little model people dumped their organics into a bin that dropped into an anaerobic digester located in the basement level of the building. Methane was

farmed from the digester for electricity and out came compost from the far end of the digester that was used as fertilizer in gardens built into the sides of the buildings. The idea was interesting to me – handling and reusing waste on site with no transportation or landfill operations.

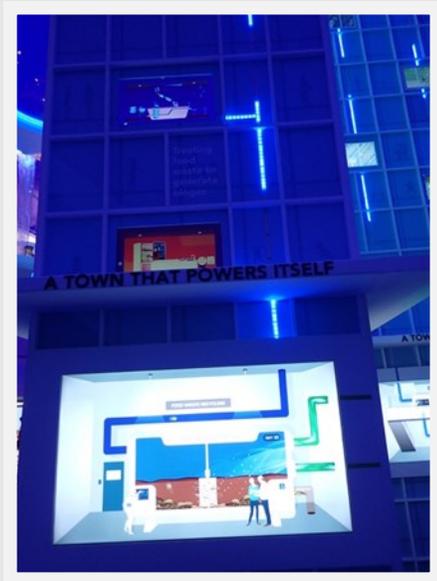


Photo Credit: Sarah Lunetta

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Engineers Column By: Sarah Lunetta

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Recyclables were transported away from the building, but no other waste left. An ideal situation for zero waste.

Looking back at that exhibit now made me curious as to how the Singaporeans currently handle the waste they generate with the small amount of space at their disposal. I started to look into their waste management strategies and was amazed when I found they created an island off the coast to be their landfill. Phase I of the Semakau Landfill consisted of eleven landfill cells and was opened in April 1999. The construction of Phase I of the Semakau Landfill, including the Tuas Marine Transfer Station, took four years to construct and cost \$610 million Singaporean dollars (\$399 million USD). Phase II commenced in January 2014 and was completed in July 2015 for a total cost of \$36 million Singaporean dollars. Both Phases are surrounded by a seven-kilometer (4.3mi) rock bund with an impermeable lining topped with a marine clay layer, creating roughly 350 hectares (864.9 acres) of usable landfill space and 28 million cubic meters (36.6 million cubic yards) of remaining landfill capacity. The Semakau Landfill has roughly the same capacity as the entire Badlands Landfill, past and future, a Riverside County Landfill, as it is currently permitted. However, unlike the Badlands Landfill, which was built into canyons, Semakau was built in the ocean, between two small islands. With all that sea space for landfill capacity, the Semakau Landfill should have enough capacity to last Singapore until 2035.

So how does this sea landfill work? Well, the first step the government has taken is encouraging the three R's: reduction, reuse, and recycle. In 2014, Singapore was able to divert roughly 60% of their waste, which equates to roughly 4.47 million tonnes (4.93 million tons), away from the landfill². However, this left roughly 3.04 million tonnes (3.35 million tons) of waste going to the landfill². After waste is collected from homes and business, it is sent to one of four incinerators and burned to ash. Metal is sifted from the ash and the remaining ash is sent by a three-

hour barge ride to the Semakau Landfill. Excavators remove the ash from the barges, place the ash in a dump truck, and the dump truck follows the road around the bund to the designated dumping site where a floating platform takes the dump truck the remaining distance to the designated dumping area. The platforms are moved around to spread the ash equally over the bottom of the landfill cell and build up the sea floor until the depth of the sea bed is two meters (6.6ft) from the surface. From then on, conventional landfill operations (dozer and compactor) are used.

All water that is contained within the bund is treated at the onsite waste water treatment plant as the water is displaced by the ash and before the water is released



Photo Credit: Qianlyntesis

back into the oceans. Water samples are taken around the landfill and posted on a public website and monitored for any release from the landfill. Interestingly enough, Phase II, which initially served as a lagoon for the island until capacity ran out in Phase I, harbored marine life that was once thought to be extinct.

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Engineers Column By: Sarah Lunetta

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In 2015, when marine biologists were relocating coral reefs and other marine life from the Phase II lagoon to the nearby Sisters' Island in preparation for the landfill cell construction of Phase II, they came across Neptune's Cup Sponge (*Clionea Patara*), once thought to be extinct since 1908. The marine biologists were successful in relocating Neptune's Cup Sponge from Semakau to St. John's Island.

Once the landfill cells are filled, earthen covers are placed on top of the ash and vegetative growth is encouraged. Non-active portions of the landfill serve conservation purposes and regularly see eco-tourists on the island who want to see the wild life. A visitor to the island can walk along the low-tide trail, spotting marine wildlife living off the shores of the landfill island.



Photo Credit: National Environment Agency of Singapore

The Semakau Landfill is truly unique engineering feat and the world's first off-shore landfill site, but it does not solve Singapore's long term waste management issue. When we walked out of the infrastructure exhibit, with a plan for zero waste, it seemed that composting and recycling in one form or another may be the trends the of the future of waste management. I suppose only time will tell. For now, it's good food for thought.

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SAN BERNARDINO-RIVERSIDE BRANCH TECHNICAL TOUR

YUCAIPA VALLEY WATER DISTRICT

September 29, 2017
By: Steven Ledbetter, P.E.

We had the pleasure of touring Yucaipa Valley Water District's (YVWD) Yucaipa Valley Regional Water Filtration Facility (YVRWFF) with their General Manager, Joseph Zoba, and Operations Manager, Michael Kostelecky. The YVRWFF is a 12 mgd surface water treatment facility provides drinking water to over 60,000 residents. Most of YVWD's drinking water supply is from local groundwater sources. However, due to various faults in the area, there are about ten separate subbasins in the area each with different quantity and quality characteristic. Additionally, YVWD relies on State Water Project and local surface water to meet potable water demand. Lastly, YVWD supplements irrigation demands with a separate recycled water system.



Figure 1. Cut away view of a microfiltration filter



Figure 2. Nanofiltration System

In the mid-2000's, regulatory changes by the Water Boards in the Santa Ana Region set groundwater quality limits on Total Dissolved Solids (TDS) and Nitrogen. In response, YVWD invested in adding advanced treatment at both its potable water and wastewater treatment plants and extending the Inland Empire Brine Line up to its facilities for brine disposal. Advanced treatment at its potable water plant, the YVRWFF, focuses on disinfection by-products and TDS. Our YVRWFF tour included a look in at the operations control center, microfiltration and nanofiltration membrane systems (see Figures 1 and 2 above), chemical feed systems and outlet and storage facilities.

What's unique about YVWD and the YVRWFF, is the Recycled Water Fill Station at the plant. After residential customers take a training class, their eligible to use the recycled water filling stations at the YVRWFF to fill their own water containers with up to 300 gallons Title 22 recycled water each day and use it at their home for irrigation purposes. The program has proven successful in encouraging recycled water use with residential customers.

2017 ASCE LA SECTION—INSTALLATION OF OFFICERS AND AWARDS LUNCHEON

October 14, 2017
By: Ibrahim Ibrahim, P.E.



On Saturday, October 14, 2017, the ASCE Los Angeles Section organized the annual awards luncheon. The goal of the event is the presentation of officers for the 2017/2018 LA Section, and the presentation of section level project and candidate awards. The event started with a short presentation about ASCE region 9 and ASCE LA Section. LA Section upcoming officers for the year 2017/2018 were asked to stand for recognition by attendees. By that time, the project and individual awards presentation were about to start. LA Section President Jerry Burke, LA Section Past President Kathereen Shinkai, and LA Section President-Elect Steve King rotated between presenting the awards, handing the award, and taking a picture with the awardee with LA Section ASCE banners. The awards were presented with a one-minute quick presentation about the project or individual award. After that the awardees walked to the stages to receive the awards. The event was a success overall. Thanks for the sponsors, organizers, and attendees for the great event.

ASCE SAN BERNARDINO-RIVERSIDE BRANCH AND YMF JOINT OCTOBER LUNCH SPEAKING EVENT

October 25, 2017
By: Christopher Quach, P.E.



On Wednesday, October 25, 2017 the ASCE San Bernardino / Riverside Branch had their first lunch meeting of the new fiscal year, in cooperation with the local SB/R Younger Member Forum at the Riverside Convention Center in Downtown Riverside. Public speaking is a task that all engineers have faced or will face eventually in their careers. The SB/R Branch and YMF realized how important good public speaking skills are for engineers and sought out Jolene Church, a successful public speaker and Distinguished Toastmaster, to share her thoughts on the essentials of what it takes to communicate effectively. Almost 30 engineers from around the Inland Empire in both the public and private sectors joined us for a lunch and insightful speaking event. Jolene shared with us her steps to outstanding public speaking with an acronym catered especially to engineers, **NOT LAME** which stands for:

Normal – Open – Tempo – Listen – Authentic – Motivate – Eye Contact

In addition to her excellent speaking skills, Jolene kept the group engaged by incorporating a compilation video of bad communication examples and a hands-on activity with audience members illustrating the errors that arise from messages as they are passed from one person to another. She shared her experiences and what she learned from Toastmasters as the hallmarks of effective communication skills. Many people were taking notes and the audience feedback was very positive. It seems that most of engineers gained valuable insight from Jolene to incorporate into their future public speaking activities.

ASCE

LOS ANGELES SECTION

San Bernardino-Riverside
Branch

YOUNGER MEMBER FORUM

A JOINT YMF EVENT

SB/R YMF
INVITES
YOU

NOVEMBER 18, 2017
10:00 AM to 4:00 PM

PAINTBALL

with

ASCE YMF ENGINEERS



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PRICE: \$50 each (\$35 admission & all day air)
(\$15 for paintball gun rental & mask)

CONTACT: Chris Quach, Sb/R YMF President
cquach.pe@gmail.com | (951)214-3128

**REGISTER
HERE**

Hello ASCE Members!

CPP ASCE is excited to share the amazing opportunities within our student chapter for the month of November. Cal Poly Pomona is on the quarter system and began the academic year at the end of September. Nonetheless, we started the year off strong, with our membership reaching just about 200. The month of October flew by quickly and we hosted events including 2 professional development presentations hosted by Kimley-Horn and Griffith Company, CE Bowling Night, CicLAvia volunteering, and events supporting our mentorship program.

November is an exciting month for CPP ASCE as we will be hosting our first ASCE-Week ending with an Alumni Panel at our fourth general meeting. The upcoming events include:

- November 2, 12- 1pm: 3rd General Meeting (Guest Speaker: GEI Consultants)
- November 3, 2- 5pm: MSC Technical Tour hosted by Turner Construction
- November 4- 16, Various Times: ASCE-Week
- November 17, 8am- 2pm: 7th Annual Civil Day
- November 30, 12-1 pm: 5th General Meeting

ASCE-Week Festivities

- November 4, 9am- 1pm: Paint CPP Letters
- November 6, TBD: Member Appreciation Day!
- November 7, 12- 2:30 pm: Day in the Meadow
- November 7, 3- 5pm: Construction Competition
- November 8, 12-2:30pm: Day in the Meadow
- November 9, 5- 7pm: Mentorship Program Activity
- November 9, All Day: CPP Panda Express Fundraiser
- November 16, 12- 1pm: 4th General Meeting (CPP ASCE Alumni Panel)

In addition to all our November events, we have begun the planning for our Professional Development Workshops, Pacific Southwest Conference and other Winter quarter events! The CPP ASCE student chapter is happy to serve our Civil Engineering department and would like to continue to have a strong presence in the community on campus and the San Bernardino and Riverside counties.

Cheers,

Racieli M. Andrada

Civil Engineering Undergraduate

California State Polytechnic University, Pomona

President, Cal Poly Pomona ASCE Chapter, 2017- 2018

E cppascepresident@gmail.com





THE 2018 WRYMC COMMITTEE
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\$75 TICKETS

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3 HOURS OPEN BAR
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DOORS OPEN 6:30 PM
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REFER TO WWW.WRYMC2018.COM FOR MORE INFORMATION

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SATURDAY, JANUARY 13, 2018



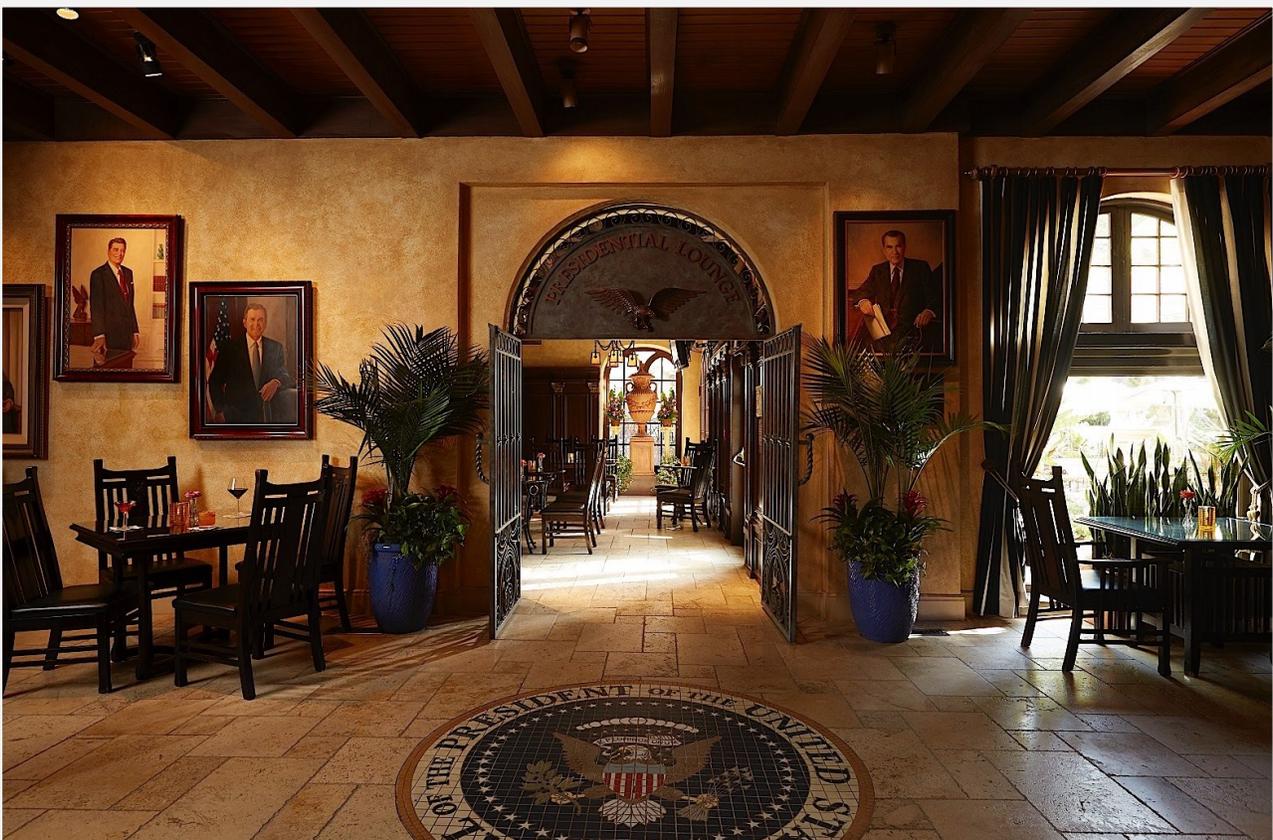
LEARN MORE ON OUR WEBSITE - WWW.WRYMC2018.COM



ASCE Happy Hour & Social Event

Come by the Presidential Lounge at the Mission Inn in Riverside and join us for a pre-holiday time of rest and lively conversation. As the Holidays approach, this will be a perfect time to catch up with old friends and introduce yourself to new ones. We will cheer you up with some delicious food. EVERYONE is invited!

<https://events.r20.constantcontact.com/register/eventReg?oeidk=a07eerpzky3864f86d&oseq=&c=&ch>



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Check out all of the content available from ASCE. When ordering be sure to use the Promo Code below so that the branch will receive 20 percent of the gross revenue from the registration. This helps the branch to reduce member costs, provide better activities and give out more scholarships for the benefit of the local engineering community.

WEBSANBRIBRA

http://www.asce.org/continuing_education/

Employment Opportunities

Be sure to check out the career opportunities at ASCE's Career page at

<http://www.asce-sbriv.org/careers-1.html>

Calendar of Upcoming ASCE Events

- | | |
|----------------------------|--------------------------------------|
| November 2-16, 2017 | ASCE Week in Cal Poly Pomona!!! |
| November 16, 2017 | ASCE Happy Hour and Social Event!!! |
| November 18, 2017 | Paintball with ASCE YMF Engineers!!! |

Membership Information

Types of Membership and Annual Dues (National)

Students: FREE

Associate Member: \$50 per year of Baccalaureate degree and first year after, then incremental increases to \$225 over five years.

Member: \$225

Affiliate: \$225

Section (Branch) Dues: \$55

National ASCE student membership is now FREE! Those who have chapters or clubs still must be a member of them before joining National. Log onto <http://www.asce.org/join/> fill out the short application or call 1-800-548-ASCE (2723) and instantly become a member of ASCE.

Online membership renewal is available! Go to <http://www.asce.org/membership-communities/> You will need your membership number. All payments must be made with a major credit card. An e-receipt is transmitted to the member upon completion of the transaction.

Newsletter Information

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ASCE San Bernardino-Riverside Counties Branch
P.O. Box 1541
Riverside, CA 92502-1541
Typesetting and Layout: Entcho Anguelov, PE

Newsletter Editor:

Entcho Anguelov, PE
entcho.anguelov@webbassociates.com

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