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Spring 2023
Vol. 45, No. 2

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Classic Conference**

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Please mail your photo to our office. If we use your photo on the cover you will receive an official OAWU shirt and hat.

We are also seeking articles, clean jokes, Oregon trivia, letters and interesting stories.

Please send submissions (no more than two pages in length) to:

Oregon Association of Water Utilities

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Cover photo by Keith Bedell

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Notice: Oregon Association of Water Utilities invites you to prepare a short article about your water system or other topics which would be of interest to our readers. We also welcome articles from our associate members. The Publisher reserves the right to reject or edit any articles received for publication. Statements of fact and opinion are the responsibility of the authors alone and do not imply an opinion on the part of OAWU.

Send your articles with full color photographs, in digital format if possible, to the address listed above.

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OAWU's mission is to provide service, support and solutions for Oregon water & wastewater utilities to meet the challenges of today & tomorrow.

Oregon Association of Water Utilities

In Step

by Jason Green, Executive Director

Ft. McClellan, Alabama was muggy and hot on July 1, 1983. From the rural Oregon Coast to the Deep South, that was an experience in itself and for an 18 year old waiting for the Fourth of July holiday to pass before Basic Training began was painful, slow, like watching paint dry. There were so many life-lessons early on that I learned, some forced, by force, natural deduction, or simply over time in watching a father who had good work ethics and a positive attitude towards authority. Regarding work, authority, athleticism, a young and quick mind—made boot camp easy, almost fun. Learning the expectations, nuances and formalities of military life—uniform/dress code, beds and gear, haircuts and shaves, times of order to have PT, chow, taps or attention with salute or cover off, parade rest or at ease, authority figures and officers, etc. Rules. They are good and generally needed in most cases for order and expediting work and habits of life; they are for the rule abiding. Those that don't, won't last. Courtesy, respect, honor, self check and evaluations, motivation and self challenges, truth, and sincerity. Influence. Respect. Leadership. Thus began my interest and awe and sometimes frustrations and disappointment in leadership.

I thoroughly enjoyed my short three years. Communications/electronics, Station Tech Controller, Inside Plant, RMATS, AT&T, Special Circuits Team and Jungle Warfare. Two and half years in Panama. I was still fascinated by leadership, influence, and personalities, but it all hinged around who and what the person said and did, their examples, attitude, hard work, and the sincerity and respect they gave and thereby earned. It was not simply the rank they held. SFC Thornton was my lead DI, a large and bigger than life man. Physically capable. Not one of us willingly challenged him. His rank and stature demanded respect, most hated and admired the man. He ran us in cat 4 temps with full gear until we collapsed or passed out. Eventually, the green recruits began to respect his care, influence and leadership of us. Without question, wanting to talk to the giant Kentuckian—permission was carefully requested and if outside and walking, one immediately got into cadence step with him. Valuable life lessons—learning to respect authority and an individual person. Learning to do what one is told or expected to do and with a positive attitude.

In step... bosses, authority, we all have them or at least answer to someone. I am familiar with many utilities and cities, most have a basic mission, whether written or not, we are expected to carry it out. Obviously, this is fundamental and no offense intended, but occasionally it's good to be reminded. Getting in step with the boss is wise, crucial for the mission, our longevity and success at work. It is what we should be doing and it is right. If I am working for a council or board, I should be in step with them, desirous in doing what they expect me to do (and more), looking to advance and support them as I carry out their work or policies. Getting in step with my boss, my job and duties, anticipating and doing. That's good stuff and it's right! My best to you! 💧



45TH ANNUAL Management & Technical Conference

SUNRIVER, OREGON



This year's conference was a great success, and we were blessed with a week of beautiful snow. Many of the attendees were able to catch up with old friends and make new ones within the industry. OAWU staff enjoyed serving the members of the Association and providing assistance to those in need. Sunriver staff again provided genuine, friendly, excellent service, and great food.

The conference sessions were led off by Jason Green, OAWU Executive Director, guest speaker Tony DeBone, Deschutes County Commissioner, Matt Johnson, OAWU Board President, and Russ Cooper, OAWU NRWA Director. They welcomed attendees, discussed the state of the Association, and provided an update on the issues the industry is facing at a national level. This was followed by Mark Landauer who presented an update of legislative issues at the state level.

The OAWU annual business meeting was held after class sessions ended on Tuesday. President Matt Johnson presided over the meeting as attending members heard committee updates and participated in board member elections. The slate of board members who were submitted by the Nomination and Development Committee and elected to the board were:

- Matt Johnson, City of Monmouth, Region 5, expires 2026
- Craig Sheldon, City of Sherwood Region 2, expires 2026
- Marc Caldwell, Avion Water Company, Region 3, expires 2026
- Travis Gibson, City of Independence, Region 2, expires 2026





At Wednesday's regular board meeting, annual officer elections for 2023 occurred. They are: Matt Johnson as President, Micah Olson as Vice President, and Craig Smith as Secretary/Treasurer. We would like to thank and recognize them for their direction and service to OAWU.

Many attendees were present at the awards banquet on Wednesday evening, and several visiting attendee families. The roast and salmon were great, we had a Murder Mystery for entertainment and many good conversations could be heard throughout the Great Hall.

The 2022 Manager and Operator award recipients are:

- **Manager of the Year:** Chico Holliday, Confederated Tribes of Warm Springs
- **Manager of the Year:** Jeb Miller, Chenoweth Water PUD
- **Wastewater Operator of the Year:** Chris Patton, City of Sweet Home
- **Water Operator of the Year:** Jaegar Thomas Howatt, City of Sweet Home
- **Associate Member of the Year:** Phil Pellitier, Furrow Pump
- **Friend of Rural Water:** Tony Fields, OHA-DWS
- **Office Manager of the Year:** Ana Linden, Corbett Water District
- **Rookie of the Year:** Mitchell Jaspers, City of Molalla

Congratulations to all of our award recipients. These awards recognize the dedication and commitment made by those who choose to serve the communities of Oregon every day. Don't forget, if you have an employee who you would like to nominate for next year's awards, submit the information to the OAWU office for consideration.

The Best Tasting Water award recipients this year were the City of Sweet Home for Best Surface Water and Avion Water Company for Best Groundwater. The submissions are tested by 3 judges from the water community of Oregon, and they decide the best groundwater and surface water, then these winners go head-to-head for best overall water in Oregon. The 2023 winner of the Overall Best Water category is the City of Sweet Home. Their water will be flown to Washington DC and submitted for judging in the Best Water in the Nation contest.

At the Exhibitors' Hospitality Night Thursday, there was good food and drink, many door prizes, raffles, and an auction. We wish to extend a special thank you to all of those that took part in this year's auction. The money goes to support the Jeff Swanson Memorial Scholarship fund. The scholarship auction and raffle proceeds exceeded \$4,000. The selected candidates for this year's Jeff Swanson



Memorial Scholarship of \$1,500 was: Taylor Vanaken, whose father Chad works for Tualatin Valley Water District, Lily Schmid, whose father Adam works for the City of Hood River, and Emma Miller, whose mother Laurie works for the City of Manzanita. The application for the 2023/24 academic year can be found on our website, please apply if you have a dependent that is currently attending or going to attend college.

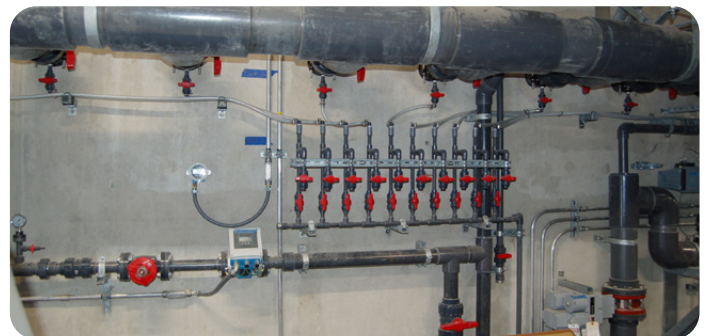
Congratulations to our raffle winners. Ruffled items were:

- A 270 Weatherby Vanguard Sporter rifle for the WaterPac
- A 357 Smith and Wesson 686 Western Six-Shooter pistol for the Jeff Swanson Memorial Fund
- A LG 65-inch 4K UHR AI ThinQ TV
- A Lamiglas Redline Fighting Rod and Diawa Lexa 300 Reel donated by Oregon Meter Repair

The winners of the ping pong and cribbage tournaments were announced. First place in ping pong was Darryl Walker, Joel Gehrett came in second, and Shane Ortega came in third. Jonathan Neumann came in first for cribbage, receiving the championship board. JD Burns came in second and Jason Devine came in third. Anthony Thompson came in first for the Cornhole tournament, John Lee came in second, and Paul Walford came in third. Find the Logo contest winner was Trevor TeEack from the City of Umatilla.

We wish to thank our Associate Members for their donations, time, and support of this conference and of course to the members who continue to believe in and support the Oregon Association of Water Utilities. Additionally, we would like to especially thank this year's Diamond sponsor: TAG; our Gold Sponsor: Core & Main; and our Silver Sponsor: HD Fowler Company, Inc. Be sure to sign up for the Annual Conference next year, the first full week of March 2024, as there will be a slate of new classes to attend, people in our industry to visit, food to eat, and fun to enjoy. See you there!

Best wishes to you, our friends. 💧



UPCOMING TRAINING & EVENTS

Date	Class Title	Location	CEU Information	ESAC#, Fee/Free
May TBA	Water Emergency Response Training	The Dalles	0.4 Water/Wastewater	TBA Fee
May 10	EXPO	Rickreall	0.4 Water/Wastewater	TBA FREE
May 10	Understanding the Requirements of the WMCP	Salem	0.3 Water	4351 Fee
May 10	Leak Detection	Salem	0.2 Water/Wastewater	4396 Fee
May 24	Math for Operators	Redmond	0.4 Water/Wastewater	4329 Fee
May 24	Pumps & Pumping	Redmond	0.3 Water/Wastewater/Onsite	4395 Fee
June 6-7	Water Treatment, Water Distribution Certification Review	Salem	1.4 Water/0.5 Wastewater/Onsite	TBA Fee
June 27	Math for Operators	Hermiston	0.4 Water/Wastewater	4329 Fee
June 27	Pumps and Pumping	Hermiston	0.3 Water/Wastewater/Onsite	4395 Fee
July 25-26	Water Treatment, Water Distribution Certification Review	Redmond	1.4 Water/0.5 Wastewater/Onsite	TBA Fee
August 8-9	Wastewater Treatment/Collections Certification Review	Salem	1.4 Wastewater/0.7 Water	4227 Fee
August 9	Lock Out Tag Out Operations	Bend	0.3 Water/Wastewater/Onsite	4397 Fee
August 10	Confined Space	Bend	0.3 Water/Wastewater/Onsite	4634 Fee
August 10	Hazardous Communication Standard (Global Harmonization)	Bend	0.3 Water/Wastewater	4193 Fee
August 21-24	29 th Annual Summer Classic Conference	Seaside	2.3 Water/Wastewater	TBA Fee
September 11-14	2023 Fall Operators Conference	Florence	2.7 Water/Wastewater	TBA Fee
September 19	Distribution Basics	Baker City	0.6 Water	4117 Fee
October 11	Distribution Basics	Lake Oswego	0.6 Water	4117 Fee
Oct. 31 – Nov. 2	Spirit Mountain Casino Operator's Conference – 2023	Grand Ronde	2.0 Water/Wastewater	TBA Fee
November 8	Confined Space & Job Site Safety	Eagle Point	0.6 Water/Wastewater/Onsite	4331 Fee
November 28	Distribution Basics	Salem	0.6 Water	4117 Fee
November 29	Developing Your Operations & Maintenance Manual	McMinnville	0.4 Water/Wastewater/0.2 Onsite	4116 Fee
November 29	Leak Detection	McMinnville	0.2 Water/Wastewater	4396 Fee
December 11-14	25 th Annual End of Year Operators Conference	Hood River	2.7 Water/Wastewater	TBA Fee

Levels 1-4 Water Operator Exams

Trained and certified operators are necessary to ensure that the systems are managed in a manner that fully protects public health and the environment. The OARs for certification stipulate that the qualifying experience for applicants for certification as a water treatment plant operator must attain at least half the required operating experience at a public water purification plant that uses complex filtration technology and is not more than one classification lower than the level of certification they are seeking. In other words, if you have only worked for a Class 2 treatment plant, we allow you to apply for a Level 3 certification but not a Level 4 certification. If you move on to a Class 3 plant, then you must have ½ the qualifying experience (at the Level 3 plant) before allowing to apply for a Level 4 certification. Reciprocity from state-to-state ensures that the operator have the operating experience for which they are certified.

For additional information, please visit <http://public.health.oregon.gov/HealthyEnvironments/DrinkingWater/OperatorCertification/Levels1-4/Pages/exams.aspx>

Drinking Water Data Online
Drinking Water Services

<https://yourwater.oregon.gov>
<https://www.oregon.gov/oha/PH/HEALTHYENVIRONMENTS/DRINKINGWATER/Pages/index.aspx>

Training class dates, class topic and/or locations may be subject to change as needed.

For more information on any class by OAWU, please contact the office at 503-837-1212, office@oawu.net or visit www.oawu.net.

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Wise Up

by Mike Collier, Deputy Director/Source Water Specialist

I know something you don't know... has been said by many a kid through the ages. But what is knowledge? Knowledge is being smart – is this useful? Sometimes, but just knowing things is not useful if these things are not acted upon. So what is the point of being smart, to win at Jeopardy! or some other game?

What should do instead of just having the smarts? Knowing what to do and actually doing it is much better—this is called wisdom. Being smart really isn't that helpful, I can know how to change the filter in my furnace, but unless I actually go and do it, the furnace will fail to provide warm air and will probably end up dying. I can learn all kinds of things, go to school, read books, do online research, but if these things are not applied, what is the use? We can learn, then tell others about what we have learned and maybe they will take and apply these things, but most of us can see through the veneer of someone who is just smart but has not actually applied it to real life. When we run into this, most of us will turn to a different source to ensure that what they are saying is really true.

I will give a quick example, I am not just going to plant a field based on a professor that talks about how to grow the best grass seed in the valley if they have no experience, but I will trust a farmer that has many decades of experience, has gnarled hands, and grown his business. He actually has wisdom in this area from the years of dedicated, practical, application.

This concept can really be applied to all the aspects of our lives, if we know what is the right thing to do, but do nothing at all or do the opposite this is not beneficial to anyone. Or if we know what is wrong but continue to do it—this is also not beneficial. Understanding these things should remind us that being just smart is not what makes a person great, but rather if we are able to act upon what we know is the basis for wisdom. 💧



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What in the Wastewater

by Monty Norris, Wastewater Technician



As we move through each year, we are handed new permits, testing requirements, and expectations. Whether it is for water or wastewater, they usually impact each other. What the water plants make ultimately ends up at the wastewater plant after being used by the consumers, treated then sent to receiving waters for the next municipality to create drinking water. PFAS has been a very hot topic as of recent and for good reason. Whether it is going to be highly regulated like mercury is yet to be seen, but personally I believe that is where it is heading, most facilities will require additional treatment to prevent it from leaving their current processes. But what about all the other testing requirements or pre-permit issuance? To name a few—TSS, BOD/CBOD, ammonia, toxic monitoring/Copper Biotic Ligand, and WET testing.

TSS, BOD/CBOD, and ammonia are all common testing parameters that vary from plant to plant. Depending on outfall and where it goes. Going to a receiving stream/ irrigation or drain field seems to be the most common and permits are adjusted accordingly by DEQ. The size/ type of wastewater plant, mixing zone, and dry weather flow can also change the permit values.

Toxic monitoring tests at some facilities are being required before issuing a permit to determine the presence and concentration of chemicals of concern in Oregon's waters. Copper Biotic Ligand model testing can be done at the same time as Toxic monitoring.

The toxicity of copper varies in aquatic environments because the bioavailability of copper changes based on water chemistry conditions. The Biotic Ligand Model determines copper toxicity for a given set of conditions by using measurements of ten different water quality parameters that affect copper toxicity to aquatic organisms. These parameters are pH, dissolved organic carbon (DOC), temperature, calcium, magnesium, sodium, potassium, sulfate, chloride, and alkalinity. The model provides site-specific acute and chronic copper criteria that reflect changes to copper bioavailability caused by interaction with these water chemistry variables. Using the model provides a high degree of protection to aquatic life during vulnerable water chemistry conditions and will also identify those conditions that are less sensitive, where toxicity occurs at greater copper concentrations.

—Oregon DEQ

WET tests are used for water quality assessment, permit limit development, and compliance assessment. To protect water quality, EPA recommends using WET tests in NPDES permits together with requirements based on chemical-specific water quality criteria.

WET test methods include two basic types of WET tests, acute and chronic (including sublethal endpoints). WET test methods include procedures for freshwater, marine, and estuarine test species. EPA recommends running tests using an invertebrate, vertebrate, and a plant to identify the most sensitive species

Is Going On?

for use with the NPDES permits program. Ceriodaphnia dubia (freshwater flea) and Pimephales promelas (fathead minnow) are examples of EPA approved indicators or surrogates used in the protection of freshwater aquatic community organisms.

Finally, lets hit on PFAS! PFAS (Per- and Poly-FluoroAlkyl substances) are commonly found in water, soil, and sewage sludge, so they can easily contaminate our crops, chicken, livestock, and other animals on farms that produce our meat, dairy, grains, vegetables, fruits, and eggs. How do they get to the wastewater plant? Well, PFAS are everywhere! To just name a few: Industries, Airport firefighting foam, non-stick cookware, cleaning agents and fabric softeners, pesticides and herbicides, adhesives, medical products, and personal care products (for example, shampoo, hair conditioners, sunscreen, cosmetics, toothpaste, dental floss) and anything that repels water. There are oodles more to hit on, but this is a simple example of how deeply embedded in our

lives PFAS are. Where does this all go if it leads down the drain? Your local wastewater treatment plant. The majority of treatment plants are not equipped to remove PFAS. It does like to bond to solids therefore, some of it is removed...or just transferred elsewhere. Off to biosolids land application and relocated to grass/soil for animals to ingest. What is all the commotion about? The suggested health epa limit has been set at 70 parts per trillion, equivalent to 1 drop per 20 olympic size swimming pools! They have detected up to 4700 forms of PFAS and possibly up to 10,000. Most of the high concentration of PFAS has been from the Midwest to east coast, but does it exist here as well? Yes, and some of you have been testing at water treatment plants for the EPA.

We are stewards of the environment and our receiving waters. When we are responsible for what is going out to the receiving waters there is an expectation that goes beyond the paycheck and job title that is more of an oath to keeping our rivers clean and pristine. *For tomorrow, for our future!* 💧

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Lost Programming

by Keith Bedell, Wastewater Technician



What happens if the programming is lost at your Wastewater Treatment Plant or Water Plant?

Everything is working great, and you check your operations with the SCADA (Supervisory Control and Data Acquisition). The levels in the basins are fine, blowers are running, and it shows that the lift stations are working properly, but when visually checking, the levels are way low, and the pumps aren't running. Somehow the PLC (Programmable Logic Controller) had frozen up and it is still telling you everything is ok. But what if it is on an older system with an auto-dialer that only lets one know if there is an alarm, then you go and check it just to make sure that everything is ok. Which is actually the better system?

With the SCADA you can check everything remotely and save time and labor by not having to physically drive out and check, but when driving out we are actually confirming that everything is fine. OAWU got a call from a new operator with a small city that one of their water tanks had been showing that the level was down to 0 feet and their well was running, couldn't keep up. There was water running down the hillside and they didn't know where the leak was. After they did some searching and visually checking the elevation in the tank. The culprit was a failed pressure sensor in the tank and the water was coming from the overflow. The overflow was not at the top of the tank where you could see it but piped down to the ground so there would be less damage to the area around the pipe. When the operator looked at it he thought that the distribution pipe had broken.

Another wastewater treatment plant had somehow lost the programming in their SCADA system and backup had somehow gotten corrupted, they then had to manually operate everything by hand. The computer technician had to take the old plans and rewrite the program for the system so the plant would operate on its own.

It is important to have a backup plan for our SCADA system and that it is readily available and on-site if possible. What if in the worst case scenario everything goes out, electricity (but we have backup power), internet, land lines and cell service? We will still be able to reprogram the system if need be and continue to operate the system. Do we also have spare Input/Output (I/O) cards and relays for the system in case one goes out that can be put in to keep the controllers working? Then again, how much backup equipment do we have on hand that will never be used?

Not to date myself, but we had a Verbatim auto-dialer that would call a pager. Then you would go to the wastewater plant to see what the alarm was, get everything taken care of and leave. If there were multiple alarms continuously going off, we would unplug the phone line until everything was back to normal. I recall driving half way home and couldn't remember if I had plugged the phone line back in and had to drive back to double-check—makes for a long night.

We learn a lot more about the operations when we have to walk around and check everything rather than just remotely acknowledging the alarm. 💧



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Energy: Sparking Interest



by *Tim Tice, Projects Manager*

Interest in health and safety (H&S) has been growing over the past few years, and like many topics, seems to cycle with the tides. Controlling hazardous energy—in laymen’s terms “lock-out/tag-out” (LOTO)—is one safety topic that, for the most part, is forgotten and yet it is one of the most cited OSHA standards. Some key shortcomings to avoid in a LOTO program include:

Simply failing to LOTO a piece of equipment

Where employers get into trouble is outlining the procedures for a specific piece of equipment. Various machines we use in industry will not have the same protocol, hence the citation. If you’re working on changing out a valve, blocking and or blinding the pipeline is very different than if you’re replacing a hydraulic cylinder on the backhoe. The main emphasis is to review the procedural steps for the multiple types of LOTO and write (rewrite) them as they relate to each piece of equipment.

Failing routine inspections

This citation is about understanding what the rule says and then finding the time to complete the task. The rule states for each energy control procedure that is used in the workplace, we must conduct an annual inspection of the procedure while it is being performed to prove the procedure(s) is adequate. The LOTO procedures must be reviewed by an authorized, designated employee, who observes the LOTO team then concludes if the procedures are adequate or additional review required.

Standard operating procedures (SOP)

SOPs are written in a way to assure the highest level of safety is retained throughout LOTO. The trouble lies from a couple different views. First, we as workers, have an uncanny knack of falling into complacency as we become hardwired in routine tasks, which in itself is not too bad, but we begin to short circuit the required steps. Second, is dealing with a timeline. A hurried pace is not conducive to safety. It inevitably provides the perfect scenario for overlooking a step. Most SOPs should be written with a concise sequence of steps that we should never stray from. There are eight specific steps that all LOTO procedures should include for the majority of equipment. Rule 1910.147(d) lists the steps.

Identifying sources of energy

Being able to understand the types of energy sources we deal with, or the characteristics of those sources is important. An easy example is electricity. Some significant sources of energy we encounter may be mechanical, hydraulic, or pneumatic (air). Does the facility deal with gravitational energy? This is one form of energy that is rarely remembered. A vital aspect of the written program is identifying all types of energy.

A quick review of four citations that are normally found during a safety inspection are a starting point, but as one knows, there can be additional violations associated with LOTO programs. Find an inspection form online and begin the process in determining the adequacy of the facility's LOTO program. Bring in a third party to assist in the review process, we all see things differently. A facility can request Oregon OSHA, through the consultation services, to visit and discuss not only LOTO, but any safety programs required at the workplace.

There are many approaches taken to develop a thorough LOTO written program but putting time into the written portion of this program (any H&S program) will hopefully save time when LOTO procedures are being implemented. Teaching the program to employees and raising their level of understanding will be the second important step in sustaining a high level of safety.



One size fits all is, unfortunately, true when it comes to H&S. A small water/wastewater system with a crew of two or three versus a work force of twenty plus, the goal should be the same, everyone looks out for each other as it relates to working safely. If your interest in H&S has waned lately, then prior to the busy construction season beginning, take time to review the H&S programs, have a few tailgate meetings as preparation. Insure you document those meetings because the paper trail is as important as the procedural steps.

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Let's Talk Safety

by Bob Waller, Water Circuit Rider



When thinking of ideas for an article it seems every subject has been written about. I thought maybe just expand on a topic that has been done over and over, so here it goes “workplace safety.” Working at water and wastewater plants can be dangerous, with hazards such as slippery walkways, dangerous gases and loud noise, possibly malfunctioning equipment. Workers experience an occupational injury and illness rate higher than the average for all occupations, incurring injuries ranging from sprained ankles and pulled muscles to lung infections, blindness, and even death.

There are about 2.8 million nonfatal workplace accidents and injuries in the United States each year. Before getting into the water industry I was a cabinet maker where we use tools that can take a finger or an eye in a millisecond. I would hear of experienced woodworkers losing fingers or worse, it seemed they had made the cut thousands of times. Were they just not paying attention, in a hurry, or just complacent?

The company I worked for would have safety meetings every month and like many safety meetings little attention was paid. One day we decided to have every one come up with ideas for safety around the shop, for fresh ideas—thinking out of the box.

At the next safety meeting several ideas were bandied about—I’m not sure if it was one idea or a combination of several. The idea that stuck and really caught on was after every job we would clean the shop, reinstall any safety guards and shrouds, even that table saw guard. We would make up a whole bunch of new push sticks, get new clean safety glasses, ear protection. We were to follow all safety procedures to the letter for the next week. It seemed like overkill at the time, but



it allowed us to get back to working safely and have safety foremost in our minds. This shop made cabinet doors by the hundreds and after implementing this safety procedure our accidents were cut in half.

Over the years I have taken this approach to safety and have had almost zero accidents, just some muscle strains or knuckle busters working on a truck or meters. If this is an approach you would like to try ask the staff if we were giving a tour to some children from a local school, or our grandchildren, how mindful of our workplace would we be?

So, what would this safety reset look like in your water and wastewater plants? Remember the idea is to set the bar high—maybe pretend we have an OSHA inspection? Hopefully we are not removing shrouds and guards from equipment around our plants, but we could ask questions like: are our ladders chained, electric wires in conduit, gas lines marked, etc. Maybe we should be looking for rusted or loose railing, rethinking our confined spaces, ensuring our wet-wells are safe. When coming off a stairway onto a painted floor a little nonskid tape works great. When someone is called out at night, are we checking on them? Even to review our policies to make sure we are watching each other's backs.

This list could go on and on—I'm sure you know your work area and what looks to be in good repair and what's not. We



don't have to wait for an OSHA inspection to get things back the way they are supposed to be according to the manufacturer's specifications. Safety is for everyone, and we are all responsible; sometimes a little different approach is maybe just what's needed.

We can become complacent and sloppy doing the same thing day after day. So, the point of this article is that everyone goes home to their family after shift. We at OAWU see you operators at conferences and short schools throughout the year. Afterwards our staff text or call each other to see that everyone made it home safe, because you watch out for people you care about. 💧

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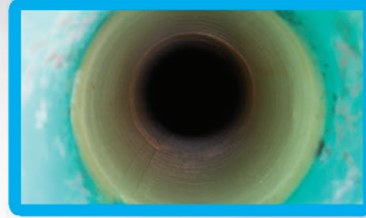
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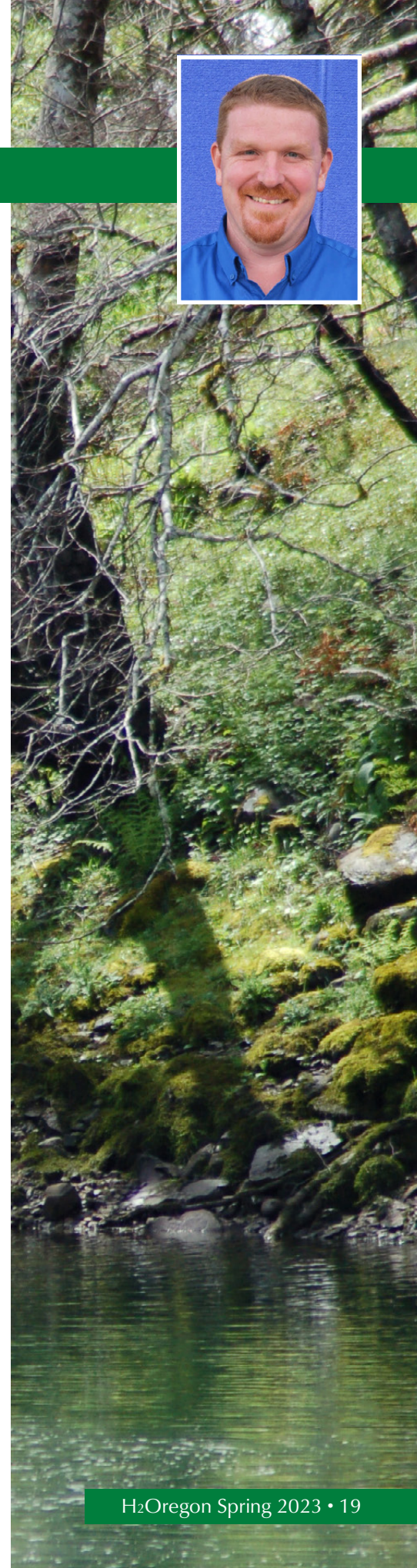
Do you have any skills you used to be good with and then when you do them again after a long time you realize you are not as good at them now? I see two very contradictory statements and they are: “it’s like riding a bike, you never forget” and “if you don’t use it, you lose it.” While I hope for your sake you are more along the lines of, “it’s like riding a bike,” for me, I find the older I get the more I resemble the, “if you don’t use it, you lose it.”

Case in point for me is sheetrock. You see my dad had a construction company when I was a kid, just him most the time, me and my brothers in evenings, weekends and when we were out of school if he needed help. Now-a-days people get all uptight about child labor, but I assure you, from my point of view, it was not an abuse my dad, in my view, paid what I consider a fair and equitable wage. By that I mean he paid us what he felt we were worth at the time so when I was straightening nails, a job which I know now was to keep me out of the way and save a few cents, he paid me accordingly but as I got older, I was actually of use, so he paid me more. By the age of 12 I felt like I could actually sheetrock pretty well and even though I needed help throwing around the materials at times I could make pretty short work of rocking in a room. I say all that as many years later as I am working on a project house of my own, I find that not only am I slow at the sheetrock, but the end result is something that, while I can hide my mistakes with mud, is not something I am particularly proud of.

I bring all this up as I find this happens with a number of different things in life, that if you don’t do something for a while, it can be very hard to get back into the swing of it. The number one thing that this happens to me on is Math. Now I like math because to me it has the ability to make sense out of things that at first glance don’t always make sense, but I find if I am not doing math problems frequently, I tend to forget steps. Frequently, before I teach a math class I will sit down and do the problems I will be teaching on my own as I find it helps me to better explain them and be better prepared for questions regarding them.

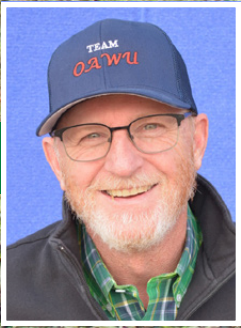
So, if I could make a suggestion, it would be this. Do some practice math or other water/wastewater questions at least once in a while. I have seen a number of systems that throw questions up on a white board and work through them first thing in the morning or at lunch. I think this is a great idea because at least for me if I don’t use it I lose it, and with that I’ll see you down the road. ♦

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Meter Mystery

by Hans Schroeder, Circuit Rider



How did your city fare during the freezing temps this winter?

My wife went outside one day this last winter and heard water spurting. Being this is my gig I have several water meters around our ranch so I can tell where the water usage is during the different seasons. Meters to see how much the cows drink depending on what pasture they are in, the horses, the barn, and of course the house. The meters also help to tell if there are any leaks.

She heard the water spurting out of the meter that is tied to our house and sure enough the meter had frozen, and the freeze plate had split and was leaking water. The meter box was stuffed with insulation. The house had never been “without water” in the 15 days of below freezing temperatures. The meter was about 15 years old. Was it just meter fatigue? Who knows why it cracked, I had taken the proper precautions to protect it.

Did any of your communities have significant problems this winter? Were their better precautions that we could have taken? This year we didn’t get the usual snow layer that helps insulate the buried lines, valves, and meters. Are there areas that need attention before next winter?

Were there notes made on these things that could have been improved or what did we do that was successful, so in another few years when we have this same type of winter we can look back on them and make it a more successful year than this year was. It is miserable to repair a leak or frozen pipe while battling the elements. The old saying “if it can go wrong, it will” seems to apply. Being prepared is the best prevention in the planning process. 💧

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Courtesy Flush

by Scott Berry, Operations Manager



Conventional flushing programs have been in use for as long as there have been water distribution systems. Traditionally, these programs have consisted of flushing hydrants in different targeted areas until the water runs clear. This resulted in varying degrees of success in achieving significant improvements in water quality.

Over time water operators have continued to refine their flushing processes into more of a unidirectional flushing (UDF) program. There are many benefits of a unidirectional flushing program.

In Figure 1, the hydrant is opened, and water flows to it from all directions. One of the goals is to move the water through the pipeline at a velocity of 3–5 feet per second to get good scour. With a unidirectional flushing program (Figure 2), we get higher velocities inside the pipeline and use less water. That benefit—using less water—means that UDF can be an important part of our Water Conservation and Management Plan.

Unidirectional flushing is performed according to a predetermined plan starting from the source or the reservoir that supplies an area and working our way out from there. Flush for larger pipes to smaller pipes, trying to limit the segments to 1,500 feet or so and making sure to maintain 20 psi in all parts of the distribution system while conducting a flushing program.

There are many things to be considered when planning, conducting, and restoring after completion. UDF mobilization and setup activities are similar to conventional flushing. Opening and closing of valves to support UDF will likely require a longer setup period; however, this time may be offset by shorter flushing duration.

Mobilization and setup activities:

- Identifying stormwater and drainage that can be used to manage discharge of flushed water to avoid localized flooding. De-chlorination may be required if discharge is entering a water body.
- Establishing traffic control for the safety of operators and drivers. Limited stormwater conveyance and subsequent ponding may require traffic control beyond what is required for operator safety. In addition, traffic control may be required at open/close valve locations.
- Maintaining direct contact with critical customers sensitive to water quality or pressure changes.
- Notifying the fire officials of UDF activities, which may limit available fire flow due to closed valves or active flushing.

Institutional knowledge of utility staff is often useful in identifying and mitigating major operational challenges before going out to the site. However,

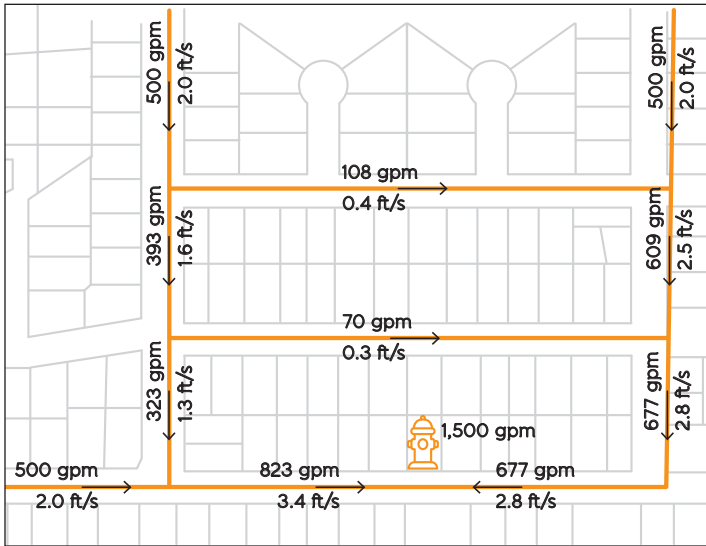


Figure 1

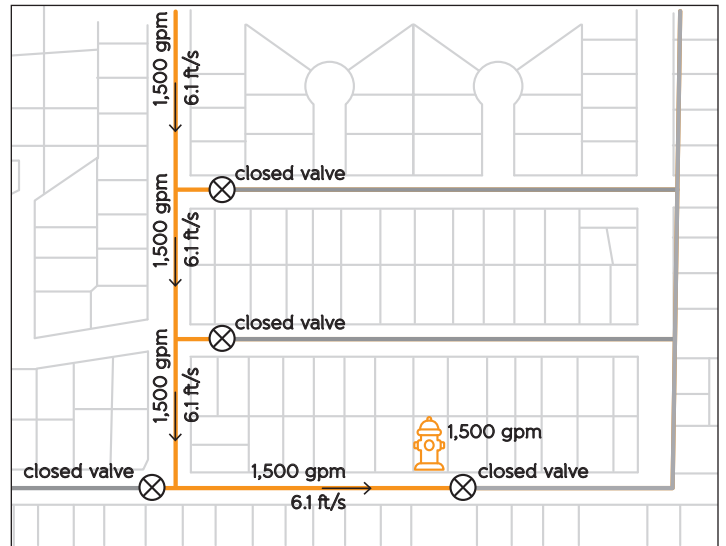


Figure 2

crews should be prepared to address a variety of conditions in the field. For example, a clogged storm drain may unexpectedly limit stormwater conveyance.

Flushing and system impacts:

The increased cleaning power of UDF can result in temporary reductions in water quality and service pressures. Operators should expect:

- Initial water discoloration that clears during the flushing
- Sand and other particulates
- Temporary lower pressure
- Water on streets and/or parking lots

Visual inspection or measurements, such as turbidity, should always be used to confirm that adequate water quality has been restored before ending the flushing sequence.

Field observations:

Field observations during flushing provide valuable information for future flushes. Records should include site requirements (traffic control, stormwater control, etc.), the flushing time, hydrant flow, velocity and pressure.

Documenting site requirements aid in planning and mobilization for future flushes. Comparison of system data in future flushes can help identify potential issues, such as open valves. Similarly, if hydraulic modeling was completed, this recorded field observation can be used to confirm the initial flush assumptions and planning considerations. If changes or additional sequences are required, the updated field information will provide great value for future programs.

Site restoration and cleanup:

UDF activities typically require additional site restoration and cleanup activities, as compared to conventional flushing. UDF may create a “dirtier” site than conventional flushing due to the discharge of sand and other particulates. In addition, flushing crews will need to open all valves at the completion of daily activities.

The first time UDF is conducted, flushing crews will likely identify areas where existing records and mapping are inaccurate or incomplete. Record all valves that were operated and confirm that all valves are opened again and the distribution is returned to normal operation. Update system mapping with any corrections that were noted. ♦

Shiner

Throwing My Loop
by Michael Johnson

When we lost our Australian Shepherd, Rowdy, last Christmas that was difficult.

“Like losing a family member,” someone said. “No,” I thought to myself. “It’s not like losing a family member. It *is* losing a family member.” But I knew what to do. Someone told me long ago...the English vet, James Herriot.

As a practicing veterinarian, Herriot wrote his wonderful stories and he wrote about the difficulty of losing his patients. He also wrote about his pets. “When I lost my own companions, I suffered even more.” Herriot found a way to deal with the grief. “As soon as you can,” he wrote, “love again. Find another companion to replace the one you lost. Love is the only thing that can cure heartache.” And that’s what my wife and I did. Three months later, a new companion came to our farm.



He was a blue merle and because he looked like he had been in an Oklahoma bar fight with his two black eyes, we named him “Shiner.” And Herriot was right. From the day this little ball of fuzz set foot on the ranch, he brought his healing and laughter with him. I told my friends, “I don’t know what kind of cow dog he might become, but he sure has a future in comedy.” And we began.

When should you start training your dog? Ask any trainer...and most all will say, “The best time to start training your dog is today!” So that’s what I did. First day he was home, I took him out in the front yard on the long line. I was excited and reminded myself many times not to compare this pup to Rowdy because that would be unfair...because I knew he could never be like Rowdy. Sure enough, things went downhill from that first moment.

He jumped, bit, squealed, and kicked and fought the leash that first day with everything he had. I found myself disappointed in the little fellow and thought, “Rowdy never did that.” The next day I happened to look out the window and saw Sherry with Shiner on the long line. He was prancing along beside her like one of those dogs on television in the New York Dog Show. And at that moment I could hear all my friends—who are true horsemen and have taught me so much—yelling inside my mind, “It ain’t the pup, Miguel! It ain’t the pup.”

For the next few days I didn’t work with Shiner. I just watched Sherry work with him...and I began to see.

I noticed when she began with Shiner on the leash, she would shake the leash and call his name.

“Why do you do that?” I asked.

“To let him know we are about to do something,” she said. “You know, to help him get ready.”

Sometimes when she walked off with him, he would resist and fight her, too. When that happened with me, I would just keep pulling him. (Ain’t that just like a man?) But when Shiner refused to go forward, Sherry would stop and come back to him. She petted him gently and talked softly to him.

“Why do you do that?” I asked.

“To let him start over,” she said. “You know, sort of like to give him another try. To let him know this is not so difficult. We can try again.” And I watched and watched, and after several days, I became aware of so many little things she did that I had failed to do. She was eliciting high cooperation without the use of force. I was eliciting almost no cooperation no matter how much force I used. I changed my ways, and after several months now, Shiner responds to me much like he does to the person we both love so. And then, there was yesterday...

Shiner and I went to the pasture fence in the late afternoon. Some one hundred yards away stood my roping steers. I had worked with the pup on the long-line, but never with Shiner free. On this day, he stood by my side staring at the cattle.

“Shiner?” I said to him. No response. Focused only on the steers.

“Shiner,” I said again. “Look at me.” He turned.

“I’m going to unsnap your leash,” I said. “I want you to go gather the steers.”

I removed the leash and he trotted away. The pup made a wide circle behind the steers and sat down. Taking his time, he moved forward on occasion—sometimes a bit right, and sometimes a bit left—and soon all the steers were in the arena. Shiner sat down again and turned to look at me. And I thought to myself, “Rowdy never did that either.”

I said, “Good dog, Shiner. Good dog.”

Then I sat there and cried like a baby. 💧



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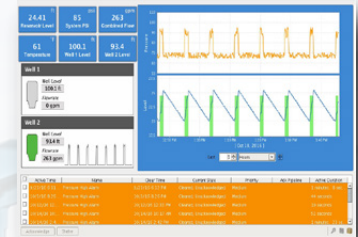


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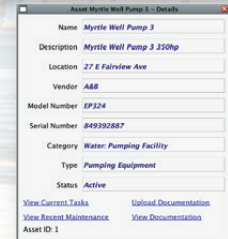
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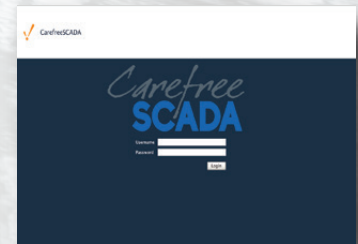
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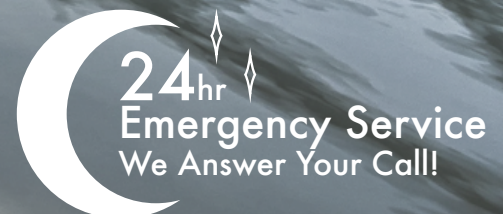
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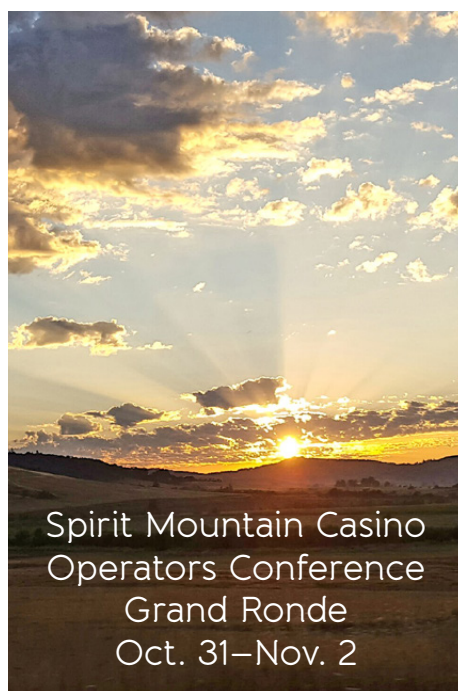


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A Regular Member shall be any water or wastewater utility, public or private, engaged in the production, distribution or reclamation of water. A Regular Member shall have one vote. Annual Dues: See Regular Member Dues Schedule

Associate Member

An Associate Member shall be any organization, individual or corporation, supplying services or equipment to water and wastewater utilities. An Associate Member shall have one vote. Annual Dues \$500.00 per year

Individual Member

An Individual Member shall be an individual involved in the water/wastewater industry or a user of such utilities. The membership is informational in nature and shall be non-voting. Annual Dues \$100.00 per year

Benefits of Membership

- On-site technical assistance
- Various free training programs
- Discounts on training courses
- Discounts on Annual Conference registration
- Access to on-site training program
- Subscription to quarterly H2Oregon magazine
- Direct mailings about upcoming training courses in your area
- Summaries of legislative issues
- Legislative representation at state and federal level
- Associate Member Services and Products Guide
- Access to technical assistance library
- Access to technical and testing equipment for loan
- Voting rights in Association affairs
- Positive contacts with other organizations
- Camaraderie with water and wastewater professionals
- Operator Of Record services
- Job referrals, announcements and searches
- Well testing, plan review, rate studies, WMCP plans
- System performance evaluation and options
- Additional programs and services
- Disaster response assistance and planning



MB23



MEMBERS



62nd Court Mutual Water Company
 Adair Village, City of
 Adams, City of
 Adrian, City of
 Agate Water System
 Albany, City of
 Albany Rifle & Pistol Club
 Alfalfa Water LLC
 Alpine Crest Improvement Dist.
 Amity, City of
 Ananda Center at Laurelwood, Inc.
 Arch Cape Water & Sanitary District
 Arlington, City of
 Arrah Wanna Water Company
 Arrowhead Mobile Home Park
 Aspen Lakes Utility Company, L.L.C.
 Astoria, City of
 Athena, City of
 Aumsville, City of
 Aurora, City of
 Avion Water Company
 Baker City, City of
 Bandon Dunes Resort
 Bandon, City of
 Banks, City of
 Barlow Water Improvement District
 Barlow, City of
 Bay City, City of
 Bay Hills Water Association
 Bayou Water Improvement District
 Beaver Water District
 Beaverton, City of
 Bend, City of
 Benton County Service District
 Bents Court Water Co.
 Berndt Creek Water Corp.
 Beverly Beach Water District
 Biggs Service District
 Black Butte Ranch
 Black Mountain Water District
 Blue River Water District
 Blue Spruce Estates
 Bly Water & Sanitary Dist.
 Boardman, City of
 Bonanza, Town of
 Boring Water District #24
 Brandy Bar Landing, Inc.
 Breitenbush Hot Springs
 Bridge Water District
 Brightwood Water Works
 Brooks Community Service District
 Brownsville, City of
 Buell-Red Prairie Water District
 Bunns Village Properties, LLC
 Burlington Water District
 Burns, City of
 Burnside Water Association
 Butte Falls, Town of
 Camp Baker BSA
 Camp Rilea
 Canby, City of
 Canby Utility
 Cannon Beach, City of
 Cannon View Park, Inc.
 Canyon City, Town of
 Canyonville, City of
 Carlton, City of

Cascade Locks, City of
 Cave Junction, City of
 Cedarhurst Improvement Club, Inc.
 Central Coast Clean Water Company
 Century Meadows Sanitary System, Inc
 Century Meadows Water System, Inc.
 Charles Tracts Water Company
 Chart Water Supply, Inc.
 Chehalem Mt. Sun Ridge Association
 Chenowith Water PUD
 Chiloquin, City of
 CHR Dist. Improvement Co.
 Christmas Valley Domestic Water
 Cimmarron City Water Co., Inc.
 Circle C Improvement Dist.
 Clarks Branch Water Association
 Clatskanie, City of
 Clayton Creek Water Association
 Clean Water Services
 Cline Falls MHP
 Cloverdale Sanitary District
 Cloverdale Water District
 Coburg, City of
 Collins Products LLC
 Colorado Lake Co-Op
 Colton Water District
 Columbia City, City of
 Columbia Hills Homeowners Association
 Columbia River PUD
 Condon, City of
 Coquille, City of
 Corbett Water District
 Cornelius, City of
 Corvallis Waldorf School
 Cottage Grove, City of
 Country Club Water District
 Country View Mobile Estates
 Covanta Marion, Inc.
 Cove Orchard Water Association
 Cove, City of
 Crater Lake National Park
 Crescent Sanitary District
 Crescent Water Supply & Improvement District
 Creswell, City of
 Crooked River Ranch Water Co-Op
 Crystal Springs Water District
 Culver, City of
 Dallas, City of
 Dayton, City of
 Dayville, City of
 Deer Creek Estates Water Association
 Delphian School
 Depoe Bay, City of
 Deschutes Valley Water District
 Detroit, City of
 Dexter Oaks Mobile Home Park
 Dexter Sanitary District
 Diamond Peaks at Leisure Woods I&II
 Diamond Summit Association
 Dietz Airpark Water System
 Donald, City of
 Drain, City of
 Drifter's MHP
 Dry Creek Airpark HOA, Inc.
 Dufur, City of
 Dundee, City of

Eagle Point, City of
 East Yamhill Rural Water Company
 Eastmont Water Company
 Eastshore Water Improvement District
 Echo, City of
 Elgin, City of
 Elkton, City of
 Emerald Meadows HOA
 Emerald Valley Wastewater Co.
 Enterprise, City of
 Estacada, City of
 Estacada Mobile Village, Inc.
 Eugene Mobile Village
 Fairview Water District
 Fairview, City of
 Falcon Cove Beach Water District
 Falcon Heights Water & Sewer District
 Fall Creek Water District
 Falls City, City of
 Fern Ridge School Dist. 28J-10
 Fern Valley Estates Improvement Dist
 Fernridge Mobile Estates
 Fir Grove HOA
 Fir View Water Company
 Fishhawk Lake Recreation Club, Inc.
 Florence, City of
 Forest Park Mobile Village
 Fossil, City of
 Garden Valley Water Association
 Garibaldi, City of
 Gaston, City of
 Gates, City of
 Gearhart, City of
 Georgia Pacific-Wauna
 Gervais, City of
 Gilchrist Water Co., LLC
 Gladstone, City of
 Glendale, City of
 Gleneden Sanitary District
 Glenmorrie Co-op Association
 Glide Water Association
 Goble Water Association
 Gold Beach, City of
 Gold Hill, City of
 Government Camp Water Company
 Grand Prairie Water Supply Company
 Grand Ronde Community Water Association
 Grand Ronde Sanitary District
 Grants Pass, City of
 Grass Valley, City of
 Green Area Water & Sanitary Authority
 Green Oaks Park
 Greenhoot Properties
 Haines, City of
 Halfway, City of
 Hall's Trailer Court
 Halsey, City of
 Harbor Water PUD
 Harrisburg, City of
 Hebo Joint Water/Sanitary Authority
 Heceta Water PUD
 Helix, City of
 Heppner, City of
 Hermiston, City of
 Hidden Valley Improvement District
 High Lostine Owners Association

Highland Subdivision Water District
 Hiland Water Corporation
 Hillsboro, City of
 Hines, City of
 Hood River, City of
 Hopewell Water Co.
 Hubbard, City of
 Hunnell Hills Community Water System
 Huntington, City of
 Ice Fountain Water District
 Idanha, City of
 Idleway Improvement District, Inc.
 Imbler, City of
 Independence, City of
 Indian Meadow Water Company
 Inn at Otter Crest
 Interlachen Water PUD
 Ione, City of
 Irrigon, City of
 Island City, City of
 Jackson County Parks
 Jacksonville, City of
 Jasper Knolls Water District
 Jewell School District
 John Day Water District
 John Day, City of
 Johnson Creek Water Services Company
 Joseph, City of
 Junction City, City of
 Keizer, City of
 Kellogg Springs Camp
 Kelly's Brighton Marina, LLC
 Kelso Water Association
 Keno Water Company, Inc.
 K-GB-LB Water District
 Kilchis Water District
 Kingswood Heights Water Association
 Klamath Falls, City of
 Klippel Water System
 Knappa Water Association
 Knoll Terrace Park
 L.A. Water Cooperative
 La Pine, City of
 Labish Village Water Commission
 Lady Creek Water System
 Lafayette, City of
 Laidlaw Water District
 Lake Creek Lodge
 Lake Grove Water District
 Lake of the Woods Resort, LLC.
 Lake Oswego, City of
 Lakeside Water District
 Lakeside, City of
 Lakeview, Town of
 Lakewood Homeowner's, Inc.
 Lamb Weston
 Lamontai Improvement District
 Lamplighter Water Association
 Lane County Parks
 Langlois Water District
 Laurelwood Water User's Co-op
 Lawrence Subdivision Water Assn., Inc
 Lawson Acres Water Assoc.
 Lebanon, City of
 Lexington, Town of
 Lincoln City, City of
 Little Beaver School, Inc.



MEMBERS



London Water Co-op
 Long Creek, City of
 Lonza Bend Inc.
 Lostine, City of
 Lowell, City of
 Luckiamute Domestic Water Co-op
 Lusted Water District
 Lyons-Mehama Water District
 Madras, City of
 Madrone Hill Mobile Home Park
 Madsen Springs Water Assn.
 Malin, City of
 Manzanita, City of
 Mapleton Water District
 Maupin, City of
 McKay Acres Improvement District
 McKenzie Palisades Water
 McMinnville Water & Light
 McNulty Water PUD
 Merrill, City of
 Metolius Meadows Prop. Owners Assn.
 Metolius, City of
 Midland Water Association
 Mill City, City of
 Milo Adventist Academy
 Minikahda Water District, Inc.
 Mitchell, City of
 Modoc Point Sanitary District
 Molalla, City of
 Monmouth, City of
 Monroe, City of
 Monument, City of
 Moro, City of
 Morrow Commission, Port of
 Mossy Brae Water District
 Mt. Angel Abbey
 Mt. Angel, City of
 Mt. Ashland
 Mt. Bachelor, Inc.
 Mt. Shadows HOA
 Mt. Vernon, City of
 Mulino Water Dist. #23
 Myrtle Creek, City of
 Myrtle Point, City of
 Nantucket Shores Water Company
 NeahKahNie Water District
 Nehalem, City of
 Nesika Beach-Ophir Water District
 Neskowin Regional Sanitary Authority
 Neskowin Regional Water District
 Netarts Water District
 Netarts-Oceanside Sanitary Dist.
 Newberg, City of
 Newport, City of
 North Corvallis Mobile Home Park
 North Hill Water Corporation
 North Powder, City of
 Northwest Newberg Water Association
 Nyssa, City of
 Oak Lodge Water District
 Oakland, City of
 Oakridge, City of
 Oakwood Water Systems, Inc.
 Oceanside Water District
 Ochoco West Water & Sanitary Authority
 Odell Sanitary District
 Olney-Walluski Water Association
 OPRD Main Office - Salem
 Orchard Heights Water Association
 Oregon Cascade RV Co-op.
 Oregon Shores Beach Club, Inc.
 Oregon Shores II
 Oregon Water Utilities-Cline Butte
 Oregon Water Utilities-Mtn. Lakes
 Oregon Water Wonderland II Sanitary District
 Orient Drive Mobile Estates, LLC
 Otter Rock Water District
 Pacific High School
 Paisley, City of
 Paradise/Rogue Meadow WS
 Parkdale Water Company, Inc.
 Perrydale Domestic Water Association
 Philomath, City of
 Phoenix, City of
 Pilot Rock, City of
 Pine Grove Water District
 Pioneer Park Water Co-op
 Pioneer Village Water Company, Inc.
 Pleasant Valley Water Company
 Pleasant View Water Company
 Polehn Heights Water Association
 Ponderosa Pines Water Company
 Port Orford, City of
 Port of Columbia County
 Power City Water Co-op
 Powers, City of
 Prairie City, City of
 Prineville, City of
 Quincy Water Association
 Rainier, City of
 Rainier School District #13
 Red Hills Estates HOA
 Redmond, City of
 Redwood Water Service, Inc.
 Reeder Ranch, Inc.
 Reedsport, City of
 Rhododendron Water Association
 Richland, City of
 Rickreall Community Water Association
 Riddle, City of
 Rieth Water & Sanitary District
 Rimrock West Improvement District
 River Meadows Improvement District
 River Point Farms, LLC
 Riverbend-Riverbank Water District
 Rivergrove Water District
 Riverside Water District
 Roats Water System, Inc.
 Rock Creek Water District
 Rockaway Beach, City of
 Rockwood Water PUD
 Rocky Pointe Marina
 Rogue Community College
 Rogue Lea Estates MHP LLC
 Rogue River, City of
 Rogue River - Siskiyou National Forest
 Roseburg Forest Products Company
 Round Lake Water Utilities
 Rufus, City of
 Salem, City of
 Salishan Sanitary District
 Salmon Valley Water Company
 Sandy, City of
 Scappoose, City of
 Scio, City of
 Scotts Mills, City of
 Scravel Hill Water Co-op
 Seal Rock Water District
 Seaside, City of
 Seneca, City of
 Shadow Hills Park Water Cooperative
 Shangri-La Water District
 Shelley Road Crest Acres W.D.
 Sheridan, City of
 Sherwood, City of
 Siletz Community Water System
 Siletz, City of
 Silver Falls School District 4J
 Silverton, City of
 Sisters, City of
 Skylane Farm
 Skyview Acres Water Company
 Sleepy Hollow Phase 1 Water
 Sodaville, City of
 South Fork Water Board
 South Hills Water System, Inc.
 South Umpqua Water Assn.
 Southview Improvement District
 Southwood Park Water District
 Spirit Mountain Gaming, Inc.
 Sportsman's Park Water Association
 Spray, City of
 Springwater Estates HOA
 St. Paul, City of
 Staffordshire Water System, Inc.
 Stahlman Summer Homes
 Stanfield, City of
 Star Satellite Improvement District
 Stayton, City of
 Steeves Mobile City
 Storlie Water Company Inc.
 Sublimity, City of
 Suburban East Salem Water District
 Sumpter, City of
 Sun Mountain Water System
 Sunny Acres Water Co.
 Sunridge Estates
 Sunrise Water Authority
 Sunriver Water LLC/Sunriver Utilities
 Sunset Acres Water Company
 Sunset Hills Domestic Water Assn.
 Sunset Lake RV Park
 Sunset Water Systems, Inc.
 Sunshine Village Water Association
 Sutherlin, City of
 SW Lincoln County Water PUD
 Sweet Home, City of
 Talent, City of
 Terrace Mobile Plaza
 Terrebonne Domestic Water District
 The Dalles, City of
 Three Rivers School District
 Tierra Del Mar Water Company
 Tigard, City of
 Tillamook Bay, Port of
 Tillamook County Creamery Association
 Tillamook, City of
 Timber Water Association
 Toledo, City of
 Tollgate Water Company
 Tone Water
 Tooley Water District
 Trailer Park Village
 Trappist Abbey
 Tri City Water & Sanitary Authority
 Troutdale, City of
 Tualatin Valley Water District
 Tualatin, City of
 Turner, City of
 Twin Island Community Water
 Twin Rocks Sanitary District
 Tygh Valley Water District
 Ukiah, City of
 Umatilla, City of
 Umatilla Indian Conf. Tribes Reservation
 Umpqua Basin Water Assn.
 Umpqua Indian Utility Co-op
 Union, City of
 Vale, City of
 Valley View Water Co-op
 Valley View Water District
 Valley Vista Estates Water Improv. Dist.
 Veneta, City of
 Vernonia, City of
 VIDA-LEA Community Co-op
 Waldport, City of
 Wallowa Lake Co. Service District
 Wallowa, City of
 Warm Springs Conf. Tribes Reservation of OR
 Warren Water Association
 Warrenton, City of
 Wasco, City of
 Water Wonderland Improvement District
 Wedderburn Sanitary District
 Weiss Estates Water System
 Welches Water Company
 Weldon Mobile Home Park
 West Hills Water Company
 West Linn, City of
 West Slope Water District
 Western Heights Water Association
 Westfir, City of
 Weston, City of
 Westport Water Association
 Westridge Water District
 Westwind
 Wheeler, City of
 Wickiup Water District
 Willamette Water Company
 Willamina, City of
 Wilsonville, City of
 Winchester Bay Sanitary
 Wi-Ne-Ma Christian Camp, Inc.
 Winston-Dillard Water District
 Wood Village, City of
 Woodburn, City of
 Yachats, City of
 Yamhill, City of
 Yoncalla, City of
 Young Life
 Young's River Lewis & Clark WD
 Zig Zag Water Cooperative, Inc.

WELCOME, NEW MEMBERS!

Zenner USA	Max Distributing	Roy Benzel	Jeremy Bodner	Brady Finnegan	Brett Blofsky
Probiotic Solutions	Aegion-Insituform Technologies,	MacKay Sposito	Daniel Sundstrom	Triston Emmel	Rick Norris
Hollabaugh Brothers	LLC-Underground Solutions, Inc.	Huntyr Croy	Marcus Martin	Deno Madrigal	Mona Rezaei
Legacy Power Systems	Baker Silo, LLC	Dylan Bridges	Pat Lerma	Larry Jennings	Amy Clingman
Thompson McLean Associates	Western Systems	Jason Stewart	Jennifer Wirsing	Juliet Hyams	Robert Eichler
		Jebadiah Pippenger	Neil Branson	Brice Blackwelder	Erin Davis
		Mike Smallman	Noah Hixson	Shane Ortega	Brian Lane
		James Bennington	Josh DeHaan	Forrest Houle	
	Rainier School District #13				

INDIVIDUAL MEMBERS

Adkins, Jacob	Chipman, Kenneth	Gaskey, Harvey	Hughes, James	Marshall, John	Partney, Sheldon	Stark, Chris
Allred, James	Christensen, Matthew	Gentry, Mike	Hume, John	Martin, Marcus	Pierce, Scott	Statchwick, Jeff
Anderson, Dale	Clark, Jamie	Gil, Riley	Hunter, Greg	Martin, Wyatt	Pike, Steven	Steidler, Matthew B.
Anderson, Kenneth	Clark, Joshua	Gilkison, Levi	Hyams, Juliet	McCready, Wade	Pino, Patricia	Stewart, Jason
Anthony, Joe	Clement, Tony	Glanz, Jared	Jackman, Danaea	McElroy, Kerry	Pippenger, Jebadiah	Stirling, Ethan
Bagdonas, Eric	Clingman, Amy	Gott, Craig	Jackson, Pat	McFall, William B.	Powers, Ryan	Sundstrom, Daniel
Barnes, Chase	Close, Greg	Graue, Nick	Jacob, David	McGanty, Mike	Pryor, Ben	Taylor, Ian
Bateman, William	Coffman, Victoria	Halverson, Bruce	Jennings, Larry	McGinnis, Lee	Ramsey, Tyler	Terrusa, David
Bazan, Giovanni	Conant, Charles	Hamilton, Howard	Johnson, Grady	McMullen, Ryan	Ranch, Destin	Thompson, Branden
Bennington, James	Connelly, Barbara	Hamilton, Megan	Jones, Robert	Merrell, Thomas	Rand, Terry	Thayer, Bradley
Bidwell, John	Conyac, Jeremy	Hamilton, Mitchell	Judah, Dave	Miranda, Michelle	Renhard, Chad	Tibbets, Taylor
Blackwelder, Brice	Crosby, Ty	Hand, Eric	Katrena, Scott	Mitchell, Michai	Rezaei, Mona	Tupper, Sean
Blench, Steven	Croy, Huntyr	Hanks, Kevin	Kemmer, Alex	Moffit, Jeremiah	Robinson, Rob	Uhrich, William J.
Blofsky, Brett	Crum, Dale	Haring, Joshua	Kemper, John	Moretti, Garrett	Robustelli, Jason	Valencia, Albert
Bodner, Jermey	Davis, Erin	Hawkins, Michael	Kirchmann, Russell	Monroe, Donald	Saubert, Terry W.	VanWagoner,
Boyles, Blake	Degn, Tony	Hensley, Daryl	Klinger, Martin	Morris, Brady	Schaafsma, Eric	McClellen
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Bridges, Dylan	Demanett, Micah	Hills, Tyler	Kuiken, Dakota	Mudra, Austin	Schroder, Michael C.	VonPinnon, Michael
Brown, Jeff	Doss, Chris	Hisaw, Russ	Kunders, Aaron	Neal, David	Scott, Keri	Vorpahl, Mike
Brown, Rick	Durfee, Kenneth	Hixson, Noah	Laetzsch, Dawna	Nelson, Ron	Sears, Ronelle	Wabschall, Aaron
Buskirk, Jeff	Eichler, Robert	Hoefler, Matthew	Lambert, Ross	Norris, Rick	Seelye, Shawn	Wabschall, Steve
Cable, Joe	Elder, Dave	Hoesch, Jacob	Lane, Brian	Novac, Samuel	Sewall, Andrew	Welch, Logan
Caldwell, Kevin	Emmel, Triston	Horton, Ray	Lee, Jon	Odell, Mark	Sibert, Donald	Wesely, John
Calhoun, Christopher	Evans, Peter	Houchin, Jeff	Leffler, Chuck	Ortega, Shane	Skaggs, Jesse	Williams, Scott
W.	Finnegan, Brady	Houle, Forrest	Lerma, Pat	Ortiz, Sam	Smallman, Mike	Winterton, Robbie
Cameron, Zachary	Fluetsch, John	Howard, Richard	Lockard, Darrel	Ott, Mallory	Smith, Contrail	Wirsing, Jennifer
Carlson, Rob	Free, Derek	Howell, Roy A.	MacCarthy, Steven	Paola, Robert	Smith, Joseph Sr.	Woodward, Steve
Carter, Roy	Freel, Milton E.	Hubbard, Tom	Malone, Pamela	Parent, Kenny	Smith, Larry	York, Christian
Ceballos, Oscar	Gallino, Joseph	Huff, Zach	Marshall, Chad	Parrish-Green, Angela	Springer, Rondi	Zuniga, Antonio

ASSOCIATE MEMBERS

4B Engineering & Consulting	CIMCO-GC Systems, Inc.	General Pacific, Inc.	Neptune Technology Group	SHN Consulting Engineers & Geologists
A.Y. McDonald MFG. Co.	CIMCO Sales and Marketing	Goble Sampson Associates	Numberg Scientific	Smart Earth Technologies
Adkins Engineering & Surveying	Civil West Engineering Services	Harmsco Filtration Products	NW Hydrovac	Smith & Loveless Inc.
Advanced Control Systems	Clow Valve Company	Harrang Long Gary Rudnick PC	Olson Engineering	Special Districts Assn of Oregon
Aegion-Insituform Technologies, LLC	CoBank	HD Fowler Company, Inc.	One.7, Inc.	SUEZ Water Advanced Solutions
AKTIVOV Asset Management	Columbia Laboratories	Hollabaugh Brothers & Associates	Optimal Control Systems	The Automation Group
American AVK Company	Consolidated Supply Co.	Holman Capital Corporation	Oregon Meter Repair & Water Solutions	The Ford Meter Box Co., Inc.
American Flow Control	CORE & MAIN	Hose Solutions	Oregon Public Utility Commission	Thompson McLean Assoc.
American Leak Detection	Correct Equipment, Inc.	Hurley Engineering Company	Orenco Systems	TMG Services
Anderson Perry & Associates	Ditch Witch West	Hydra-Stop	Owen Equipment Company	Trade Tool
Aqualtec Corp.	Diversified Construction and Consulting, LLC	HYMAX by Mueller	Owens Pump & Equipment	Tripac
Backflow Management, Inc. (BMI)	DN Tanks	InfoSense, Inc.	PACE Engineers, Inc.	U.S. Cellular
Badger Meter, Inc	Edge Analytical Laboratories	Instrument Technology Corporation	Pacific NW Sales	UGSI Solutions
Bainbridge Associates, Inc	EJ	Kasco Marine	Pittsburg Tank & Tower Co.	Umpqua Research Co.
Baker Silo, LLC.	Energy Trust of Oregon	Kennedy/M&H Valve	Probiotic Solutions	Underground Tech.
Bancorp Insurance	Enviro-Clean Equipment, Inc.	Lakeside Industries/EZ Street	PumpTech Inc	USABluebook
Beebe Water Systems	Ferguson Enterprises	League of Oregon Cities	Puttman Infrastructure, Inc.	Vortex Pipe
Big Dog Sales, NW	FloHawks	Legacy Power Systems	RDO Equipment	Waterlab Corp
BioLynceus, LLC	Frank J. Martin Company	Master Meter, Inc.	Reiner Pump	Western Systems
Business Oregon Development Dept.	Frontier Precision, Inc.	Max Distributing	Romac Industries, Inc.	Western Water Works Supply, Co.
Cascade Columbia Distribution Co.	Frost Engineering Service Company NW	Metolius Engineering LLC	Romtec Utilities, Inc.	Whitney Equipment Company, Inc
Cascade Waterworks	Furrow Pump, Inc.	Morrison-Maierle	Schneider Water Services	Wm H. Reilly & Co.
	G.T. Gordon & Associates, Inc.	Mueller Company	Schroeder Law Offices, PC	Xylem, Flygt Products
		MuniBilling	Sensus USA	Zenner USA



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