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winter

The TJCAA Quarterly

2018

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Message from the President

TJCAA Welcomes a New Employee!

TJCAA's Business Certifications

- Alameda County Small, Local Emerging Business
- Bay Area Green Business Program
- California DGS SBE
- City of Colton SBE
- City of Los Angeles SBE
- City of Oakland LBE
- Eastern Municipal Water District SBE
- Inland Empire Utilities Agency SBE
- Metropolitan Water District of Southern California SBE
- Sacramento Municipal Utilities District (SMUD) SEED Vendor
- San Diego County Water Authority SBE
- Port of Long Beach SBE
- Port of Oakland LIABE/SBE/VSBE
- PWC Registration—Dept of Industrial Relations (DIR)
- West Basin Municipal Water District SBE

Message from the President, Gianna Zappettini



Photo by Rick Cavanagh

I recently enjoyed a wonderful concert by Jake Shimabukuro, a ukulele master and American composer. His original works were exceptional, and his covers were impressive. My toe was constantly tapping along and the standing ovation at the end was well-deserved. One thing that made me admire Jake for more than his musical talents was his collaboration with his band members, a bassist and guitarist, and his constant praise of their abilities and their contributions to the works performed. He also went out of his way to acknowledge those in his crew, family, and social network who make sharing his passion for music a possibility. As we get close to the last sunset of 2018, I would like to take the opportunity to thank our wonderful staff, friends, and clients who have made it possible for TJCAA to provide exceptional engineering services and to let you know we would like to continue to provide those services in the future. I wish you all happy holidays and nothing but huge successes in 2019. Aloha!

TJCAA Welcomes a New Employee!



TJCAA is pleased to welcome Jing "James" Wu to the team. James has experience in the design of a variety of structures including water and wastewater treatment facilities, pump stations, mixed-use developments, residential units, and schools. He received

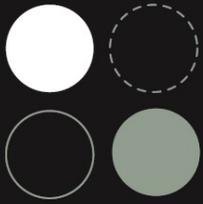
his B.A. in Architecture from the University of California, Berkeley in 2009 and has been involved in many Bay Area projects. He supports our Structural Engineering group by performing calculations, reviewing drawings, and providing engineering services during construction.

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Helping the City of Redding Deliver High-Quality Water in the Aftermath of the Carr Fire

TJCAA and West Yost Associates are helping the City of Redding Public Works Department to fast-track a new pump station and enhance water treatment processes at the Foothill and Buckeye Water Treatment Plants in anticipation of post-Carr Fire impacts on source water quality. The Carr Fire, which burned 229,651 acres in Shasta and Trinity Counties in July and August (fire.ca.gov), devastated the Whiskeytown Lake watershed. The lake, along with the Sacramento River, makes up about two-thirds of the City's supply. Runoff from wildfire-burned areas can result in higher levels of turbidity and organic contaminants in source water, and the City wants to be ready.

How Wildfires Affect Source Water Quality

Wildfires can accelerate surface runoff and increase erosion in watersheds. Soils affected by wildfire can have increased water repellency—a limited ability to retain or absorb water. Burned areas also have vegetation loss and changes in soil moisture and structure that accelerate surface runoff, erosion, and sediment transport. (Barkley 2015 and Ice 2004)

Large-scale natural disturbances such as wildfire can have major impacts on the quality of water that runs off of affected areas. In streams draining burned areas, researchers have identified increased levels of turbidity and dissolved organic carbon and contaminants such as nutrients and heavy metals, when compared to drainage from non-burned areas.

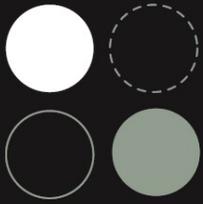
These effects present challenges for water utilities treating the affected source water, and may require increased emphasis on both solids and DOC removal at the treatment plant. (Emelko et al. 2011)



Water providers with vulnerable surface water sources run the risk of service disruptions and may find benefit in planning ahead. In the recent report, "Wildfire Impacts on Drinking Water Treatment Process Performance: Development of Evaluation Protocols and Management Practices" (2018 Water Research Foundation), Authors Amanda Hohner et al. recommend that "utilities under the threat of wildfires consider the treatment implications of this perturbation in their watersheds ... Higher coagulant doses will likely be required, with implications for operations and residual handling. If extreme post-fire erosion conditions occur, coagulation alone may not be effective for meeting turbidity and total organic carbon removal requirements. Expanding water storage capacity and diversifying water sources is also recommended to handle worst-case scenario runoff conditions."

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Redding Acts Fast on Treatment and Supply Solutions

Until now, the City of Redding Public Works Department has had the benefit of being able to treat very low-turbidity source water from the Lake and the Sacramento River. While the City's customers prefer the high-quality potable water produced from these sources, the City also uses groundwater for about one-third of its supply.

Runoff from Carr Fire-affected areas is likely to impair both of the City's surface water sources with very high turbidity or organic contaminants. If that occurs, the City wants the ability to increase its use of groundwater as an alternative source, and to be able to handle the surface water at its Foothill and Buckeye Water Treatment Plants, which until now have not needed an emphasis on solids removal.

TJCAA was retained by West Yost to help the City address these challenges. West Yost, with specialized expertise in water treatment and supply, is leading the effort to address the treatment process changes and additions that the City will need. Terry Cavanagh and Michael Erwin of TJCAA are helping West Yost design a new facility, the Cypress Pump Station, on a fast-track schedule to allow for increased future use of groundwater in service areas currently served by surface water.

Cypress Pump Station Quickly Provides Local and Regional Benefits

The City, together with its neighboring water systems and the California Division of Drinking Water, is working proactively and quickly to address these

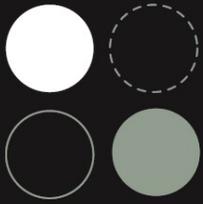
water supply challenges. The focus of the effort is to maintain regional supplies of safe, regulatory-compliant drinking water when the Carr Fire's anticipated impacts make the surface water sources in the region difficult or impractical to treat. The new Cypress Pump Station will not only deliver currently unused groundwater supplies to the City's higher elevation service areas, but also will increase regional water system reliability by supplying groundwater to neighboring water systems via system inter-ties.

To shorten the time required to have this new, critical system up and running, our combined team has accelerated the design process and City crews that are constructing the new Cypress Pump Station. The new 12-million-gallon-per-day Cypress Pump Station will be adjacent to Redding City Hall.

The phased design of the Cypress Pump Station initially includes two temporary emergency pumps and pump foundations, a surrounding slab, and reconfigured piping. To speed things along, the City is repurposing two pumps from an existing pump station and is using electrical equipment that it already owns. The City plans to upgrade the station in the future with new equipment and a larger-footprint building that will be aesthetically compatible with City Hall and the surrounding area. TJCAA's forward-thinking design allows the Cypress Pump Station to rapidly meet the City's existing needs and to be cost-effectively modified/expanded in the future.

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For More Information

Barkley, Yvonne. 2015. "Wildfire and Water Repellant Soils." University of Idaho Extension, Moscow, ID. November 20, 2015.

Emelko, Monica B. et al. "Implications of land disturbance on drinking water treatability in a changing climate: Demonstrating the need for 'source water supply and protection' strategies." *Water Research*, Volume 45, Issue 2, January 2011, Pages 461-472.

Ice, George G., et al. 2004. "Effects of Wildfire on Soils and Watershed Processes" *Journal of Forestry*, Volume 102, Issue 6, 1 September 2004, Pages 16-20.

Hohner, Amanda, et al. 2018. "Wildfire Impacts on Drinking Water Treatment Process Performance: Development of Evaluation Protocols and Management Practices" (2018 Water Research Foundation Project No. 4590) Prepared by University of Colorado Boulder and Hazen and Sawyer.

Smith, Hugh G., et al. "Wildfire effects on water quality in forest catchments: A review with implications for water supply." *Journal of Hydrology*, Volume 396, Issues 1-2, 5 January 2011, Pages 170-192.

Friends Giving Back

Amber Garcia, an administrative professional in TJCAA's Walnut Creek Office, gave us the scoop on an annual community initiative that she and her friends take part in. At a mid-autumn event—this year it was on November 3—friends get together for a fun party and an opportunity to contribute to their community with toys, food, and cash. "This started in 2013 as something that seemed small and it sort of grew on its own," Amber says. "My three best friends, Theresa, Erin, and Tommy Larkins with their mother Denise Larkins, invited people to a party." It was a good crowd, she continues, "partly due to everyone knowing that when there's a party at Mommy Larkins' house, you can guarantee a good time and delicious food. So, it was really

easy to gather their friends because that is what we all did anyways. But this time was different—they said to bring donations, and one thing led to another."

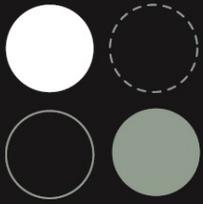


Tommy, Erin, Denise, and Theresa Larkins, the Hosts of Friends Giving Back.

The group amassed an impressive pile of toys and food for local organizations that year and every year since. Their gifts are indeed welcome, Amber says, "Because of these four beautiful humans with their pack of very dedicated friends, so many have been warm, had full tummies, and were able to put presents under a Christmas tree for their children." The group partners with Heart of a Hero (heartofahero.org), the Mount Diablo Unified School District HOPE Program, Contra Costa Food Bank, and a few other organizations. "This event has grown to become a very big deal for us," Amber says, "and we look forward to being able to give back to our community every year!"

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Entertainment
Review

Did you Know?

Employment
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Entertainment Review— The San Francisco International Auto Show

Michael Erwin, TJCAA Control Systems Engineer, recently attended the San Francisco International Auto Show. This year's exposition, held November 21–25, was the 61st annual show. The show featured 2019 model year cars, SUVs, trucks, and vans from the world's major manufacturers and offered the chance to see the current technology in production vehicles. Show goers could view electric, hybrid, and alternative fuel vehicles, as well as exotic sports cars. According to the show's sponsor, it is the largest exhibition of any kind held in Northern California. (sfautoshow.com)



Michael Erwin's grandchildren doing research at the auto show.

"We have a tradition that started about four years ago," Michael tells us. "All of the guys in the family, including the grandsons, make a trip over to Moscone center to check out the International Auto Show. It's kind of funny because none of us are really car enthusiasts (we drive cheap and practical cars) but there's something really fun about seeing a room full of shiny new cars that we can't afford."

Did you know? More on Falconry

Our two most recent editions included stories that mentioned falconry. Here we follow up with one more tidbit. Did you know that there is a raptor center here in our own region? The [UC Davis Veterinary Medicine California Raptor Center](http://www.ucdavis.edu/veterinary-medicine/california-raptor-center) in Davis is dedicated to the rehabilitation of injured and orphaned raptors, and every year more than 300 birds are brought to the center for care. There are 35 resident birds at the center currently. (ucdavis.edu)

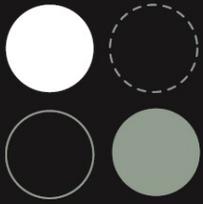
Employment Opportunities



TJCAA is looking for qualified engineers to work on great projects with great people. To view and apply for open career positions, visit our website at www.tjcaa.com.

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- Dec 21 The Winter Solstice
- Now–Mar [Boomtowns Exhibit at the California Historical Society](#)
- Dec 22 Cal Women's Basketball vs. UConn
- Jan 1 105th Rose Bowl Game
- Jan 16 TJCAA 21st Anniversary
- Jan 25 Robert Burns Night
- Feb 2 Groundhog Day
- Feb 3 Super Bowl LIII
- Feb 4 Rosa Parks Day
- Feb 5 Chinese New Year
- Feb 17 The 61st Daytona 500
- Mar 1 Employee Appreciation Day
- Mar 1–3 USA Sevens Rugby, Las Vegas
- Mar 10 Daylight Savings Time
- Mar 17 NCAA Basketball Tournament Selection Sunday
- Mar 17 Formula 1 70th Season opens in Australia
- Mar 20 The Spring Equinox

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