

November 2, 2018

STATE WATER RESOURCES CONTROL BOARD
DIVISION OF DRINKING WATER

Multi-Fauceted

The DE Corner Lessons and Vision

By Janice Oakley

To prepare the office for my vacation last year, I typed out the following for those in charge, "in case of a fire or earthquake, Jason and Misha have experience with GIS and can assist".

As it turned out the Tubbs, Nuns, and Pocket Fires blocked most staff attempts to get to the office. Despite not physically in the office, staff were able to reach out to offices in Richmond and Los Angeles to compile a list of likely affected water systems. The couple of folks who did make it in were able to create a script for staff in other offices to use to assess damage to and needs of water systems.

Over 100 water systems were contacted and over 30 in Sonoma County were affected. For some, like the City of Santa Rosa, fire-related issues seemed to mount weekly. The

fires were a wake-up call for all of us.

Ever since the U.S Geological Survey estimated a 62% chance of a magnitude 6.7 or greater earthquake in the following 30 years for our area, Sonoma District staff have promoted emergency preparedness, defensible space, and participation in drills such as the Great Shakeout. I remember telling friends that I wanted water systems in our district to have the tools such that an outsider would be impressed by water system's response and recovery.

Despite the devastation laid bare by the fires, I am impressed by the competence, perseverance, and dedication of the water system personnel in our district. Thank you. Continue to maintain long term plans to build resiliency and put prevention measures in place.

As the fire season appears to now be year-round, we encourage you to take the lessons from the recent disasters and maintain vision of resiliency. We hope this issue provides you with such lessons to support your water system's vision.



Left: Post-Tubbs fire; **Right:** Replacement tank for 22-home water system

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Hints & Tips

- Division forms available at the SWRCB website:
www.waterboards.ca.gov
- Contact changes? Call (707) 576-2145
- Sonoma District Contacts, Page 7
- Free trainings through RCAC and CRWA
⇒www.rcac.org
⇒www.calruralwater.org

Monitoring Schedules For Your Water System Online

Source chemical monitoring schedules and historical monitoring results are now available online.

Source Chemical Monitoring Schedules can be found at: <https://sdwis.waterboards.ca.gov/PDWW/>

Type in your water system name or number and press “Search for Water Systems.” Click on your water system

number. Then click on “Monitoring Schedules” or “Monitoring Results” in the left side bar.

Detailed instructions with screenshots are available on the District 18 webpage here:

http://www.waterboards.ca.gov/drinking_water/programs/districts/sonoma_district.shtml

Assessing Financial Capacity

By Vicki Ly

Nothing lasts forever, especially your water system! Equipment and infrastructure get old and need to be replaced. However, many systems aren’t financially prepared when it’s time to replace expensive and important components to their system. Many public water systems lack proper planning and budgeting

to ensure the system stays in tip top shape.

The Technical, Managerial, and Financial (TMF) Committee within DDW has set out on a mission to prevent this issue from occurring. The TMF committee has begun training a select few DDW staff on being able to assess drinking water system’s financial management

planning. Once assessments have been completed, DDW will provide financial tools for developing asset management plans, capital improvement plans and rate planning. If used, these planning tools will help public water systems ensure a sustainable future with well maintained infrastructure and protection of public health.

Geographic Information Systems (GIS) and Water System Facilities

By Misha Anderson

You have most likely interacted with a GIS and did not even know that is what you were doing! When you open a map application on your smart phone to locate the nearest gas station you are using a GIS. GIS is the combination of a base map with locations of interest and information about that point of interest.

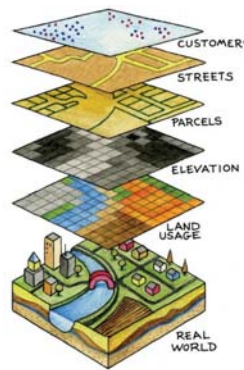
Back to the gas station example, when you ‘open’ the point representing the gas station there can be other helpful information, like the store hours, that they serve coffee and breakfast burritos or have a propane filling station.

The locations of points of interest being accurate is important; you would not want to get directions to

the gas station only to find it was incorrectly located on the map, right?

How does GIS and having accurate locations relate to water system facilities? Accurate water system facility locations enables us

(regulators) to make informed decisions, connect water systems with resources and opportunities, and respond during emergency events.



GIS
geographic
information
system

During the recent fires in our area we used GIS tools to locate water systems that could be impacted;

this helped us to generate a call list and start reaching out to the water

system contact to learn the status of the facilities and determine any assistance needed. Another way we could use the well locations is to look at the trends of contamination in a certain area which we map by having the sampling results associated with the well locations.

One important layer we rely on is the water boundary or service area layer. See the Water Boundary Tool article (p. 7) in this newsletter to learn more about why this dataset is important and how you can help make sure your water system’s service area is accurate.

Accurate water system facility locations enables us (regulators) to make informed decisions, connect water systems with resources and opportunities and respond during emergencies.

The Joy of Storage

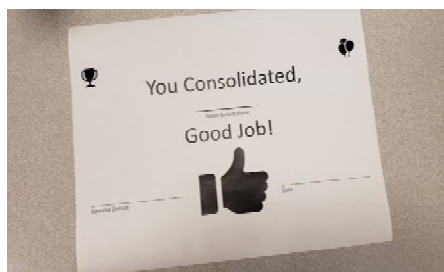
By Zachary Rounds

Sonoma District engineers often inspect small public water systems that don't have storage tanks and only one well, only to be met with "well, it's a restaurant/winery/tire fire, if the well breaks down we'll just close up until it's fixed." The operator or owner then walks away, chuckling to themselves safe in the knowledge that they gave Sonoma District the ol' what-for.

Wrong! Drinking water regulations do not care what kind of public water system you are. Title 22, Section 64554 says "... For systems with less than 1,000 service connections, the system shall have storage capacity equal to or greater than the Maximum Day Demand, unless the system can demonstrate that it has an additional source of supply or has an emergency source

connection that can meet the Maximum Day Demand requirement...."

And if the law isn't convincing enough, consider that if the water system doesn't have a storage tank and the well stops functioning then the water system will likely lose pressure, triggering a boil water notification. That boil water notification will remain in place until the well is fixed, the distribution system is disinfected, and two consecutive sets of bacteriological samples



This could be yours!

come back clean for coliforms. Meanwhile, if you're a food facility regulated by Sonoma or Marin County, they might shut you down for the duration of the boil water notification. Can your restaurant, winery, or epic tire fire really afford to shut down for a

full week? Do you think your business will return to normal after telling everyone that you were shut down over concerns of bacteriological contamination in your water?

Instead of losing thousands of dollars in sales, perhaps you could install a storage tank which, if sufficiently sized, should allow you to weather at least a full day without the well and would allow you to receive hauled water. The cost of a plastic, NSF 61-certified storage tank is probably less than the amount of business you'd lose, and most importantly, you'd be in compliance with the regulations. Or you could consolidate with a nearby water system and get rid of all of these headaches at once! Sonoma District knows that you'll probably be upset by not seeing us, but you can always visit us at our office! Plus, if you consolidate now, you'll receive an authentic certificate from the Sonoma District telling you that you did a good job by consolidating!

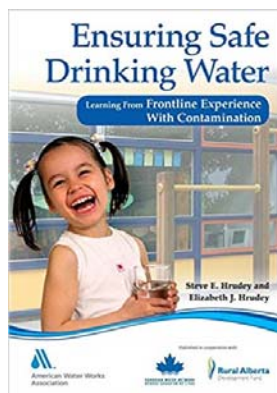
We've never had a problem...

By Janice Oakley

A book review of *Ensuring Safe Drinking Water: Learning from Frontline Experience with Contamination* by Steve E. Hrudey and Elizabeth J. Hrudey.

Just before 10AM on a Friday, you receive a complaint from a customer about poor water quality and being ill. This first call is quickly followed by three more. The customers are all located in one section of the distribution system. You send a crew out to flush. As the afternoon progresses, more complaints roll in—this time from another zone in the distribution system. What actions would you take? How would you investigate? Who would you bring in to assist? When would you notify customers?

Ensuring Safe Drinking Water describes case studies of waterborne outbreaks, chemical contamination, and near



misses. Each scenario is written from the perspective of the operator or manager as the situation is unfolding. With some scenarios, you applaud the actions of the water system personnel, in some you cringe. Each case study ends with questions to ponder and lessons. The worst cases seemed to arise and persist because water system personnel had the attitude that "we've never had a problem with that..."

I read this book with a group of Division of Drinking Water managers earlier this year. I was disturbed by the severity of water quality circumstances faced by the water systems and heartened by some of their responses. Currently, each Sonoma District staff member is reading a case study and sharing it at a staff meeting.

My take home messages from the book were that the best responses were when actions were taken quickly and seriously and response included partnership. I encourage you to read the book and share the lessons learned to avoid that your water system will ever have one of the problems described in the book *Ensuring Safe Drinking Water*.

Cyanobacteria and Drinking Water

By Jason Carter

You may have noticed in the news, or at our local beaches, health advisory warnings for cyanobacteria and cyanotoxins present in our rivers and lakes. Cyanobacteria are naturally occurring in surface water bodies across California and the planet. Under favorable conditions, including elevated nutrients and temperature, cyanobacteria growth can increase and become known as a harmful algal bloom (HAB). Occasionally cyanobacteria produce harmful toxins known as cyanotoxins.

HABs are well known for affecting the water quality of recreational water bodies. When the levels of cyanotoxin exceed recreation health advisories, local health departments may post warning signs to notify recreational water body users of potential danger.

There have been some notable cases of cyanobacteria blooms affecting the water supplies of public water systems across the United States, including events in Salem, OR and Toledo, OH. These cases have resulted in water systems issuing “Do Not Drink” advisories to their com-

munities due to cyanotoxins present in treated drinking water.

Although there are currently no drinking water regulations for cyanotoxins, the EPA has issued 10-day Drinking Water Health Advisories for cylindrospermopsin and microcystin. Health advisories describe concentrations of drinking water contaminants at which adverse health effects are not anticipated to occur over specific exposure durations.

Cyanobacteria can also contribute to unpleasant taste, odor and increased organic matter that may interfere with treatment processes or contribute to disinfection by-product precursors.

If you believe that your water systems source of supply is affected by cyanobacteria blooms, or has the potential to be, the Division of Drinking Water is available to provide guidance and assistance. If you are unsure, please contact us. The Division recommends that water systems with sources vulnerable to cyanobacteria

blooms develop Cyanotoxin Management Plans. The EPA has the following resources available to get started:

<https://www.epa.gov/ground-water-and-drinking-water/cyanotoxin-tools-public-water-systems>

The Division also recommends that water systems familiarize themselves with the analytical methods available, and to assess if your current treatment in place may be able to remove cyanotoxins in the event of a bloom. We will be happy to guide water systems through the development of Cyanotoxin Management plans and to answer questions regarding cyanobacteria, monitoring, and testing in general.

And as always, feel free to contact us at any time with questions.

Cyanotoxin	Drinking Water Health Advisory (10-day)	
	Bottle-fed infants and pre-school children	School-age children and adults
Microcystins	0.3 µg/L	1.6 µg/L
Cylindrospermopsin	0.7 µg/L	3 µg/L

EPA 10-day Drinking Water Health Advisory

Water Partnerships

By Michelle Frederick

With 427 public water systems, Sonoma County has more water systems than every other county in California. That’s right, every other county in California regardless of size or population. On top of water system sprawl, our region is facing climate change, drought, fire, and vulnerable to earthquakes. Sonoma County water systems can come together in lasting ways to make us stronger and more resilient. Forming partnerships with other water systems is one way to do this. Partnerships can take various forms: signing up with CALWARN, developing emergency response relation-

ships with other local water systems, informal and formal sharing of resources, emergency interties, consolidating, even forming regional water systems. Our partnership website has several ideas and tools for how to form partnerships. You can find our partnership website at: https://www.waterboards.ca.gov/drinking_water/certlic/drinkingwater/waterpartnership.html

Want to do work with other systems, but don’t know where to start? If you are interested in partnerships with other water systems but don’t know where to start, email our water partnership coordi-

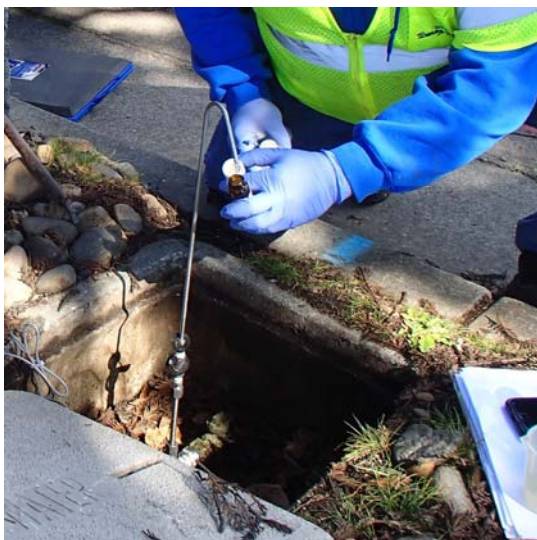
nator at: michelle.frederick@waterboards.ca.gov by December 31st, 2018. She will create a log of all the water systems that are interested in partnering and hold an informal coffee chat to introduce the concept of water partnerships, brainstorm how water systems could work together, and discuss possible funding sources. When you email, please send your name, water system, an email address you are willing to share, what your needs are, and how you might be interested in developing a water partnership. We look forward to seeing you for coffee!

Lessons Learned: VOCs Detected After a Wildfire

By Marianne Watada

The Tubbs fire in October 2017, hit Sonoma County water systems particularly hard. The City of Santa Rosa Water (SR Water) experienced a consequence of wildfires that had previously been relatively unknown. After the fire, volatile organic chemicals (VOCs) were detected in a portion of the distribution system in the Fountaingrove area of Santa Rosa. The area was immediately put on a water quality advisory.

After extensive flushing, sampling, research, and investigation, SR Water concluded that the VOC contamination came from thermal degradation (melting, burning, and pyrolysis) of plastic pipe, in addition to soot, ash and other debris



VOC Sampling

that had back-siphoned into the distribution system through broken piping and laterals of homes that had burned. Once in the distribution system, VOCs adsorbed onto and absorbed into piping and other features of the water system. VOCs continued to leach from the water system components even after initial flushing. Now after almost a year of flushing, sampling, and replacement of lateral piping and other appurtenances, VOC results in the advisory area have been returning to non-detect.

What can we learn from SR Water's experience?

FLUSH

- After a fire, it is recommended that you flush the distribution system as soon as possible, particularly in areas where pressure was lost.
- Flush the system from service lines,

blow off valves, hydrants, and air relief valves.

- Pay particular attention to flushing service lines to any burned properties.

SAMPLE

- Sample for VOCs, if you have plastic mains or service lines in your distribution system.
- Collect first-draw samples from service lines, as well as samples after flushing. In an isolated section, SR Water flushed service lines and then allowed them to sit for three days or more before sampling, in order to evaluate leaching potential.
- Sample at service lines to any burned properties regardless of the service line material.

EMERGENCY RESPONSE PLAN

- Continue to update your Emergency Response Plan as lessons are learned.

Details of SR Water's investigation and ongoing work can be found on their website at: <https://srcity.org/2801/Water-Quality-Advisory>

Revised Total Coliform Rule

By George Chien

The Federal Revised Total Coliform Rule (rTCR) became effective April 1, 2016, and California is in the process of revising California's existing Total Coliform Rule (TCR). During this transition period, all public water systems need to comply with California's existing Total Coliform Rule and the new requirements in the Federal rTCR until California can complete the regulatory adoption process for the rTCR. The frequency and number of required routine bacteriological samples remain the same.

In brief, here are the major revisions

to the California's TCR: coliform treatment technique and *E. coli* maximum contaminant level (MCL) are established; public water systems are required to conduct Level 1 or DDW staff conducts Level 2 assessments, depending on the situation (i.e., multiple total coliform- positive detections during a month/year, failure to collect every repeat sample after a routine total coliform-positive sample, an *E. coli* MCL violation); number of repeat samples are revised; and special requirements for seasonal systems.

The draft regulations of California's TCR, interim requirements summary, and updates are available at the following website: https://www.waterboards.ca.gov/drinking_water/certlic/drinkingwater/rter.html



New Faces at the Division of Drinking Water Sonoma District

By Lareina Earls

In 2017-18 several new faces joined the Sonoma District Division of Drinking Water staff. With all of these changes, we thought it would be a good idea to acquaint our public water system owners and operators with these new staff by giving a bit more detail of what each do to help with public water systems.

Jason Carter—Environmental Scientist

Jason came to the State Water Resource Control Board with previous experience in both drinking water and wastewater laboratory analysis. Jason holds a Bachelor of Science from the University of Oregon in Biology. He tracks and maintains compliance for small water system's chemical monitoring results, performs field inspections and issues permits to small public water systems. Jason is active in the Division of Drinking Water Statewide GIS Work Group and is the Harmful Algal Blooms and Cyanobacteria Coordinator for the Sonoma District.

Vicki Ly—Water Resource Control Engineer

Vicki has worked with the Division as a staff engineer since October of 2017. She holds a B.S. in Environmental Engineering from the Uni-

versity of California, Riverside. Vicki works with a number of assigned large public water systems; she also assists in all aspects of permitting and conducts inspections and Sanitary Surveys for both small and large public water systems. Vicki is active in the Division of Drinking Water Statewide Technical, Managerial, and Financial Committee as the Financial Assessment Coordinator for the Sonoma District.

Lareina Earls—Environmental Scientist

Lareina comes to the Sonoma District with several years of experience working with the State Water Boards in groundwater protection and water quality permitting with the North Coast Water Quality Control Board. Lareina holds a Bachelor of Science in Environmental Studies and Planning from Sonoma State University. She is responsible for tracking and maintaining the bacteriological sampling results and compliance for the Sonoma District small public water systems under the Federal Ground Water Rule and the State of California Revised Total Coliform Rule. Lareina is dedicated to the improvement of drinking water quality through owner and operator outreach and education, coordination with local and

state agencies and correspondence with potential new public water systems when State Division of Drinking Water permitting is required.

Luu Nguyen – Engineering Student Assistant

When Luu is not attending the University of California, Davis pursuing a B.S. degree in Materials Engineering with a focus on Mechanical Engineering, the Sonoma District has the honor of receiving help with geospatial data logging of public drinking water sources, tanks, treatment plants, and for District 9, Local Primacy Agency boundaries. Luu also helps with data analysis and organization of the Electronic Annual Report and the Sacramento District's Disinfection Byproduct Rule monitoring for Trihalomethanes. He is currently wrapping up a video series on YouTube for the Sonoma District that helps owners and operators access and correctly fill out forms required for permitting. You can check out the Sonoma District YouTube channel here: <https://www.youtube.com/user/dwpdist18>

Contact information for Sonoma District staff can be found on Page 7.

California Senate Bill 1263 (2017)

By Waldon Wong

Senate Bill 1263 was signed into law in January 2017. The bill requires newly proposed public water system (PWS) applicants to submit a Preliminary Technical Report (Report) at least six months prior to performing any water-related improvement. Potential PWS' are encouraged to submit this Report as early as possible to prevent any delays!

The Report requires nine elements to be addressed: 1. List-

ing existing PWS within three miles (and contacting community PWS for consolidation); 2. Feasibility study of consolidating; 3. Discuss-

"It is the policy of the State to discourage the establishment of new, unsustainable public water systems where there is a feasible alternative."

- California Legislature

ing actions taken to consolidate; 4. Listing proposed sources to mitigate contamination; 5. Performing a cost estimate for operating the PWS; 6. Comparing the costs of consolidation; 7. Discussing actions to pursue managerial consolidation; 8. A 20-year source capacity study; and 9. Consultation with LAFCo.

The goal of SB1263 is to stop unsustainable water systems from forming where there is a feasible alternative.

Water Boundary Tool

By Elizabeth Solorzano

The California Environmental Health Tracking Program's Drinking Water Systems Geographic Reporting Tool, also known as the Water Boundary Tool (WBT), facilitates the creation and collection of customer service area boundaries for public water systems in California.

The WBT is an extremely important and useful tool that allows water system personnel and regulators to add and edit water system service

area boundaries and allows the public to view service areas of the water system serving them. The service area of the water system can be used by regulators to identify vulnerable water systems during emergency response and to evaluate consolidation potential with other water systems. For the public, this service area boundary layer has been used in various maps including the human right to water map which shows violation status of water systems.

The Water Boundary Tool can be

accessed by visiting <http://cehtp.org/water/login>. Create an account by clicking the Edit button on the bottom of the login page. Fill in your name and email and type in your water system name. The water system name will autofill if your water system is active in the Division's database. Assistance from water system personnel to ensure the service area boundaries are current and correct will provide regulators and the public with dataset that we can use with confidence.

Sonoma District Contacts

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Marianne Watada, P.E. Associate Sanitary Engineer (707) 576-2076 marianne.watada@waterboards.ca.gov	Waldon Wong, P.E. Associate Sanitary Engineer (707) 576-2764 waldon.wong@waterboards.ca.gov
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Michelle Frederick, P.E. Water Partnership and Consolidation Coordinator (831) 655-6948 michelle.frederick@waterboards.ca.gov	

The Sonoma District has drop-in office hours Monday through Friday from 2:30-4:00 PM.

At these times, an engineer is available to assist with water system business.



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Stefan Cajina

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Forms on the web!
www.waterboards.ca.gov

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The Division of Drinking Water is responsible for the enforcement of the federal and California Safe Drinking Water Acts (SDWAs) and the regulatory oversight of approximately 500 public water systems to assure the delivery of safe drinking water to Sonoma and Marin County residents and visitors.

Sonoma District staff perform field inspections, issues operating permits, reviews plans and specifications for new facilities, takes enforcement actions for non-compliance with laws and regulations, reviews water quality monitoring results, and provides technical assistance and outreach.

Previous issues of Multi-fauceted:
https://www.waterboards.ca.gov/drinking_water/programs/districts/sonoma_district.html