

# H<sub>2</sub>O Oregon

Fall 2023  
Vol. 45, No. 4

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# H<sub>2</sub>Oregon

Fall 2023  
Vol. 45, No. 4

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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:

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Silver Falls by Hans Schroeder

## CONTENTS

<b>Walmart Greeter or OAWU Employee</b> <i>by Mark Russell, Administrative/Financial Assistant</i> .....	3
<b>Recharge!</b> <i>by Monty Norris, Wastewater Technician</i> .....	5
<b>OAWU's Summer Classic 2023 in Seaside, Oregon</b> .....	6-9
<b>OAWU's Annual Golf Scramble</b> .....	8
<b>An AI Experiment</b> <i>by Mike Collier, Deputy Director/Source Water Specialist</i> .....	10-11
<b>Special Thanks to Our 2023 Sponsors</b> .....	11
<b>Association Acronym Search</b> <i>by Tim Tice, Projects Manager</i> .....	12
<b>Upcoming Conferences — Mark Your Calendar!</b> .....	13
<b>Why Apprenticeship?</b> <i>by Heather Davis, Apprenticeship Coordinator</i> .....	15
<b>Emergency Response Plans for Small Water Systems</b> <i>by Scott Berry, Operations Manager</i> .....	16-17
<b>Welcome to the Industry</b> <i>by Hans Schroeder, Circuit Rider</i> .....	18
<b>Insurance</b> <i>by Heath Cokeley, Program Manager/Circuit Rider</i> .....	19
<b>Water Witching in the 21st Century</b> <i>by Sam Waller, Circuit Rider</i> .....	20
<b>Water Witchery</b> <i>by Scott Berry, Operations Manager</i> .....	21-22
<b>Quiz Corner</b> .....	23
<b>Upcoming Training &amp; Events</b> .....	25
<b>Commercial Diving Safety</b> <i>by Troy Gessner, President, Integrated Underwater Services LLC</i> .....	26-27
<b>Membership Application Form</b> .....	29
<b>Membership Roster</b> .....	30-32

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BioLynceus .....	4	ITC.....	14
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City of Tigard .....	24	Oregon Meter Repair.....	23
Core & Main .....	19	The Automation Group.....	Inside Front Cover
EJ .....	17	Underground Tech .....	28
Ferguson.....	17	USA BlueBook .....	Back Cover

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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

# Walmart Greeter or OAWU Employee

by Mark Russell, Administrative/Financial Assistant



Sometimes we make fun of the senior citizens who we see as a Greeter at Walmart. Do we consider any of the reasons why they accepted that position? Could it be age discrimination and no one else would hire them? Or their retirement savings was not enough? It could be they want some extra income to be able to go on vacations and occasionally travel. Or they just like being around people and having the satisfaction of getting to help others.

Most of you knew that I retired 3 ½ years ago from Oregon Association of Water Utilities. What have I been up to since then? Briefly, I helped with cleanup at some homes from the wildfires in Gates & Mill City. I was able to add 9 cords of wood to our woodshed from helping my community with cleanup from the ice storms. Since our first-time trip to Hawaii was cancelled due to Covid 19, we finally were able to take a 2 ½ week vacation to Newfoundland, Canada this past summer. And of course, there are always those shorter travels to the John Day Fossil Beds and the Painted Hills in addition to the occasional weekend visits to our gorgeous Oregon beaches. Projects at home included a new wood stove that heats the whole house (we rarely use the gas furnace anymore) and a Do-It-Yourself backyard brick patio with firepit and string lights. Also, I enjoy volunteering at our local church with various commitments and performing with the handbell choir.

My wife, Janet, plans on retiring next year. We both would like to travel more often than our retirement funds will allow. Recently, after a short discussion, we both agreed that if we both took on part time jobs, we could do more traveling than just going to the coast for a weekend from time to time and hopefully do an out-of-country trip every four or five years.

My wife's career has been in the childcare industry for 40 years. She knows kids. After retirement for her part time job, she wants to continue working with kids at an elementary school as a teacher's aide or maybe work in the office as an administrative assistant.

The last twenty years of my career was with Oregon Association of Water Utilities as their Office Manager/Accountant. I know OAWU.

There are exciting things happening at OAWU. They needed an additional financial assistant. Their timing for a part time employee has coincided nicely with my wife's and my plans for that extra spending money to go traveling about more often.

I have accepted the position with OAWU. Working with OAWU has been the best job I've ever had. How could I not come back to work anyway? Don't be looking for me to greet you at a Walmart anytime soon. ♦

— Mr. Mark

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# Recharge!

by Monty Norris, Wastewater Technician

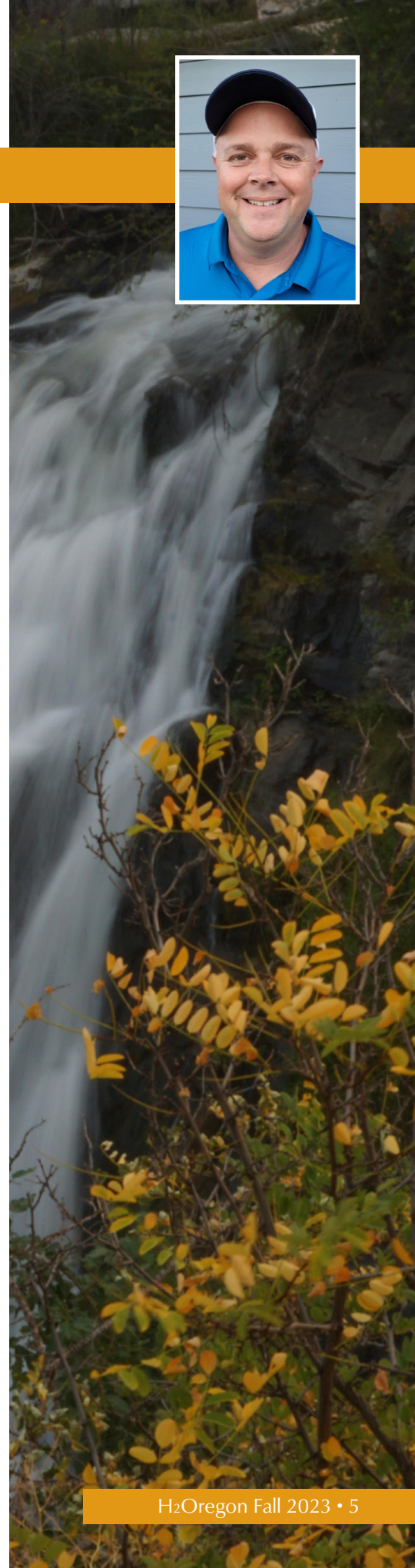


Every day as we head out for work to accomplish our daily goals, deal with the day-to-day stresses, physical demands from maintenance or the weight of the responsibilities to meet daily compliance we are supposed to go home and rest up for the next day. Easier said than done for some isn't it?

The worries or problems lead us to think hard about solutions to remedy plant problems and we are supposed to shut off at 5pm when we go home and rest or recharge...some people have the ability to do that better than others however, some of us continue thinking into the evening after getting a drink of water during the night precisely it seems to be 2:30 am, ooooh Scada glow calls my name to check the plant. One cannot resist the temptation to make sure the plant is running flawless before crawling back to bed but start troubleshooting issues once again while lying there in bed but suddenly 3:30...4:30 rolls around but isn't that when we find the solution to our problems? I once came into work the next day and mentioned that I was thinking about our problems at plant at 2:30 am and my supervisor responded with...you should have given me a call because I was doing the same thing however, this is a guy who sleeps with his boots on during stormy nights and monitors Scada all hours of the night. We got a chuckle about that and know that all confusion becomes clear at 2:30 a.m. and all solutions become clear, I mean it should be in the handbook, right?

In all seriousness, this is the stuff that begins to weigh on us by the end of the week or month and builds up as stress which leads us down a road where we don't want to be. Nobody likes angry, tired, irritated versions of ourselves. We need to find healthy outlets to RECHARGE!

We all have different hobbies and interests we enjoy, some of us enjoy solitude and some need social interactions or a balance of both but we all need something that provides us with the ability to rest, smile and laugh. For me I love to fish ( a lot of times by myself) and hunt, I play cornhole tournaments almost weekly, yet at times I need a "down day" to do nothing whether that is going on a camping trip and sitting around lake/river one of the days instead of trying to see everything, I also find my tomato plants more and more enjoyable and get a roll of eyes at first from wife when I see cool ideas( electric toothbrush for pollination) to help tomatoes grow. We all have our own personalities and needs to reduce stress and recharge our mind, body, and enthusiasm for what we do and with the growing problems at work, it is important to find those now rather than our health pay the price later. My last advice, look after each other! 💧



# OAWU's Summer Classic 2023

The weather was fantastic, and the activities were great. Monday's pre-conference provided great classes and a few extra CEUs to those who attended. The conference was kicked off by an opening session given by OAWU's Board President Matt Johnson, followed by OAWU's Executive Director, Jason Green, and a legislative update by Mark Landauer. Tuesday held the evening barbecue with exhibitor time and prize giveaways. Wednesday continued with a full day of classes, and some took the afternoon off to participate in the annual OAWU Golf Scramble at Seaside Golf Club. Thursday concluded the conference at noon with some final words and the highly anticipated raffle drawings and cash prizes.

A special thank you goes out to this year's Diamond Sponsor, TAG; Gold Sponsor, Core & Main; and Silver Sponsor, H.D. Fowler.

The annual golf scramble at Seaside Golf Club hosted 13 teams.

At closing session, Thursday, OAWU gave away over \$2,500 in merchandise and \$550 in cash prizes.

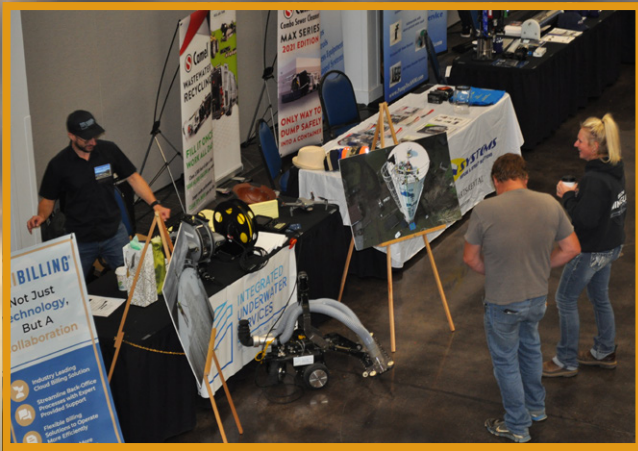
Congratulations to this year's raffle winners! A full registration to the OAWU Sunriver Conference in March 2024 was won by Bryce Majors from Camp Rilea. We are pleased to report that between the raffles and auction items you were able to support the Jeff Swanson Memorial Scholarship fund with an additional \$4,175. Thank you for supporting your Association.

Mark your calendar for next year's OAWU Summer Classic in Seaside, August 20-22 2024. See you there! 💧





# in Seaside, Oregon



# OAWU's Annual Golf Scramble

Seaside Golf Club – August 23, 2023

The day started off pleasantly warm; it was a perfect day to hit the links for this year's scramble. The staff at the Seaside Golf Club were accommodating, friendly, and professional helping to make the day even more enjoyable.

Thirteen teams challenged the course this year, making for a great competition. No one was safe from the errant drive, misjudged chip shot, or the mocking one received when their shot landed two fairways over; we must also admit that there were many great players and many awesome shots on the course again this year. The banter helped build camaraderie throughout the scramble.

Special thanks to – Gordon and Associates Inc., Frank J Martin Company, Northwest Chemical, and General Pacific Inc. for being this year's sponsors and for their support of the attendees and the Association.

Congratulations to all the teams who played this year, but especially to the teams that placed.

1st place Stephen Peters, Joe Little, Gage McFadden, and Tom McFadden

2nd place Brock Williams, Alex Skyes, Julius, and Michael Oleson

3rd place Matthew McQuillan, Scott Hanna, Cesar Alcalá, Dalton Knight

The winners of the golfing competition games were:

Longest Putt #1: Mealue

Longest Putt #2: Smith

KP #1: Waller

KP #2: Hanna

Longest Drive, Women's: Bentz

Longest Drive, Men's: McFadden

Special thanks go out to Circuit Rider Sam Waller and Wastewater Technician Monty Norris who helped make sure the scramble went off without a hitch.

Mark your calendar for OAWU's next Summer Classic at Seaside, August 20–22, 2024. It is a great location to enjoy while you earn CEUs and network with the Associate Members and your peers. 💧







# An AI Experiment

by Mike Collier, Deputy Director/Source Water Specialist

I went down a little bit of a rabbit hole for this article, I tried a chat bot (AI) out. I used the one from Microsoft Bing. I first asked for it to write me an article about the harm of feral cats in Australia—it said that it couldn't do that. So, I asked to explain to me why they are bad and to add citations. This is what it came up with:

Feral cats are domestic cats that live and reproduce in the wild and are found in all habitats in Australia. They were introduced to Australia around 1804 and have spread throughout the continent. They are a major invasive species and have caused the decline and extinction of various native animals, especially ground-nesting birds, and small mammals. They also prevent the reintroduction of threatened species by killing them. They have no natural predators in Australia and kill some 75 million native animals every day. They are the result of people abandoning their unsterilized cats or allowing them to roam outdoors. The Australian cat population is estimated to be between 2 million and 6 million<sup>1</sup>.

Here is a citation for you: 1 Department of Agriculture, Water and the Environment. (2023). Feral cats. Retrieved from <https://www.dcceew.gov.au/environment/invasive-species/feral-animals-australia/feral-cats>

Then I asked it again to explain this to me, but as if I was a ten-year-old and in 500 or more words, it spit out this:

Feral cats are wild cats that are not taken care of by people. They are very bad for Australia because they eat many animals that live there. Some of these animals are very important to Australia and they can't live without them. Feral cats are like bullies who hurt other animals and make them go away. They are so many that they hurt many animals every year.

Feral cats are a big problem in Australia because they are not native to the country. This means that they were brought there by people from other places. When feral cats were brought to Australia, they did not have any natural predators. This means that there was nothing to stop them from eating as many animals as they wanted.

Feral cats eat many kinds of animals. Some of these animals are very important to Australia because they help keep the environment healthy. For example, some animals help spread seeds around so that new plants can grow. Other animals help keep the soil healthy by digging tunnels underground. When feral cats eat these animals, it can cause big problems for the environment.

Feral cats are also very good at hunting. They have sharp claws and teeth that help them catch their prey. This means that they can catch many kinds of animals, even ones that are much bigger than they are. When feral cats hunt too much, it can cause some animals to become extinct. This means that there will be no more of those animals left in the world.

Feral cats are like bullies who hurt other animals and make them go away. They do this by eating other animals or by scaring them so much that they leave their homes. When feral cats do this, it can cause big problems for the environment because some animals need other animals to survive.

There are so many feral cats in Australia that they hurt many animals every year. It's estimated that there are as many as six million feral cats in the country, and that they kill some 800 million native animals annually. This is a very big problem because it means that many important animals are being hurt or killed every year.

Here is a link to an article on Wikipedia that provides more information on this topic: [https://en.wikipedia.org/wiki/Cats\\_in\\_Australia](https://en.wikipedia.org/wiki/Cats_in_Australia).”

With the second one it seems to have just went to Wikipedia.

This is interesting technology and there are better versions of it out there—I was impressed with how easy it is to use, but I feel this Bing version was too quick to just rely on Wikipedia. It only allows you to ask 5 questions a day, but one feature I do like is that I don't have to sign up for it. This is not the same with ChatGPT, but I am guessing that ChatGPT is a better version for this AI technology.

It seems easy to see how this technology is going to be very powerful and change the way we do many things. It may even change many of the white-collar careers that we have today. If in a few years I can just have it write a contract, plan, or software program for me, then I don't have to use a professional. It is an interesting time, but I still see that in the near future we will still need water and wastewater operators to run our systems—so far AI can't do that. 💧



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# Association Acronym Search



by *Tim Tice, Projects Manager*

The acronym **OAWU** appears in this word search 27 times — forward, backward, upward, downward, and diagonally. Can you find them all?

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# Why Apprenticeship?

by Heather Davis, Apprenticeship Coordinator



In June 2014 I had just gotten back from a vacation at Devil's Lake, when I received a phone call asking me to come in for an interview for a job I had applied for. I did not remember applying for the job or even what OAWU was. They wanted me to come in that evening. I asked them to give me an hour to shower and change. I got ready for the interview and looked up where the office was, so I could get there. I was so surprised to find the office was five minutes from my house. I was so nervous; I missed the entrance to the parking lot and ended up parking next door. I had no time to prepare and go over what I had applied for or what my resume said.

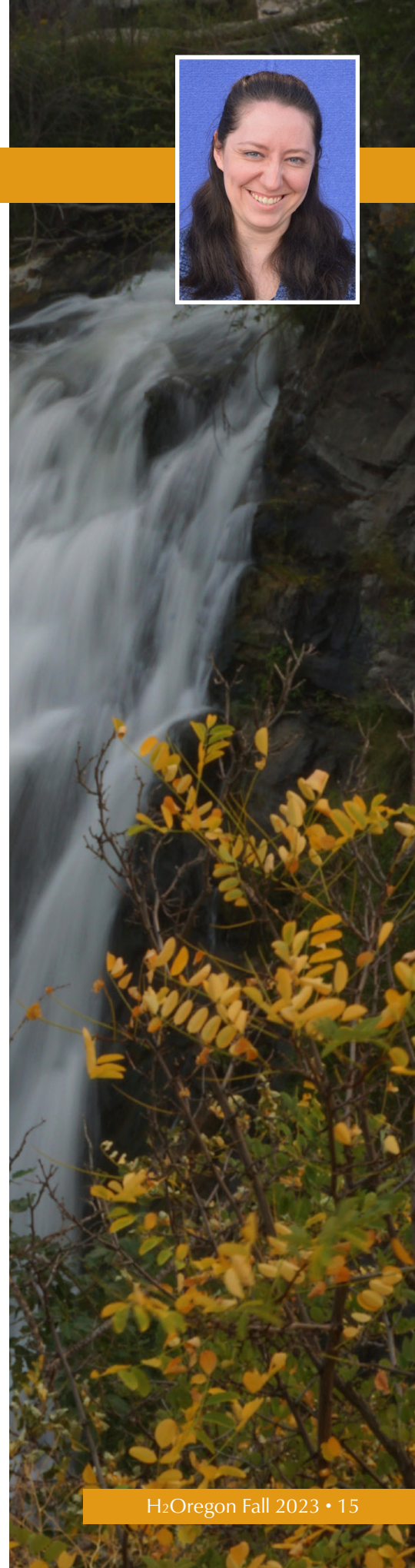
So, I made my way inside and had my first interview with Mark Russell and Jason Green. It seemed to go well, because not 10 minutes after I left, I got a call from Mark asking me to come in the next day for a second interview. When I came for my second interview, I was able to meet Donna Bernt. The following day I received a call saying I had the job and they wanted me to start July 1st. I was the new part time Office Assistant for OAWU. After a year of being part time, I was promoted to full time Office Assistant for OAWU.

July 1, 2023 marked my nine-year anniversary working for OAWU. After 9 years of working in the office I have come to appreciate and understand what OAWU is all about. OAWU's mission statement is: "OAWU's mission is to provide service, support and solutions for Oregon water and wastewater utilities to meet the challenges of today and tomorrow." This is what OAWU is all about, taking care of people, not just systems, as well as, providing the best continuing education, on-site training, equipment, and personal assistance that we can for every system in Oregon.

Why go to running the apprenticeship program you ask? Back in medieval times, if the parents were lucky enough, they would be able to send their children to become apprentices with someone so they could learn a trade that would help them succeed in life. These young apprentices were mentored and taught a trade until they were able to go out on their own and then train an apprentice themselves. Ok, so? The water and wastewater industry is something that has always been a vital need, and always will be. People need clean water to drink, and their waste must go somewhere. So, we need new people to come in and learn the trade. It's not about getting someone to come and just learn the job, because that is what they are supposed to do. It's having someone come in and be taught the importance of the industry and help develop the passion to want to learn so they can turn this into a career.

Being able to teach someone and help them develop the "want" to be successful is what the apprenticeship program is all about. Helping the new generation step up as the older generation leaves, with satisfaction and confidence that the new generation will provide as the older generation rides off into the sunset, carefree. This is what the new program is all about.

I cannot wait to get started and continue working with all the systems and the coming apprentices on this new and exciting journey. 💧



# Emergency Response Pl

by Scott Berry, Operations Manager



In part 2 of this short series of articles focused on Emergency Response Plans for NTNC and Community water systems under 3,300 population, we're going to continue to dissect OAR 333-061-0064 (1). The OAR continues, but section (2) pertains to Risk and Resilience Assessments (R&RA) which are a requirement for systems serving populations greater than 3,300. Though not a requirement for compliance for small systems, a Risk and Resilience Assessment is a great place to start. Regardless of system size, in order to have a well thought out and well written document at the end of this process, we have to have a reasonable understanding of what the potential threats to our operation are and an R&RA can help us decide what those are.

As previously discussed in the last issue, we must, at minimum, develop and implement procedures that address power loss, pressure loss, treatment and disinfection process upset, and contamination incidents. The article also provided additional information and resources to assess what other types of emergencies can occur in our area. An additional resource that will help us determine the threat of catastrophic wildfire in our area is the interactive State Wildfire Risk mapping system through the Oregon Department of Forestry located at <https://www.oregon.gov/odf/fire/pages/wildfire-risk.aspx>

You can select your area and the appropriate map layers and print out a threat assessment map for inclusion in the ERP.

Continuing on down the regulation, OAR 333-061-0064 (1)(b) stipulates if computer networks or automated control systems operate or monitor processes at the water system, water suppliers must implement cybersecurity measures to prevent attacks on process controls including but not limited to: establishing a password policy based on current cybersecurity standards, creating a software update plan, monitoring for suspicious activity, and installing and updating antivirus or anti-malware software.

This is the part of a comprehensive ERP that concerns me the most. It concerns me because this is the part that I am least able to respond to without assistance. Mainline leaks, power outages, storms, floods, and fires are just another day on the job. A malicious hacker sitting in their office a few thousand miles away can cause trouble that I don't know how to immediately react to. Other than what I heard about on the news or in a class, I had not given much thought about this issue until my wife went through a malware attack on her place of business that locked her out of all data and stole personal info on all employees and clients in their files. This event was perpetrated by an overseas "company" that for all intents and purposes was State sanctioned. They have a website and requested published reviews, for Pete's sake! My wife's employer decided to go against the wishes of our government and pay the more than a quarter million dollars in ransom to get their data back. Their data was returned to them, but it was still several months of work

# ans for Small Water Systems

to return it back to a usable format. What's the solution to this type of attack? Backups. For a water utility, I would recommend that immediately after you finish the monthly billing you back up your systems and keep a copy of the data offsite and air-gapped.

Another recommendation is to take those tattered copies of the system maps and As-Builts to a reputable print shop and have them digitized and save a copy in the same manner.

For additional resources on cybersecurity for small water systems, consult the American Water Works Association website at <https://www.awwa.org/Resources-Tools/Resource-Topics/Risk-Resilience/Cybersecurity-Guidance>

and the EPA guidance provided at <https://www.epa.gov/waterriskassessment/epa-cybersecurity-water-sector>

In the next issue, we will finish this series with a closer look at OAR 333-061-0064(1)(c). ♦

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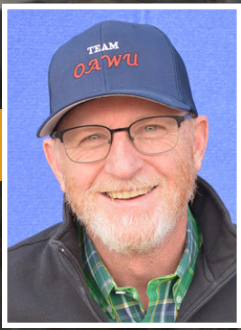


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# Welcome to the Industry

by Hans Schroeder, Circuit Rider

It's great to see new faces in the water/wastewater industry! With them comes new energy and brings new families to the community, but it can become very challenging for new employees to learn "the ropes." If they are hired to work for the smaller water systems, it can be overwhelming without hands on guidance and direction, much like trying to take a drink out of a fire hydrant. Hopefully, the past employees can be of assistance, offering to share their wealth of knowledge, tips, and tricks to the next generations who don't know yet.

There are many responsibilities and deadlines that new operators must balance alongside their daily tasks. Both OHA and DEQ have requirements for weekly, monthly, and annual testing and sampling. It can take years to understand all the acronyms and language associated with the water/wastewater industry, a clear disadvantage for a green employee. Then to add to the workload there are parks to be maintained, locates to be completed, council "to do" lists, citizen requests, meters to be found and read.... the list continues to grow like cattails on a pond. It takes a new employee time to prioritize the importance of tasks that need to be completed, and an even longer time to understand the functions of the system, or where the heck the supplies are even located. Without experienced staff to assist in training and education, the routine of tasks can be hard to develop. Rome wasn't built in a day, and neither is a competent operator.

These employees may have been hired as "part time," but with rules and regulations, deadlines and duties, state requirements and local pressure; the employees can be consumed with paperwork and end up "full time" to get other local city duties completed. It's a tough learning curve for these small systems to balance workload and budget; and to make sure the needs of the community are being met. The city mayor and city council members may need to assist and be involved in some of these regular and non-regular town duties. After all, if you only have one public works person and they ride off into the sunset, how will the city run their facilities? Teamwork, collaboration, and a sense of responsibility are much needed in these small areas. Every pump failure, line break, electrical fault, or state required regulation demands a group effort of communication and motivation to get what needs to be done, DONE. It is imperative that staff and council support their system operators through more than just words. A rope on the ground, never caught a calf.

Although it can be very difficult for smaller systems to "saddle up," the work itself can also be a very rewarding opportunity. Solving problems, learning new skills, bringing awareness to the public eye, and becoming more diversified in the community, are some big benefits to the "jack of all trades" job. OAWU Circuit Riders are available to assist in State and Federal requirements, sampling procedures, sampling schedules, and any other regulations that the system needs in order to stay in compliance. Not only are we here to give you support, but it is just as important for us to foster great relationships with our operators throughout the state, so they feel comfortable asking us questions, and maintaining their state and federal compliances. Public safety is the number one priority for us and our operators and OAWU is there to support these systems and staff. We want them to succeed in their communities, and to help them "build their loops," so they are ready for whatever is coming down the pipe. 💧

# Insurance

*Heath Cokeley, Programs Manager/Circuit Rider*



You picked up the *H2Oregon* magazine, opened it up to read an article, and even after seeing the title was “Insurance,” arguably one of the most boring topics I could have chosen, you still decided to read it. Congratulations, I am impressed.

Do you have insurance on your system’s assets? My guess is most people will be able to easily answer yes to that question, which brings me to my next question. Do you have enough insurance on your system’s assets to replace them in today’s world? The last few years have been a roller-coaster of inflation and I am sure we have all noticed that our dollars don’t go as far as they used to. While that is something that is right in front of us, and obvious, what may get missed is making sure you have enough insurance to actually replace a Water or Wastewater treatment plant if it should be destroyed.

We may even think about this in our personal lives. I know after the 2020 wildfires, I was on the phone with my insurance agent making sure that I could actually afford to replace my home that sits amongst the trees should something happen. But looking back to when I was managing a water system, insurance on that system’s asset was not always at the top of my list. We had insurance of course but making sure that we had enough to replace the office, or a booster pump, or even for some of you a water or wastewater plant was not something I thought much about. Considering the replacement cost for a water or wastewater plant is going to be in the millions and for many in the 10s of millions—it may not be a bad idea to take another look at how much insurance you have and make it fit with what you need.

If you are not sure where to start to figure out what your assets would cost to build today, I have a couple suggestions. First, a conversation with your engineer would likely be helpful for this. Also, feel free to call OAWU and ask for a Circuit Rider, if its drinking water related, or a Wastewater Tech if it’s on the dark side. I am sure we are not going to know off the top of our heads what your plant would cost to replace, but what we may know is what other systems of comparable size and maybe even know of one that has been replaced recently. We would be happy to try and make that connection and my guess is, you will find many more benefits by knowing what other systems are similar to yours than just the insurance piece of this equation. I hope that gives you something to think about, even if it is on such a boring topic as insurance, and with that, I will see you down the road. 💧

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# Water Witching in the 21st Century

*by Sam Waller, Circuit Rider*

Water witching, also known as dowsing, is a fascinating and remarkable technique that has been practiced for centuries. Despite its controversial nature, water witching has proven to be a useful tool in locating underground utilities such as water pipes. While not perfect, witching is a great tool for the modern toolbox.



Water witching has its roots in ancient practice, with records of its existence dating back to 15th century Europe. In those times, dowsers were often relied upon to locate underground sources of water. Their abilities and insights were sought after to prevent drilling of costly and unnecessary wells. Some drillers still use this method with great success, but it doesn't work for everyone.

Water witching involves the use of various tools such as L-shaped rods, pendulums, or Y-shaped twigs. When held in the hands, these tools subtly respond to the presence of underground utilities. The witching process itself is a blend of science, skill, and experience, combining elements of geology, electromagnetism, and intuition. Though water witching lacks scientific consensus, it has proven to be surprisingly reliable and accurate for many practitioners. Countless anecdotes and testimonials from homeowners, contractors, and utility companies have all had great success. Dowsers, armed with their tools and skills, consistently locate underground utilities with impressive accuracy that conventional methods sometimes cannot match. In situations where maps are outdated or missing, water witching becomes an invaluable resource. Water witching is a low-cost alternative to other techniques that relies on the intuition and skills of the dowser. With its simplicity and accessibility, it can save significant time and financial resources.

Despite the ongoing debate surrounding the scientific foundations of water witching, its practical benefits have shown it's still a viable option for the 21st century. It has consistently shown remarkable results in locating underground utilities, playing an invaluable role in today's construction and water industries. Water witching offers a cost effective, reliable, and efficient alternative to conventional methods. While witching doesn't work for everyone, this ancient skill alongside proven modern techniques put us in a better position to complete our jobs. 💧

# Water Witchery

by Scott Berry, Operations Manager



*Several years ago, I wrote an article for H2Oregon titled “Witching or Wishing.” After having several discussions about the topic of witching for water over the past few weeks, I decided it was time for another look at the topic.*

When I was very new to the water industry, I was introduced to the phenomena known as water witching. This practice was purported to be able to show where the underground water pipes were located.

It looked interesting and the guy showing me how to do it said he was sure it worked. However, he was not sure enough to show me where the pipe was and then turn me loose on the backhoe without doing a lot of slow hand-digging, as is prudent in any underground excavation. I remained skeptical and over the years I kept asking those in the industry about this practice and started doing some research on my own.

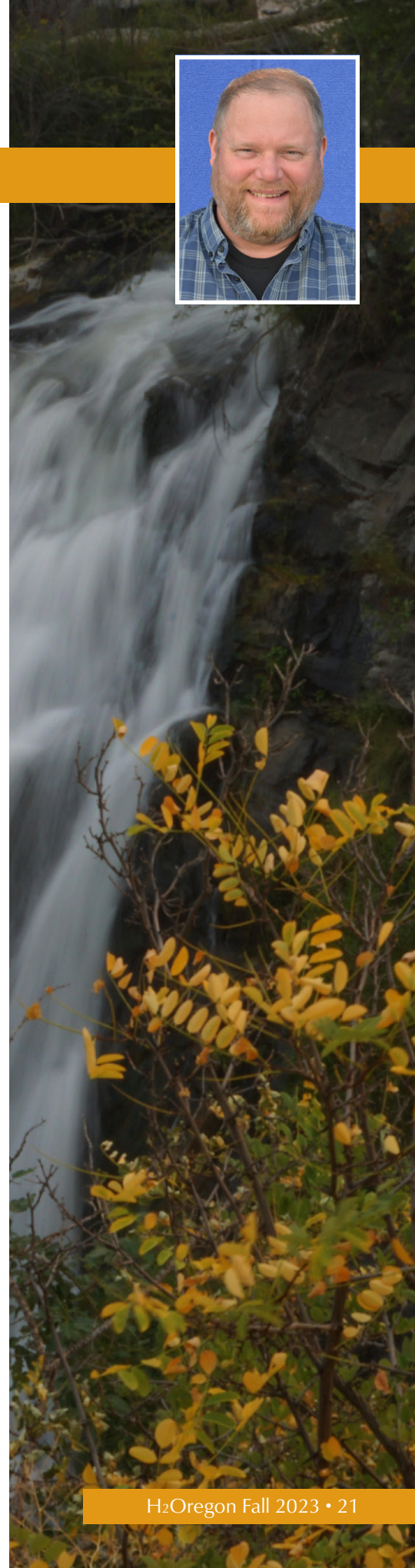
Whether you call it Witching, Dowsing, Rhabdomancy, or Divination, it’s all the same practice. Some say it has roots in the Bible and that Moses was the first practitioner (Numbers 20 9:11) or that it originated in 1540 in the publication *De re Metallica* by Georgius Agricola.

The questionable nature of the phenomenon has drawn suspicion since the beginning. There has always been a struggle between skeptics and believers, neither group being able to persuade the other by reasoning or experiments. Numerous times, dowsing has been tested scientifically without producing any significant positive results.

Over the centuries there have been many theories as to how it works. Everything from E-Rays (from German *Erdestrahlen*, earth-rays) that are believed to originate within the earth and penetrate the crust to form an invisible latticework of lines. Local circumstances such as underground streams, minerals, and geographical formations are also said to cause fields that radiate from the ground. These fields are believed, by some, to affect health, animal behavior, human “auras,” plant growth, and many other things. The believers will emphatically tell you that these fields can be easily detected and demonstrated with the use of a dowsing rod. Skeptics will say that there is no scientific basis to support the existence of these fields and that they can *only* be demonstrated using a dowsing rod.

Dowsers fancy a notion that they call ‘polarity.’ All E-rays and other obscure energy fields have this polarity, either positive or negative. The meaning of polarity differs depending on which dowser is asked; some say it refers to the effects the fields have on humans, others say it refers to electrical polarity.

*Continued*



# Water Witchery *continued*

In the multitudes of studies that have been done on this topic over the past five centuries, it has been proven that the “positive” results of dowsing are attributable to three key factors:

**The Ideomotoric Effect** Take a paper clip and tie a 12-16 inch thread to it. Rest your elbow on the table, hold the loose end of the thread with your fingers and let the paper clip swing like a pendulum right above the table. Hold still and try not to move your arm at all. Now visualize that the paper clip moves back and forth but do not move your arm. Does the pendulum swing? If not, concentrate harder because it will eventually move. Ideomotoric Effect is a subconscious movement governed indirectly by your expectations rather than conscious muscle activity. In the case of dowsing rods, a very small movement away from equilibrium causes great fluctuations in the rods. Rods do not move by themselves!

**Instability and External Attribution Bias** As in the case of L or Y shaped rods, the instability of the instrument itself enhances the instrument’s credibility. An unstable system is very difficult to keep in equilibrium and deviations must always be compensated for. This unpredictability causes the dowser to believe that he has no control over the rod’s movements, which, so far, is correct. It is when the dowser interprets the cause of the movements to be of exterior origin that an illogical conclusion is drawn. Note that nothing is stated about whether the dowser is right or wrong, but an illogical conclusion is no more than a questionable assumption, which, of course, might be true. What’s psychologically interesting is the proneness to think that ‘if I can’t control the moving instrument resting in my hands, then something else does!’ This tendency to attribute a self-caused effect to external sources, is called external attribution.

## **Expectations and Suggestive Environments**

The influence of expectations on the subconscious and random activities of the system can cause just about any effect. A suggestive environment, for example, supportive and enthusiastic onlookers, makes the positive outcome more probable regardless of contingent physical effects involved. After spending some time in the industry and

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“Man’s capacity for self-delusion is infinite.”

—Dr. Elie A. Shneour,  
Biosystems Research Institute

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installing many miles of pipeline, excavating for leaks and service installations, I began to get “better” at witching. The reason for this is that I subconsciously put myself in the shoes of the original pipeline installer and based on my surroundings, ie; the location of ditches, property lines, roads, curbs, trees, rights of way, etc. I subconsciously decided where I would have placed the pipeline and sure enough... That’s where the witching sticks said it was. The primary task of the experimenter is, in the case of dowsing, to try to eliminate the test result’s dependence on the subject’s expectations, a principle not commonly practiced among dowsers.

Why would they try to falsify their own hypotheses when they’re already convinced that dowsing works? The answer to this simple question essentially differentiates science from pseudoscience. I believe that rigorous testing is happily abstained from for several reasons: ignorance, lack of knowledge, fright of disconfirming results, and the will to believe. These aspects not only make the mind susceptible to anything, they can also unjustly rule out the validity of proper test results. If a test gives a negative or unexpected result, the test itself is concluded to be erroneous.


I fully expect to be engaged in debate about this article as I’m out in the field visiting with you all. In the spirit of “letting sleeping dogs lay,” I’ll concede that some of you have a better than average percentage with dowsing rods, though I still believe that it’s only because some of you have a better than average understanding of how your system is laid out. 💧



# QUIZ CORNER

1. During confined space work, the primary reason for violation is?  
A. Lack of training  
B. Lack of role understanding  
C. Training not documented  
D. Training insufficient
2. Lock-Out Tag-Out programs relate to how many various forms of energy?  
A. 8  
B. 2  
C. 7  
D. 4
3. Lock-Out Tag-Out programs relate to how many various types of energy?  
A. 8  
B. 2  
C. 7  
D. 4
4. Municipal wastewater is comprised of what percent of water?  
A. 80%  
B. 90%  
C. 97%  
D. 99.9%
5. What percent of homes use septic systems that may contribute to contamination?  
A. 4%  
B. 8%  
C. 11%  
D. 19%
6. Does 12.5% sodium hypochlorite have a higher or lower specific gravity than water.  
A. Higher  
B. Lower  
C. The same  
D. It has no specific gravity
7. To apply to take an Operator In Training or OIT exam for water certification, an applicant must have 3 months of operating experience, 3 months of water-related experience or possess \_\_\_\_\_ CEU's of relevant water system training.  
A. 10  
B. 3  
C. 30  
D. 45
8. Your chlorinator room should have an exhaust vent installed  
A. Near the ceiling  
B. Halfway up the wall  
C. Near the floor  
D. In the ceiling
9. How many gallons a year does the average citizen generate to wastewater treatment facility?  
A. 20,000 gal.  
B. 40,000 gal.  
C. 60,000 gal.  
D. 80,000 gal.
10. What % of U.S households rely on septic tanks?  
A. 4%  
B. 8%  
C. 12%  
D. 16%

ANSWERS: 1-C, 2-B, 3-A, 4-D, 5-D, 6-A, 7-B, 8-C, 9-C, 10-D



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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 <sup>th</sup> Annual End of Year Operators Conference	Hood River	2.7 Water/Wastewater	TBA Fee

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

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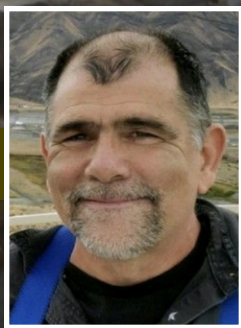
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# Commercial Diving Safety

by Troy Gessner, President, Integrated Underwater Services LLC



Commercial divers have been an integral part of civil infrastructure construction and maintenance for decades, and diving industry best practices have evolved over the years to reflect current knowledge on how to keep workers safe and conduct this work efficiently.

While it can seem complicated to understand the technical requirements for diving, the information that water system operators need to know to make sure their contractors are operating safely is actually pretty straightforward. The regulatory requirements are contained in OSHA CFR 1910 Subpart T, Commercial Diving Operations, and industry best practices are contained in ADCI Consensus Standards for Commercial Diving Operations section 5.6 Potable Water Diving Operations.

Important factors to consider when engaging a diving contractor for work at a potable water facility include:

Is the tank or reservoir to be isolated and did the diving supervisor perform LOTO on the inlet and discharge valves? If they are left online, the contractor must account for the hazard in the pre-dive JSA/JHA, and the water operator must participate in that discussion.

For elevated tanks and reservoirs, is there a standby diver and equipment staged and ready at the entry hatch? Is there a separate tender available at the hatch to tend the standby? The diving supervisor cannot leave the dive station in an emergency to tend the standby diver, therefore a 4 person minimum team is usually required for work on elevated tanks and reservoirs.

Is there a realistic method available to recover an injured diver from the reservoir and lower them safely to the ground? A fully dressed diver can weigh over 250lbs. and cannot be safely lifted by just their umbilical, especially if there is a significant air gap inside the reservoir. Responsible diving contractors will conduct periodic drills to ensure their rescue plan is feasible.

Nearly all water reservoirs are inherently permit-required confined spaces. Has the contractor completed all the requirements for entry?



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# How to Assess a Diving Worksite

Diving deeper than 100 feet or any planned decompression requires a recompression chamber at the worksite. For taller reservoirs or standpipes, that may require draining the water level to a lower level, however that may also require the diver to climb a long distance to get out of the reservoir after the work is completed.

Is the diver wearing a proper smooth vulcanized rubber dry suit, or are they wearing a cheaper neoprene suit that can harbor bacteria and other contaminants?

A Diving Safety Manual and dive equipment maintenance records must be available in dive control. Can the contractor point them out?

Just like any other work performed on municipal facilities, diving has inherent hazards that must be understood and mitigated by the contractor. In order to ensure safe operations, it's important for water utility operators to understand and verify how their diving contractors are working to prevent an incident. All the above requirements are the result of high profile incidents that occurred during diving operations inside potable water tanks and reservoirs, and any reputable contractor will be in compliance with at least these minimum standards.

Please contact the team at Integrated Underwater Services for more information, including alternative technologies for water reservoir maintenance and inspection. ♦

Please contact:

**Kristy Gessner**

Accounts Manager

Integrated Underwater Services, LLC

(509) 251-0892 cell

[kristy@iusdiving.com](mailto:kristy@iusdiving.com)



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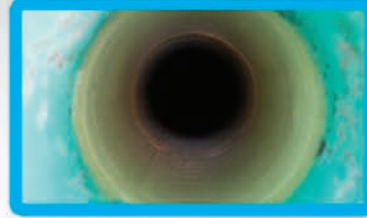
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City/State: \_\_\_\_\_

County: \_\_\_\_\_ ZIP: \_\_\_\_\_

Email: \_\_\_\_\_

Phone: \_\_\_\_\_

Contact Person: \_\_\_\_\_

Number of Hook-ups: \_\_\_\_\_

Were you referred? By whom \_\_\_\_\_

### Type of System:

Water       Wastewater       Both

### Membership Category      Membership Dues

- |  |                                |
|--|--------------------------------|
| <input type="checkbox"/> Regular Member    | \$ _____<br>See schedule below |
| <input type="checkbox"/> Associate Member  | \$550.00                       |
| <input type="checkbox"/> Individual Member | \$100.00                       |

### Regular Member Dues Schedule

1 to 100	\$75 + 45 cents per connection
101 to 500	\$85 + 45 cents per connection
501 to 1,000	\$90 + 45 cents per connection
1,000 and up	\$100 + 45 cents per connection
Maximum dues is	\$1,350.00

Please Invoice       Payment Enclosed

*Credit cards: please call 503-837-1212 for processing and receipt.*

Please return to OAWU:  
935 N. Main St., Independence, OR 97351  
or email: office@oawu.net or fax: 503-837-1213

## Membership Types

### Regular Member

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 Rifle & Pistol Club  
 Albany, City of  
 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, LLC  
 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 Utility  
 Canby, City of  
 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 Water Co.  
 Chenowith Water PUD  
 Chiloquin, City of  
 CHR District Improvement Co.  
 Christmas Valley Domestic Water  
 Cimmarron City Water Co., Inc.  
 Circle C Improvement District  
 Clackamas River Water  
 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 Assn.  
 Cove, City of  
 Crater Lake National Park  
 Crescent Sanitary District  
 Crescent Water Supply & Improvement District  
 Creswell, City of  
 Crooked River Ranch Water Company  
 Crystal Springs Water District  
 Culver, City of  
 Dallas, City of  
 Dayton, City of  
 Dayville, City of  
 Deer Creek Estates Water Assn.  
 Delphian School  
 Depoe Bay, City of  
 Deschutes Valley Water District  
 Detroit, City of  
 Dexter Oaks Cooperative  
 Dexter Sanitary Service  
 Diamond Peaks at Leisure Woods I & II  
 Dietz Airpark Water System  
 Donald, City of  
 Drain, City of  
 Drifter's MHP  
 Dry Creek Airpark Homeowners Association, Inc.  
 Dufur, City of

Dundee, City of  
 Eagle Point, City of  
 East Shore Water Improvement District  
 East Yamhill Rural Water Company  
 Eastmont Water Company  
 Echo, City of  
 Elgin, City of  
 Elkton, City of  
 Emerald Meadows HOA  
 Emerald Valley Wastewater Co.  
 Enterprise, City of  
 Estacada Mobile Village  
 Estacada, City of  
 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 Reserve and Community  
 Florence, City of  
 Forest Park MHP LLC  
 Fossil, City of  
 Garden Valley Water Assn  
 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  
 Grand Ronde Sanitary District  
 Grants Pass, City of  
 Grass Valley, City of  
 Green Area Water & Sanitary Authority  
 Green Oaks Park LLC  
 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 Company  
 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, Inc.  
 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, Inc.  
 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 Assn.  
 Lebanon, City of  
 Lexington, Town of  
 Lincoln City, City of  
 Little Beavers Preschool, 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 MHP  
 Madsen Spring Water Assn.  
 Malin, City of  
 Manzanita, City of  
 Mapleton Water District  
 Maupin, City of  
 McKay Acres Improvement District  
 McKenzie Palisades Water Supply  
 McMinnville Water & Light  
 McNulty Water PUD  
 Merrill, City of  
 Metolius Meadows POA  
 Metolius, City of  
 Midland Water Association  
 Mill City, City of  
 Milo 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 Homeowners Association  
 Mt. Vernon, City of  
 Mulino Water Dist. #23  
 Myrtle Creek, City of  
 Myrtle Point, City of  
 Nantucket Shores Water Company  
 Neah-Kah-Nie 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 Services  
 Oakland, City of  
 Oakridge, City of  
 Oakwood Water System Inc.  
 Oceanside Water District  
 Ochoco West Water & Sanitary Authority  
 Odell Sanitary District  
 Olney-Walruski Water Assn.

OPRD - Salem Office  
 Orchard Heights Water Association  
 Oregon Cascade RV Co-Op  
 Oregon Shores Beach Club, Inc.  
 Oregon Shores II  
 Oregon Water Utilities-Cline Butte Utility  
 Oregon Water Utilities-Mtn. Lakes  
 Oregon Water Wonderland II Sanitary District  
 Orient Drive Mobile Estates  
 Otter Rock Water District  
 Pacific High School  
 Paisley, City of  
 Paradise/Rogue Meadows Water System  
 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 View Water Company  
 Polehn Heights Water Association, Inc.  
 Ponderosa Pines Water Company  
 Port of Columbia County  
 Port Orford, City of  
 Power City Water Co-op  
 Powers, City of  
 Prairie City, City of  
 Prineville, City of  
 Quincy Water Association  
 Rainier School District  
 Rainier, City of  
 Red Hills Estates HOA  
 Redmond, City of  
 Redwood Water Service, Inc.  
 Reeder Ranch, Inc.  
 Reedsport, City of  
 Reehers Homestead Inc.  
 Rhododendron Water Association  
 Richland, City of  
 Rickreall Community Water Assoc.  
 Riddle, City of  
 Rieth Water & Sanitary District  
 Rimrock West Improvement District  
 River Meadows Improvement District  
 River Point Farms, LLC/AgReserves, Inc.  
 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 Co.  
 Round Lake Water Utilities  
 Rufus, City of  
 Salem, City of  
 Salmon Valley Water Company  
 Sandy, City of  
 Scappoose, City of

Scio, City of  
 Scotts Mills, City of  
 Scrael Hill Water Co-op  
 Seal Rock Water District  
 Seaside, City of  
 Seneca, City of  
 Shadow Hills Park Water Assn.  
 Shangri-La Water District  
 Shelley Road Crest Acres Water Dist.  
 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 Farms Valley Fresh Foods, Inc  
 Skyview Acres Water Co-op  
 Sleepy Hollow Phase 1 WS  
 Sodaville, City of  
 South Fork Water Board  
 South Hills Water System, Inc.  
 South Umpqua Water Association  
 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 Association  
 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 LLC  
 Sunny Acres Water District  
 Sunridge Estates  
 Sunrise Water Authority  
 Sunriver Water LLC/ Sunriver Utilities  
 Sunset Acres Water Improvement  
 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 Assn.  
 Tillamook, City of  
 Timber Water Association  
 Toledo, City of  
 Tollgate Water Company  
 Tone Water District

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 Indian Reservation, Confederated Tribes  
 Umatilla, City of  
 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 Cooperative  
 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  
 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 Dist.  
 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 W.D.  
 Zig Zag Water Cooperative, Inc.

# WELCOME, NEW MEMBERS!

Bob Smith  
Dylan Anderson  
Scott Pierce  
Jacob White  
Justin Smith

Andrew Gates  
Tim Johnson  
Tim Bohmker  
Lynn Wahle  
James Walley

Clackamas River Water

## INDIVIDUAL MEMBERS

Alfred, James	Carter, Roy	Gates, Andrew	Hunt, Andrew	Marshall, John	Pino, Patricio	Statchwick, Jeff
Alvarado, Damian	Ceballos, Oscar	Gentry, Mike	Hunter, Greg	Martin, Marcus	Pippenger, Jebadiah	Steidler, Matthew B.
Anderson, Dale	Chipman, Kenneth	Gil, Riley	Hyams, Juliet	Martin, Wyatt	Powers, Ryan	Stewart, Jason
Anderson, Dylan	Christensen, Matthew	Gilkison, Levi	Jackman, Danaea	McCready, Wade	Pryor, Ben	Stirling, Ethan
Anderson, Kenneth	Clark, Jamie	Glanz, Jared	Jackson, Pat	McFall, William (Bryce)	Ramsey, Tyler	Sundstrom, Daniel
Anthony, Jody	Clark, Joshua	Gonzalez, Jeremy	Jacob, David	McGinnis, Lee Daniel	Ranch, Destin	Tecmire, Timothy G.
Bagdonas, Eric	Clement, Tony	Gott, Craig	Jacops, Scott	McGuire, Mark	Rand, Terry	Terrusa, David
Baldwin-Garcia, Daniel	Clifford, Jason	Graue, Nick	Jennings, Larry	McMullen, Ryan	Renhard, Chad	Thayer, Bradley
Barnes, Chase	Clingman, Amy	Halverson, Bruce	Johnson, Grady	Meddings, Chris	Rezaei, Mona	Thompson, Daniel J.
Bateman, William	Close, Greg	Hamilton, Howard	Johnson, Tim	Merrell, Thomas	Robinson, Rob	Tibbets, Taylor
Bazan, Giovanni	Coffman, Victoria	Hamilton, Meagan	Jones, Robert	Meskill, Garrett	Robustelli, Jason	Tupper, Sean M.
Bechler, Joel	Conant, Charles	Hamilton, Mitchell	Jones, Uriah	Miranda, Michelle	Sander, Tim	Uhrich, William J.
Bennington, James	Conyac, Jeremy	Hand, Eric	Jordan, Michael	Monroe, Donald G. Jr.	Saubert, Terry W.	VanWagoner
Blackwelder Brice	Croy, Huntyr	Hanks, Kevin	Judah, Dave	Moretti, Garrett	Schaafsma, Eric J.	VonPinnon Michael
Blench, Steven	Crum, Dale	Haring, Joshua	Katrena, Scott	Morris, Brady S.	Schaefers, John	Vorpahl, Mike
Blofsky, Brett	Davis, Erin	Hawkins, Michael	Kemmer, Alex	Morrow, Jason	Schluckebier, Dave	Vos, Joe
Bodner, Jermeay	Degn, Tony	Hensley, Darryl	Kemper, John	Mudra, Austin	Schroeder, Michael C.	Wabschall, Steve
Bohmker, Tim	DeHaan, Josh	Hermansen, Dave	Kirchmann, Russell	Neal, David	Schuening, Scott	Walley, James
Boyles, Blake	Demannett, Micah	Hills, Tyler	Klinger, Martin	Nelson, Ron	Scott, Keri	Watson, Samuel
Bradley, Josh	Doss, Chris	Hisaw, Russ	Krause, Courtney	Nielsen, Benjamin	Sears, Ronelle	Welch, Logan
Branson, Neil	Durfee, Kenneth C.	Hixson, Noah	Kunders, Aaron	Nittka, Eric	Seelye, Shawn	Wesely, John
Bridges, Dylan	Eichler, Robert	Hoefler, Matthew	Laetzsch, Dawna	Normandin, Matt	Sewall, Andrew	White, Jacob
Brown, Jeff	Elder, Dave	Hoesch, Jacob	Lambert, Ross	Norris, Rick	Sibert, Donald	Williams, Scott
Brown, Rick	Emmel, Triston	Horton, Ray C.	Lane, Brian	Odell, Mark	Skaggs, Eric	Winterton, Robbie
Brown, Scott	Evans, Peter M.	Houchin, Jeff	Lee, Jon	Ortega, Shane	Skaggs, Jesse	Wirsing, Jennifer
Burnett, Cory	Fery, Michael	Houle, Forrest	Leon, Gary	Ortiz, Sam	Smallman, Mike	Woodward, Steve
Buskirk, Jeff	Finnegan, Brady	Howard, Richard	Lesman Instrument Company	Ott, Mallory	Smith, Contrail	Zuniga, Antonio
Caldwell, Kevin	Fluentsch, John	Howell, Roy Andy	Lockard, Darrel	Parent, Kenny	Smith, Joseph Sr.	
Calhoun, Christopher W.	Free, Derek	Hubbard, Tom	MacCarthy, Steven	Parrish-Green, Angela	Smith, Justin	
Cameron, Zachary	Freel, Milton	Huff, Zach	Marshall, Chad	Partney, Sheldon	Smith, Larry	
Carlson, Rob	Gallino, Joseph	Hughes, James		Percy, Patrick	Springer, Rondi	
	Gaskey, Harvey	Hume, John		Pierce, Scott	Stark, Chris	

## ASSOCIATE MEMBERS

4B Engineering & Consulting, LLC	CIMCO Sales & Marketing	Goble Sampson Associates	MuniBilling	Sensus a Xylem brand
A.Y. McDonald MFG. CO.	CIMCO-GC Systems, Inc.	Granich Engineered Products	Neptune Technology Group	SHN Consulting Engineers & Geologists
Adkins Engineering & Surveying	Cleanwater1	Harmsco Filtration Products	Northstar Chemical, Inc.	Smart Earth Technologies
Advanced Control Systems	Clo Valve Company	Harrang Long Gary Rudnick PC	Nurnberg Scientific	Smith & Loveless Inc.
Aegion-Insituform Technologies, LLC	CoBank	HD Fowler Company, Inc.	NW Hydrovac	Special Districts Assn of Oregon
AKTIVOV Asset Management	Columbia Laboratories	Hollabaugh Brothers	One.7, Inc.	SUEZ Advanced Solutions
American AVK Company	Consolidated Supply Co.	Holman Capital Corporation	Optimal Control Systems	The Automation Group
American Flow Control	Core & Main	Hose Solutions	Oregon Meter Repair & Water Solutions	The Ford Meter Box Co., Inc.
American Leak Detection	Correct Equipment, Inc.	Hurley Engineering Company	Oregon Public Utility Commission	Thompson McLean Assoc.
Anderson Perry & Associates	Ditch Witch West	HYMAX by Mueller	Orenco Composites	TMG Services
Aqualtec Corp.	Diversified Construction and Consulting, LLC	InfoSense, Inc.	Owen Equipment Company	Trade Tool
Backflow Management, Inc.	DN Tanks LLC	Instrument Technology Corporation	Owens Pump & Equipment	Tripac
Badger Meter, Inc. DBA National Meter & Automation	Edge Analytical Inc.	Kasco Marine	PACE Engineers, Inc.	U.S. Cellular
Bainbridge Associates, Inc.	EJ	Kennedy/M&H Valve	Pacific NW Sales	Umpqua Research Co.
Baker Silo, LLC	Energy Trust of Oregon	Lakeside Industries/EZ Street	Pittsburg Tank & Tower Co.	Underground Tech
Bancorp Insurance	Enviro-Clean Equipment, Inc.	League of Oregon Cities	Probiotic Solutions	USABluebook
Baseform	Ferguson Enterprises	Legacy Power Systems	PumpTech Inc.	Waterlab Corp.
Beebe Water Systems	FloHawks Plumbing & Septic	MacKay Sposito	Puttman Infrastructure, Inc.	Western Systems
Big Dog Sales, NW	Frank J. Martin Company	Master Meter, Inc.	RDO Equipment	Western Water Works Supply, Co.
BioLynceus, LLC	Frontier Precision, Inc.	Max Distributing	Reiner Pump Systems, Inc.	Whitney Equipment Company
Business Oregon	Frost Engineering Service Co. NW	Metolius Engineering LLC	Romac Industries, Inc.	Wm H. Reilly & Company
Cascade Columbia Distribution Co.	Furrow Pump	Metron Farrier	Romtec Utilities	Xylem, FLYGT Products
Cascade Waterworks	G.T. Gordon & Associates	Morrison-Maierle	Schneider Water Services	Zenner USA
	General Pacific, Inc.	Mueller Company	Schroeder Law Offices, PC	



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TECHNOLOGY GROUP

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Independence, OR 97351  
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*Tackle wipes and large debris with these solutions from USABlueBook!*

## FOR SMALLER APPLICATIONS AND LIFT STATIONS

### Goulds GFK and GFV Series Sewage Pumps

- Non-clog impellers handle wipes and 2" solids

### FlowRake Rag Catchers

- Catch and retain flushables



OPERATOR  
DESIGNED



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## FOR LARGE MUNICIPAL LIFT STATIONS

### Deming Demersible Chopper Pumps

- Slice the most troublesome solids into small pieces

### StationGuard Manual Bar Screens

- Capture damaging wipes and debris

DEMING®



OPERATOR  
DESIGNED



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