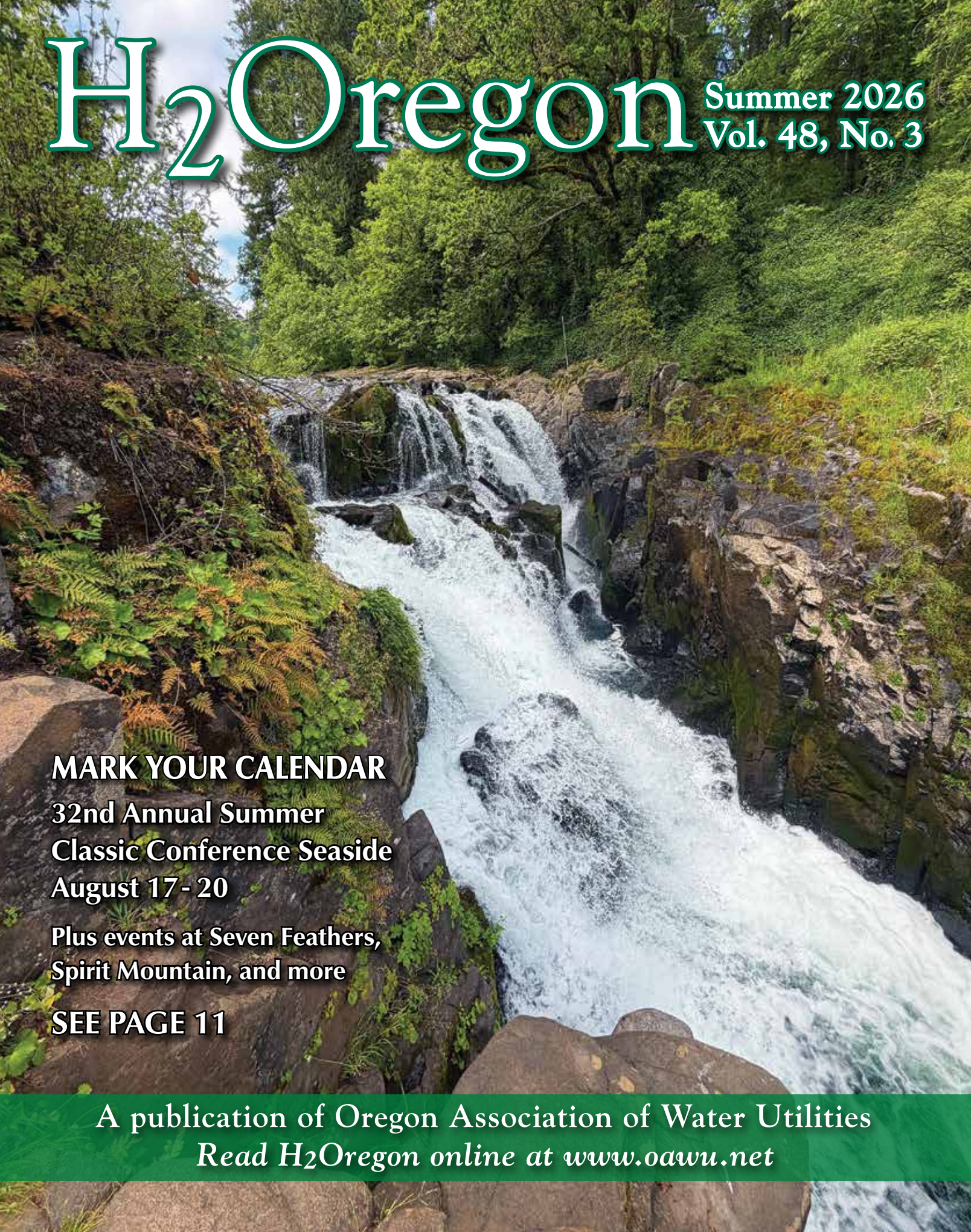




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Vol. 48, No. 3

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Cover photo of Falls City Falls, OR
by Heath Cokeley

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Standing – In Confidence

by Jason Green, Executive Director



Confidence or arrogance. Perhaps a mix of both? At some point, we begin to contemplate the difference between confidence and arrogance in our self and in others. Of the many early lessons pressed upon me, the distaste of arrogance in contrast to humble confidence stuck. Those early years, when boys test their fathers, and fathers desire to ensure their children don't simply behave or work hard only when others are watching, also included confidence. Confidence when one has won or lost. Confidence in one's thoughts and actions. Confidence in the ability to humbly ask questions – to be teachable, aware of faults and strengths. There is respect for the quality of quiet confidence not needing hype.

Quality work completed and attitude are proof from what's inside; results in time are revealing - consistency. Receiving occasional approval of a job well done may motivate some, others take pride or satisfaction in knowing the accomplishment, some may altogether avoid anything that appears like effort. A willingness to learn, consistent hard work, and a get it done mindset generally provides us clarity in conscience; confidence in knowing we truly gave our best. The outliers are the hard to work with boss or co-worker.

Consider the value and importance placed on an encouraging word. Building someone up. Sincerely saying thank you for a job well done. Even that nod of approval. It can motivate, even change a person's mindset because someone believed in them. Accomplishments, successes, other's influence, certainly our own dedication and motivation in our work. I recall the day before I left for Basic Training the last day of June in 1983, an eighty-eight-year-old gentleman I held in high regard, firmly gripped my hand, looked me in the eye and said "Go make us proud." He continued to grip my hand with a short prayer asking God to protect and bless me. That was something I continue to recall with fondness. A moment of care, encouragement and influence. I walked away with confidence – the weight of that moment remains with me today.

With purpose, building up someone, encouraging, a thank you, that brief vote of confidence – be ready for those opportunities. Our words and actions carry more weight than we recognize! Positively influence with purpose! Standing in confidence has great value. Yours, mine, and those in our charge and care!

Best wishes to you! 💧

Oregon Association of Water Utilities

H₂Oregon Summer 2026 • 3





A Job Worth Doing

by Heath Cokeley, Programs Manager/Circuit Rider

I am writing this article the week after our Sunriver Conference. Those that had the opportunity to attend know it was a great conference, and we all had a lot of fun. Yes, there may have been a few hiccups, but for those attending hopefully you saw our team working together behind the scenes to make things right just as the Sunriver staff was constantly working behind the scenes to make it all work. To me there is no difference between that and what each of you are doing on a daily basis. We are working for our customers to provide the best quality water we can and make their waste disappear every day and be disposed of in a manner that often is far cleaner than the waters it is being released too.

All that to say this. We can do better. I hope you do not take that as a critique, as it is not meant as such, but more meant like the hunter may think of the deer he got this year. Ya, it was a nice buck but think of how big it would have been next year. All I mean is it is perfectly fine to critique ourselves and inventory what is working and what isn't. Not suggesting dwelling on it as that doesn't help but reviewing and finding ways to improve; in my mind does nothing but help a person grow. Both Scott Berry and I have a habit of looking at an event after it has happened and talking about what worked, but more importantly what didn't. This is especially true and necessary after emergency events. I know we have both got the same feedback that we may be slightly harsh (maybe an understatement) about how we operated during the event. From an outsider's point of view, I am sure it could appear mean spirited, and at times even cruel. What is not always recognized is it is not coming from a place of cruelty; it comes from a standpoint of how can we improve? One of my favorite sayings has been, "a mistake is not a mistake unless you don't learn from it."

Learn from your successes and cherish them, but more importantly, learn from your failures. The things that make you go, "I will never do it that way again," while sometimes feeling like a kick in the teeth, is often the best way to grow as a person. As our family dog just came over and nudged me for attention, I will end with this. Do your best to be the person your dog thinks you are. For those of you with dogs you know that is an unattainable goal, but it is a pursuit worth chasing. If you don't have a dog then I guess you're just out of luck, but hopefully you get my point, and with that, I'll see you down the road. 💧



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Nurturing Doubt

by Tim Tice, Projects Manager

We conduct routine meetings to discuss the necessities associated with utility success and the many trains of thought taken to arrive at a decision. These meetings are usually established with a prerequisite of lack of time, equipment or dollars as it relates to utility operations, but they occur to prepare the annual budget. A stagnant utility is best defined as an inactive utility; typically, routine maintenance is delayed for some reason. People involved in these meetings bring about a vast array of knowledge and intellect, but often we see stalled conclusions.

Routine maintenance, when not completed, becomes reactive maintenance or better labeled, an emergency. Emergencies are often more costly, which most people can correctly assume. When it comes to a utility's success, a single measurement is often stated as, "no major catastrophes this week!"

Supporting a utility can take shape in an assortment of approaches, yet the bottom line is that a utility must have time, talent and treasure. The longer there is no action, the higher the probability of an emergency. Without having to understand everything immersed in operations, there are great resources available to assist in concluding what best suits the utility.

After expressed goals are known, recognizing these resources is the next step to delivering a decision. Nurturing doubt creates a stalemate and its power is exponential. Nurturing doubt, according to artificial intelligence is defined as a "positive process that fosters tolerance, enlightenment and intellectual humility." Contemplation and discernment are an asset for a person to acquire, but the other side of the coin is doubt and can stall decisions. Geddy Lee best said, "If you choose not to decide, you still have made a choice." The doubt coin is how one doubtful point inserted into the process can make us kick the can down the road. Evidenced details about the needs of the utility should be consistently presented, mulled over, and often rearranged to make the best decision.

The agreed decision provides a moment in time for the utility to move forward. The decision may prove inaccurate in the future, but the people involved take their current knowledge and intellect from experiences to what the objective is for said utility at the time.

The routine meetings that are deemed successful stem from the group understanding the goals for the current time. Timelines for utilities are best implemented in three-four-year cycles. Begin meetings by establishing the goal of the utility and continue to instill the goals during future meetings.

All too often it is recognized that a doubt from a single person can divert away from the objective and nurturing this doubt is disconcerting. Doubt nurtures doubt, sidetracks and prolongs meetings which cause frustration among participants. Discussing details on a lesser point is required to raise the bar of understanding, but straying off path too long loses focus on the main goal.

Concise information sets the foundation giving the ability to answer questions, loosens any preconceived notions and allows the group to grow. Individuals can also grow regardless of their knowledge or intellect. Being part of the meeting for self-growth should be a personal goal. There will always be uncertainty when it comes to planning and the uncertainty is larger when it could affect someone other than yourself, and utilities serve a much wider audience. One guarantee for anyone wishing to participate in the process, you will be subjected and challenged to new perspectives, some on target and some out in left field. Any facilitator of the meeting must stay on course and reiterate the goals. I salute any person wanting to delve into and assist with the task of participating in the decision-making process. Do so with the sole purpose of serving and remembering the task at hand. The best that life has to offer! 💧

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Keep the Good Ones

by Hans Schroeder, Circuit Rider

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CCR Update

by Sam Waller, Circuit Rider

The Consumer Confidence Report (CCR) is one of the most important public communication tools for water systems in Oregon. Required under the Safe Drinking Water Act and implemented by the Oregon Health Authority, CCRs provide transparency about the safety, source, and treatment of drinking water. For water systems in Oregon, CCRs are not only a regulatory requirement but also a good way to build public trust, ensuring accountability and to educate. As regulatory updates approach in 2026–2027, their role is becoming even more significant.

The CCR is an annual water quality report delivered to customers of community water systems. These reports summarize data collected during the prior calendar year. They include information like the source of drinking water, detected contaminants, compliance with federal standards, and potential health effects. Drinking water systems are complex, and most consumers don't realize the hard work that is required in the treatment processes or water quality monitoring. CCRs bridge this gap by translating technical data into information the public can understand. They help residents to understand what is in their water and whether it meets safety standards, which is critical for maintaining public confidence.

Oregon added some major updates to Consumer Confidence Report CCR requirements beginning in 2026, with additional changes taking effect in 2027. Starting January 1, 2026, Oregon amended its CCR rules to align with updated federal expectations and enhance the information included in reports. An example of this is the Lead and Copper Service Line inventory results. Beginning in 2027 Oregon introduces bigger changes such as community water systems serving 10,000 or more people must distribute CCRs twice per year instead of annually. The first report remains due by July 1 and covers the previous year's data, while a second report must be completed by December 31 and include updates and if there are any new violations, action level exceedances, or new monitoring results occur. Also, large systems serving over 100,000 people must develop and submit a language access plan to ensure the CCR is available in different languages. The CCR remains an important tool for water systems. The changes are designed to make it easier to understand and be more informative. 💧

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Science of a Coffee Break

by Heather Davis, Apprenticeship Coordinator

How often do you take a coffee break, or any kind of break at all? Are you someone who keeps going through lunch breaks and coffee breaks? Are you letting your brain and body relax for just a few minutes?

I will admit that I am guilty of working through a lunch break from time to time. Especially when I'm working on something and I really want to finish and I don't have to look at it anymore. Not going to lie, I did it today while I was writing part of this article. We are just so focused on wanting to end something that we don't always take care of ourselves during the process.

Breaks really, truly, are essential to help us function better as employees and human beings. We all need to take a break to help our brains work at the best of their ability. Think of the brain as a muscle, when it gets overworked it becomes tired and is not able to perform as clearly. Have you ever had a problem with a project you were working on and nothing you thought of would make it work? Taking breaks helps the brain to recharge and helps us think more clearly to work on the challenge in front of us.

On the "Good Health" website, there are 5 types of breaks that they recommend for people to take to help with productivity and better brain function: the first one is called, "Micro-breaks: brief pauses of 1–5 minutes, such as stretching or closing your eyes, reduce fatigue and restore focus."

The second one is, "Movement breaks: physical activity, even a short walk, boosts blood flow to the brain and enhances alertness." Literally, walking away from a problem can be a huge blessing. Walking just around the office whether it is going to get some water, or going to drop off something in my boss's office can help us. Then we can come back and look at it with fresh eyes.

Third is, "Mindful breaks: meditation or breathing exercises calm the nervous system, lowering stress and improving concentration." I think this is something that most people do not do enough. I am not an enthusiastic fan of meditation, but I do believe in breathing exercises. Sometimes we need to relax for a few minutes so we can focus better.

The fourth break is "Creative breaks: listening to music, drawing, or daydreaming can spark new ideas by engaging different brain regions." I love listening to music when I am working or working out. It helps me get my creative side going and helps me to be able to think creatively.

Last, but certainly not least, "Social breaks: talking with a friend or sharing a laugh can elevate mood and reset mental energy." Sometimes when coworkers come into the office, we will catch up with each other and share a laugh. It is nice during a busy workday to have some fun with my coworkers.

Something that all these breaks have in common is to stop working on the problem and letting our body and brain rest so we can become more productive.

There have been times when I would look over and over at a document and I was so focused on it that I thought I had everything right on it. But when

I would not look at it either for a few hours or a few days and I would come and look at it again, I would see mistakes on it that I did not see before.

For my articles I will write everything down that is in my brain. Leave it and come back in a few days and take what I wrote and either rewrite parts of it, add more to other parts, or take away some of what I wrote. I have rewritten a few parts of this article on different days.

Sometimes it is easier to take a break from something we need to really focus on and work on something that does not use lots of brain power. Simple tasks so we don't have to focus so hard on something for a few minutes. Then when we get back to the project that takes more brain power, we are able to see our project with a new refreshed mind.

This helps us work better and solve new problems that happen at work. This in turn helps us to be happier people from not having an overworked brain that is exhausted when we get off work and get to enjoy life a little more.

Don't forget to take a break when you can, even if it is a quick 5 minutes here and there with a 15-30 minute lunch break. Or step away from a project and focus on something else for a while. Help yourself to become more productive and give your brain a rest.

"The Science of Taking Breaks: How Rest Improves Brainpower" All Good Health. 2 September 2025, <https://allgoodhealth.net/personalized-brainpower/the-science-of-taking-breaks-how-rest-improves-brainpower/> 💧



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Team Bonding

by Monty Norris, Wastewater Technician

Maintaining a strong team atmosphere is essential for workplace success. During the Cornhole tournament at our annual conference in Sunriver, it became clear that many participants had honed their skills during work lunch breaks, thanks to camaraderie fostered by management and supervisors who allowed it. Attending the Sunriver Conference allows employees from various locations to connect, and the growing participation each year demonstrates the value of these activities. Many workers continue playing after work hours at local venues like ELKS, VFW, or taphouses, finding these gatherings an effective way to relieve stress.



While cornhole has become popular, other games such as darts have also contributed to team engagement at several sites. It is evident that a variety of recreational activities can be instrumental in strengthening bonds among colleagues. Shared experiences—whether through friendly competition or social events—foster collaboration, laughter, and lasting camaraderie. Organized barbecues provide another excellent opportunity for teams to come together and enjoy a meal, whether prepared collectively or offered as a gesture of appreciation from supervisors.



Periodic breaks for relaxation, especially during challenging periods, can significantly boost morale and productivity. Team bonding does not need to be limited to the workplace; organizing evening gatherings such as bonfires, dinners at a team member's home, or outings with families encourages deeper connections. Understanding one another on a personal level often leads to smoother collaboration and can help resolve internal friction. Prioritizing team-building activities ultimately contributes to a more positive and effective work environment. Every day we have choices that can uplift or dispirit the crew. Personally, I have always enjoyed a little mischievous camaraderie, within reason, and even am very upfront about it when being hired because I believe it

provides a positive atmosphere when done correctly. I will give a great example with my latest joy and laughter provided...look what Heather did in our new training center with the hand truck! Thanks A.I.! 💧

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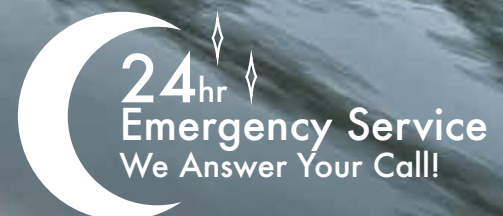
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Hunting Rabbits the Hard Way

by Jerry Smith, EPA WW Technician

Since I was in the 3rd grade, I had always had an interest in the art of falconry. Each day after lunch recess, our teacher, Mrs. Culbertson, would read a few chapters of “My side of the Mountain.” It was a novel about a young adolescent boy who escapes city life and lives off the land in the wilds of the Catskills Mountains by Upstate New York.

During his 1-year adventure, he moves into an old hollowed out tree and hunts and gathers food to prepare for the long winter ahead. The real action takes place in the chapter where he captures a red-tailed hawk and teaches it to hunt his surrounding woods. The boy simply does a few drills with his new hunting bird and before the end of the chapter, he’s eating fresh duck and rabbit every day. As a 3rd Grader in the 1980s it seemed like an easy enough concept. Why couldn’t I do the same? I would eventually find out.

For those who do not know, Falconry is a very intense sport that takes months of dedication and experience. The ancient sport has been around for centuries starting in the Middle East. It’s likely the oldest form of hunting. The concept is simple: capture and train a bird of prey to hunt for you. But getting from point A to point B can be quite a process.

This process can be lengthy and takes a lot of time and patience. In Oregon it is highly regulated by ODFW to ensure that each hawk (or falcon) is cared for correctly. To make sure this happens, anyone interested in attaining a Falconer license must pass a 100-question test, build an approved hawk house (mews), and line up a mentor that will lead you through a 2-year apprenticeship program showing the dos and don’ts of training your new bird. No small feat.

I decided to go all in and study for my Falconer test around 15 years ago. Lots of prep, but I passed with an 82% score! I was elated, to say the least, that I was one step closer! Next on the list would be to find a mentor and build my hawk house. At the time there were less than 150 Falconers in Oregon. Most lived busy lives and didn’t have time to teach a newbie the ropes but after much searching, I ran across Thomas. He was a nice older gentleman in western Oregon with a deep love for the sport. He had been at it for over 25 years and was willing to show me what he knew, not to mention he had a lot of great stories.

After we met over the phone, Thomas decided to invite me to his home and do a rabbit hunt at a nearby property full of blackberry patches and “rabbits everywhere” as claimed by my new mentor. It would be quite a time and things were lining up. It was looking like the learning curve would be a snap. How hard could it be?

I drove the long miles from my home in Eastern Oregon to his small house on the West side. I arrived late in the evening and got a quick tour of his backyard. It was clear that Thomas had one interest in life: birds of prey. They were everywhere! All different kinds of hawks and falcons in cages lined the perimeter and each one sized me up as I went by to peer inside. Watching a soaring hawk from a distance is one thing, looking at one square in the eyes at 3 feet away in the dark is another. I don’t think there is anything wilder on earth than looking into the sharp eyes of a bird of prey. It’s humbling and exciting all at once.

It was towards the end of our tour when we stopped at Jet’s cage. Jet was a female Harris’ Hawk and also a rescue bird. Thomas mentioned that she had been partially trained by an apprentice who decided to cut ties midway and give the hawk to someone who could do a better job. Of course, Thomas was the first to volunteer. One more bird wouldn’t hurt. There was only one problem: Jet had become pretty dang mean with all this moving around. She was angry and wanted revenge on anyone other than her current owner. She was just not in the mood to make any new friends. Of course, I wouldn’t learn about any of this until later.

On the opening day of our rabbit hunt dawned bright and clear. No wind or rain and I was ready to see a professional Falconer go to work. As Thomas removed Jet from her cage, she hopped onto his leather gloved hand and was carried inside the garage nearby. It was right around this time that things started to go south.

A few details must be explained here: the day a hawk is ready to hunt, it must be weighed to ensure it is hungry. "A hungry hawk will be a hunting hawk." This is called "making fight weight." The hawk must sit on a scale, if weight is good, the hawk goes into its transport box and gets driven to the rabbit hunt area. As I watched from a distance (while inside the garage) Jet hopped onto her scale to eat a small tidbit of mouse meat. Once this morsel was gone, she turned her attention towards me at 15 feet away and immediately took an aggressive stance. It happened so quick I had little time to react; before Thomas could say "run," Jet flew a beeline from the scale to my face in less than 3 seconds! Instantly I was covered in a swath of feathers and talons as she ripped at my head either looking for food or vengeance or both! I ran for the door ducking, swatting, and cussing. What a mess...how did I get here? Eventually Thomas got control of her, and I nursed my bleeding ears enroute to the rabbit grounds. During our drive, Thomas decided to let me in on the few missed details about Jet being a rescue bird and to "watch out, she gets cranky sometimes."

Thanks Thomas...welcome to Falconry.

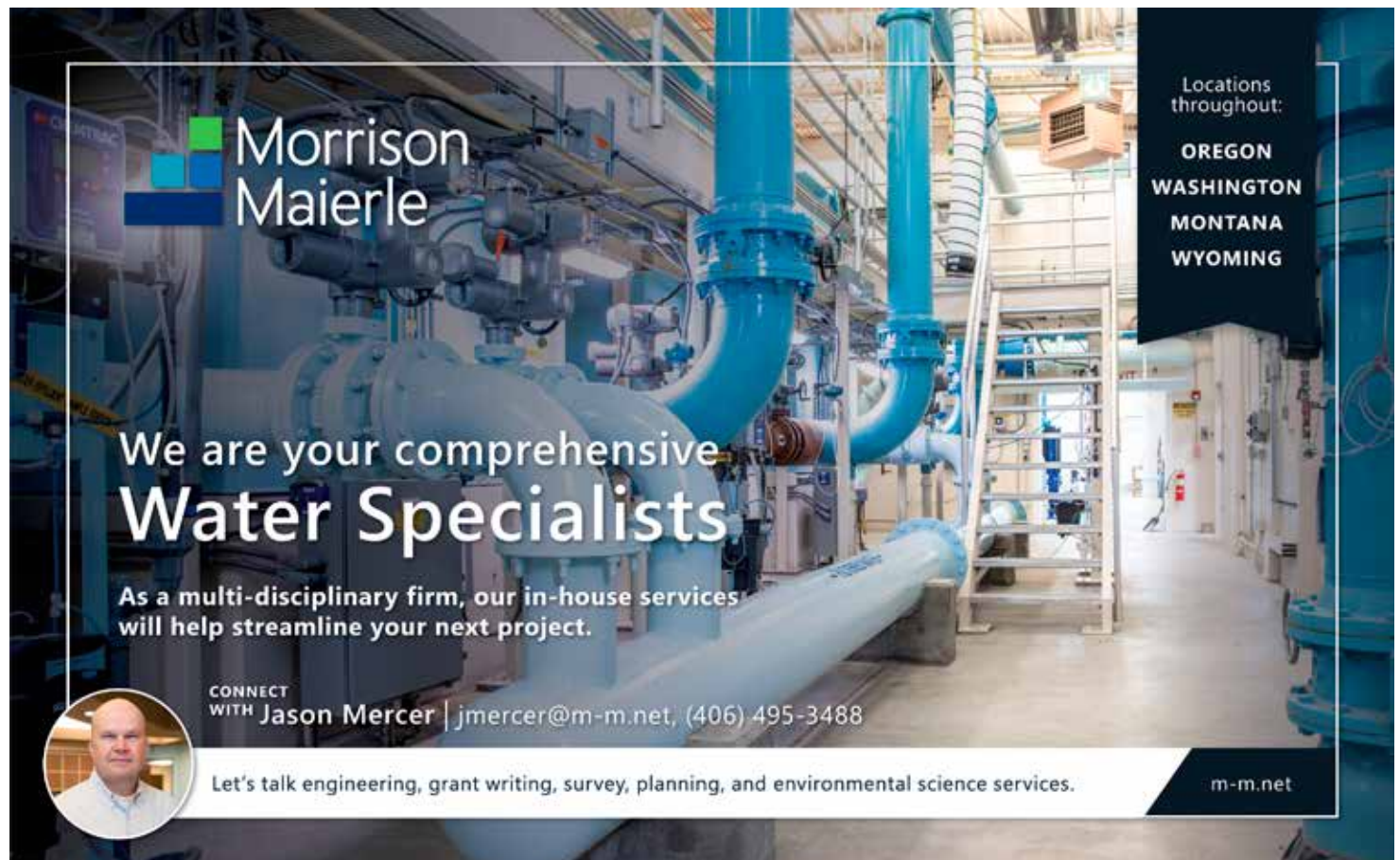
The day was still young and maybe things would look up. Once we got to the property, Thomas released Jet and also released his 2 beagles (Milo and Otis) I was given a "beater pole" and told to follow the dogs

and beat the briars with this 6' pole. If any rabbits come out, stand back and let Jet do her job. I watched that bird stare me down as she sat up high on her oak tree perch. Was she really looking for rabbits or making her next plan to attack me? About 15 minutes into the hunt Otis hit a track and started wailing like a siren. In a matter of seconds Milo flushed a rabbit out of the briars into the opening. As I watched both dogs give chase, a silent shadow whizzed past my head only a few feet away. Jet's gliding stealth mode approach to her prey was without a sound. Her dive bomb at the last moment made a quick kill. To this day, it's still one of the most amazing things I've ever seen. The teamwork between man, dog, and bird was absolutely astounding. I could see now why this sport has survived through the centuries.

We ended up getting 3 rabbits that day. Each new kill was just as amazing as the last. It was a "good day for Jet, a bad day to be a rabbit" according to Thomas.

As we drove back and returned her to the cage, I decided it was best to just watch from inside the truck. No reason to press my luck. That day I got to experience all that Falconry offers (both good and bad) and I will never forget it.

Long live the mighty Birds of Prey! 💧



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Pressure Transmitters: A Critical Tool

by Bill Palmaymesa, Small System Trainer

Authors Note: This article was written with the help of Grok Artificial Intelligence (AI), for statistical citations. Please direct all questions regarding this article to the author: bpalmaymesa@oawu.net

It's summer, and Oregon's agriculture industry is in full production. As a water nerd driving through rural Oregon, East of the Cascades, I see pivots, hand-lines, wheel-lines, and k-lines putting water on the grass that feeds my tri-tip, brisket and flat iron. When I stop to contact an operator, one of my first questions is, "How's your well doing?" I'm surprised by the amount of shoulder shrugs and "I guess it's doing okay..." replies that I receive in response. There is a better way.

Ensuring Oregon's Groundwater Future: The Critical Role of Pressure Transmitters in Drinking Water Well Monitoring

Oregon's groundwater is the lifeblood of the state. It supplies drinking water to roughly 70% of residents and constitutes about 95% of the state's available freshwater resources. From rural homes to community drinking water systems, Oregonians rely on wells tapping into aquifers that are increasingly under pressure from drought, population growth, agriculture, and seasonal variability.

Yet many groundwater systems still depend on manual measurement methods: e-tapes, bubblers, air-shots etc. that provide only sporadic snapshots of depth to water. In an era of real-time data demand, pressure transmitters (also known as submersible pressure transducers) stand out as a reliable, accurate, and increasingly essential technology for continuous level monitoring.

Oregon's Groundwater Challenges: Data Tells the Story

The Oregon Water Resources Department (OWRD) maintains over 400 state observation wells and measures more than 1,200 additional wells statewide. Despite this network, localized declines are evident. Between 2021 and 2023, over 1,220 wells across Oregon went dry or fell below pumping capacity.

In areas like the Columbia Plateau Regional Aquifer System, long-term trends show mean declines of about 1.9 feet per year. Some areas have seen cumulative declines of 100–300 feet since the 1970s. Nitrate upward trends in certain Groundwater Management Areas also raise concerns.

These shifts affect drinking water reliability. Seasonal fluctuations, long-term depletion, and contamination risks demand better tools. Oregon State University's Well Water Program recommends 4–6 measurements per year over at least five years to detect meaningful trends—something manual methods may struggle to achieve consistently.

Understanding Key Well Parameters: Static Level, Dynamic Level, and Recovery Rate

Effective well management relies on three critical measurements:

- **Static water level:** The depth to water in the well when the pump is off and the water has fully recovered to its natural equilibrium. This baseline reflects the aquifer's resting condition and long-term health.
- **Dynamic water level (pumping level):** The lowered water level during active pumping, caused by drawdown. Excessive drawdown can indicate over-pumping, restricted aquifer flow, or well inefficiencies.
- **Recovery rate:** The speed at which the water level returns to the static level after pumping stops. A strong recovery rate signals good aquifer recharge, while slow recovery may point to depletion or low-yield conditions.

State regulations often require these measurements during pump tests and permitting, with wells needing to rest for at least 16 hours before static readings and detailed drawdown/recovery monitoring during tests.

How Pressure Transmitters Excel at Monitoring These Parameters

Submersible pressure transmitters measure hydrostatic pressure at a fixed depth in the well. Because pressure increases predictably with water column height (0.433 psi per foot of freshwater), the

for Monitoring the Health of Your Groundwater Supply

device converts this into highly accurate level data. Many models include temperature compensation and vented cables to account for barometric pressure, delivering precise readings even in deep or variable conditions.

Key advantages for drinking water wells include:

- **Continuous, real-time data:** Unlike periodic manual checks, transmitters paired with data loggers capture high-frequency readings (hourly or more). This allows precise tracking of the static level over time, dynamic drawdown during pumping cycles, and full recovery curves—revealing patterns that manual snapshots miss.
- **Accuracy and reliability:** Modern units offer excellent precision with minimal drift, no moving parts, and robust designs rated for long-term submersion. They automatically document subtle changes in static levels, rapid drops in dynamic levels, and recovery rates without repeated site visits.
- **Low maintenance:** Once installed below the lowest expected dynamic level, they require far less labor than e-tape measurements, reducing costs and safety risks for operators.
- **Integration and alerts:** Data can feed into SCADA systems, cloud platforms, or simple apps, enabling automated alerts for declining

static levels, excessive dynamic drawdown, slow recovery, or potential dry-well conditions.

- **Cost-effectiveness over time:** While initial investment is higher than basic tools, savings in labor, downtime, and proactive management quickly add up—especially valuable for municipal suppliers and agricultural users.

Moving Forward: Technology for Resilience

As Oregon faces growing groundwater demands, proactive monitoring is no longer optional, it's foundational to water security. Pressure transmitters offer a practical, proven bridge between traditional well management and modern data-driven stewardship, delivering comprehensive visibility into static levels, dynamic performance, and recovery rates.

Whether you manage a single domestic well, or a community system with multiple wells, investing in submersible pressure technology delivers peace of mind and actionable insights. Oregon's aquifers have supported the state for generations; with the right tools, they can continue to do so sustainably. 💧

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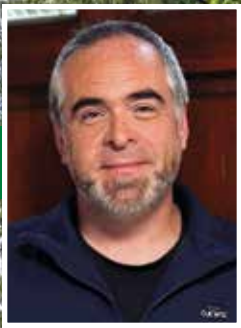
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Energy-Smart Small Systems: Cutting Pumping & Treatment Costs Without Spending a Fortune

by Jason Brooks, Small System Circuit Rider

Have you been looking over the system costs like energy and chemicals about ready to pull your hair out, wondering why you're spending so much just to deliver water?

Turns out, a couple of simple changes could make a huge difference — and most of them should fit the budget, especially if you calculate potential savings when considering the cost.

Here's what I've learned works really well for small systems that don't have a big maintenance budget:

Look at when you're pumping. If you're running your wells or booster pumps during peak electric rate hours, you're leaving money on the table. A lot of Oregon co-ops have time-of-use rates. Shifting even 30% of your pumping to off-peak hours can drop your bill noticeably. Does your system only fill once or twice a day? If so, you could consider using timers or manually filling during off-peak hours to save. Check with your power company to see if you pay extra during certain times.

Check your pump efficiency. Old pumps that are worn out or the wrong size for the job are energy hogs. I've seen systems running 20-year-old pumps that were only 40% efficient. A simple amp-draw test and flow measurement can tell you if it's time to rebuild or replace. Sometimes just trimming an impeller saves thousands in electricity over a few years.

Fix the leaks — again. Yeah, I know I just wrote about this, but every gallon you pump that leaks out is money wasted on electricity. One coastal system cut their pumping costs by almost 18% just by chasing down leaks found during a night-time survey.

Watch your chemical feed rates. Overfeeding chlorine or other chemicals doesn't just waste product — it can increase your backwash cycles and pumping costs downstream. I always tell operators to dial it in tight and keep good records. Small adjustments add up.

Take advantage of free help and incentives. Oregon has energy efficiency programs through your local electric co-op or the Energy Trust of Oregon that sometimes help with pump upgrades or VFDs on bigger motors. And don't forget USDA Rural Development grants.

The best part? Most of these changes don't require a big capital project. They just require paying attention, being willing to tweak things and spending a little money in the right places.

If your electric bill has you scratching your head, give us a shout. We would be happy to help you make your system more efficient.

Small systems don't have to choose between keeping the lights on and keeping the water flowing. A few smart moves can make both a whole lot easier. 💧



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July 21-22	Water Treatment/Distribution Certification Review	Redmond	1.4 Water/0.5 Wastewater/Onsite	7548 Fee
August 4-5	Wastewater Treatment/Collections Certification Review	Independence	1.4 Wastewater/0.5 Water	6043 Fee
August 17-20	32nd Annual Summer Classic Conference	Seaside	2.0 Water/Wastewater	TBA Fee
October 5-8	Fall Operator's Conference	Canyonville	2.0 Water/Wastewater	TBA Fee
October 13-14	Water Treatment/Distribution Certification Review	Independence	1.4 Water/0.5 Wastewater/Onsite	7548 Fee
October 15	Water T/D Level 3,4 & Filtration Endorsement	Independence	0.6 Water	7546 Fee
October 20-21	Wastewater Treatment/Collections Certification Review	Redmond	1.4 Wastewater/0.5 Water	6043 Fee
November 16-19	Spirit Mountain Casino Operator's Conference	Grand Ronde	2.0 Water/Wastewater	TBA Fee
December 7-10	Annual End of Year Operator's Conference	Hood River	2.0 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>

Drinking Water Data Online <https://yourwater.oregon.gov>

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The Efficacy and Accuracy of Using Dowsing

by Scott Berry, Operations Manager

I've made a couple previous attempts at taking on the topic of using "witching sticks" to locate buried water lines. As with the last article, my intention is not to take away the only tool you have to locate pipes buried without tracer wire. My intention is to encourage you to develop other processes that are effective, repeatable, and have proven accuracy.

Dowsing rods are simple handheld tools, often made from bent metal wire, that some people claim can help locate hidden objects underground, including water pipes. The practice, often called dowsing or water witching, has been used for centuries to search for groundwater, minerals, and buried utilities. Despite its long history and continued popularity, in some communities, the central question remains: how effective and accurate are dowsing rods for finding buried water pipes? A careful look at scientific evidence, practical field conditions, and human psychology suggests that dowsing rods are not a reliable or scientifically validated method for locating buried pipes.

Supporters of dowsing often describe the process as straightforward. The dowser holds two L-shaped rods loosely in each hand and walks over an area where a pipe is suspected to be buried. When the rods cross or move, the person interprets that motion as a sign of a hidden pipe or water line below the surface. Many practitioners are sincere in their belief that the rods respond to underground water, metal, or energy fields. Anecdotal success stories are common, especially in areas where professional detection tools may be less accessible. These personal accounts can be compelling, particularly when a dowser appears to identify a pipe location that is later confirmed by digging.

However, anecdotal evidence is not the same as controlled proof. Scientific testing of dowsing has repeatedly failed to show that dowsers can locate buried objects or water sources at rates better than chance when conditions are properly controlled. In experiments where participants do not know where the target is and cannot rely on visual cues, their success rates generally drop to random guessing levels. This pattern strongly suggests that dowsing rods do not detect buried pipes through any known physical mechanism. If the rods truly responded to water or underground utilities, they should perform consistently in blind tests, yet that consistency has not been demonstrated.

One of the most important explanations for the apparent success of dowsing is the ideomotor effect. This is a psychological phenomenon in which a person makes small, unconscious muscle movements without realizing it. These subtle motions can cause the rods to swing, separate, or cross. The user experiences the movement as if it came from an external force, even though it originated from their own body. The same effect helps explain the movement of pendulums, Ouija boards, and similar devices. In the case of dowsing rods, expectations, environmental cues, and prior knowledge of where a pipe "should" be can unconsciously influence the hands and arms, creating the impression that the rods are guiding the search.

Field conditions also make it easy to overestimate the accuracy of dowsing. Buried water pipes are often not placed randomly. They may run in straight lines from a street connection to a house, follow property boundaries, connect visible fixtures, or lie near meters, valves, hydrants, or building entry points. A person with practical experience can make educated guesses about pipe routes without needing any special sensitivity. Soil depressions, patch lines, utility markings, landscaping patterns, and the layout of nearby infrastructure can all provide clues. If a dowser is unknowingly using these clues, a correct guess may be credited to the rods instead of ordinary inference.

Another reason dowsing can appear successful is selective memory. People tend to remember dramatic "hits" and forget misses or vague results. If a dowser identifies three possible paths and one turns out roughly correct, that success may be highlighted while the incorrect predictions fade from memory. This is a common cognitive bias and does not mean the person is dishonest.

Dowsing Rods to Find Buried Water Pipes

Rather, it shows how easily confidence can grow around a method that feels intuitive and seems to work.

From a practical standpoint, relying on dowsing rods to locate buried water pipes carries risks. Inaccurate identification can lead to unnecessary digging, wasted time, increased labor costs, and potential damage to other buried infrastructure such as gas lines, buried electrical and communication wires. In construction, plumbing, and excavation work, professional methods are far safer and more dependable. These include reviewing utility maps, consulting as-built drawings, using electromagnetic pipe and cable locators, ground-penetrating radar, acoustic detection tools, tracer wires, and camera inspection systems. Such technologies are based on measurable physical principles and can often provide much more precise information about the location and depth of buried lines.

That said, it is understandable why dowsing persists. The tools are inexpensive, the method is simple, and it offers a sense of direct connection to the hidden environment underground. In areas where records are poor and advanced locating equipment is unavailable; some people may use dowsing as a preliminary or informal step. But even in these situations, it should not be treated as dependable

evidence of a pipe's location. At best, it may function as a guessing aid; at worst, it can create false confidence that leads to costly mistakes.

The efficacy and accuracy of dowsing rods for finding buried water pipes is not supported by scientific evidence. While some users report success, controlled testing indicates that dowsing does not perform better than chance when normal clues are removed. The movements of the rods are best explained by unconscious muscle activity and human interpretation rather than by any proven ability to detect underground pipes. For anyone who needs to locate buried water infrastructure accurately and safely, professional locating methods remain the appropriate standard. Dowsing rods may have cultural appeal and anecdotal supporters, but they should not be relied upon as a precise or trustworthy tool for underground utility detection. If dowsing is the method you choose for locating, do yourself a favor, call the person who requested the locate and tell them how the location of your buried pipes was determined. This will let them know to dig slow and easy. 💧

<https://www.wtamu.edu/~cbaird/sq/2015/04/15/how-does-water-dowsing-work/>

https://sites.pitt.edu/~jdnorton/papers/material_large/chapters_Mar_6_2021/13_Dowsing.pdf



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The Hidden Cost of Ignoring Cybersecurity in SCADA and Control Systems

By Jonathan Frank, Business Development Director at Advanced Control Systems(ACS)

This spring, at Northwest rural water conferences, I covered cost-saving in SCADA projects and attended eye-opening cybersecurity talks.

Those sessions left me with an uncomfortable realization: I wasn't fully sure what's minimally required to prevent unauthorized access—or what it really costs when the basics are skipped. If you've had similar thoughts, this article is for both of us.

A Conversation That Took a Turn

Back at the office, I asked our project manager about a text that went out while I was on the road: “Hey team... we have an NDA with [A municipal utility client] ... avoid discussing the situation outside ACS... especially while there is an active investigation.”

At first, his response sounded familiar—hackers, malware, ransomware—until I realized in our next staff meeting this wasn't old news.

The Real Cost of “Saving Money”

Here's the irony: we spend a lot of time helping utilities save money on SCADA systems—and we should. But one cyber incident can erase those savings fast:

- IBM reported the global average cost of a data breach reached \$4.88 million in 2024, showing how one incident can erase years of savings.

Figure 1 Often the vulnerability isn't in software—it's in the panel where physical access meets controls.



- EPA and CISA continue to warn that water and wastewater systems remain attractive targets—especially where OT assets are internet-exposed or remote access is weak. (EPA, 2023; CISA, 2024)

That's when the real question becomes: are we saving money if we aren't protecting the system? For many small systems, the first “cost” is downtime, running in manual, and emergency contractor time—right when you're already short-staffed.

Who Is Responsible for Cybersecurity?

In practice, requirements can come from several places: the utility owner/operator, the engineer/prime team, or the controls integrator and IT/network team. When ownership is unclear, it gets minimized or missed. On new projects, ask in writing: “Who is responsible for the cybersecurity specifications on this job?” and “What will you deliver that proves it's in place (diagram, settings, access list)?”

Enforcement vs. Incentives (What I Learned from DEQ)

At one conference I was introduced to Rosemary, who is helping Idaho DEQ build a new approach to incentives. Her point was simple: while enforcement is largely federal, states are increasingly using funding eligibility to encourage better cybersecurity, especially through SRF planning and project guidance.

That's encouraging, but adoption is still uneven, and the risk is real for small systems with limited staff and budgets.

A Surprising Gap (And a Big Risk)

Across the Northwest, many communities have small teams and limited budgets, yet reliability expectations keep rising. So, EPA and CISA keep returning to basics: reduce public internet exposure of OT assets, inventory what's exposed, strengthen authentication, and secure remote access. (EPA; CISA) Cyber intelligence (like ISAC membership) can also be costly—often \$800+ per year—for small towns.

A Practical Path Forward (Without Overcomplicating It)

So, what can utilities realistically do without overcomplicating it?

1. Rely on a Trusted Integrator

A trusted integrator should do more than “install and

leave.” They should help identify cyber risk during design, recommend a minimum baseline, and support a system you can maintain.

2. Require Cybersecurity in Specifications

If you’re working with an engineer, make cybersecurity explicit in the specifications. If it isn’t written down, it often doesn’t get built.

- Network segmentation (OT separated from business networks)
- Secure remote access with strong authentication, credential management, and audit logging

3. Adopt a “Carefree” Standard Approach

Adopt a repeatable architecture so cybersecurity is built-in instead of reinvented on every project. At ACS we call this Carefree©SCADA—not because risk disappears, but because the baseline is defined and predictable.

A Carefree approach means:

- Standard architectures (not one-off builds)
- Minimum cybersecurity baseline you can verify

This aligns with common utility/ICS security guidance many utilities reference. (NIST/AWWA)

Saving Money vs. Protecting Value

When I built my class on saving money in SCADA systems, cybersecurity wasn’t the headline. Perhaps it should have been.

The goal isn’t only to cut upfront costs, it’s to protect the value of infrastructure that must run safely, reliably, and continuously.

A Simple Next Step

A simple next step is basic visibility: know what OT assets are exposed, who can access them, and how remote access is secured. If you can’t answer, start there. (EPA, 2023; CISA, 2024)



*About the author:
Jonathan Frank, Business Development Director at Advanced Control Systems, a control system integrator and SCADA provider for water, wastewater, and industrial telemetry across the Pacific Northwest.*



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Ahh, Summer

by Mike Collier, Deputy Director/Source Water Specialist

With summer now here, there are hundreds of different tasks to complete at work and around our homes. It is hard to manage the schedule of so many jobs to complete, it can get overwhelming. A typical method to alleviate some of this stress is to make a priority list, I like to actually write it down. Maybe I am a little bit old school, but this puts it right by my office computer or where I put my keys when at home.

This list is good for a few reasons; we can take a quick glance and see the few items that are at the top and need to be done soon. When a task is completed, we can scratch through it, and man is that satisfying. Also, we can take a quick look to see if we need to reprioritize something.

At the beginning of Summer, I often feel like I will have plenty of time to complete everything, the nice weather just started, I have several months to do all these different things. But time flies, as soon as you factor in sports, vacations, and the various appointments that show up – oops, it is the end of September, and the weather has begun to shift again.

Hopefully, if we are careful, we can work through the list before this happens. Some of the less important things may have to wait until the next opportunity, but if we hit the list early and often we may just have a chance to move through it. Like the saying goes, “How do you eat an elephant? One bite at a time.”

It is important to take these times of nice weather to connect with family and friends before we are stuck inside again and the time is short. With any luck we may be able to do that and get to some of our list. Every year I feel this is daunting to accomplish, but this year at least getting through the top priorities and a few of the easy jobs that are listed will provide for some fulfillment and the list will continue during the opportunity that will come next year. 💧

WELCOME, NEW MEMBERS!

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QUIZ CORNER

1. Stemming from its early Spanish name meaning “River of the Wild Sheep,” the 698-mile-long Cimarron River stretches across four U.S. states: New Mexico, Oklahoma, Colorado, and?
A. Kansas
B. Wyoming
C. Arkansas
D. Missouri
2. Drosophila is a genus of what type of winged animal which lives in rural and urban environments all around the world? One of the more than 1,000 species plays an ongoing critical role as a common model organism in reproduction and genetics research.
A. Hummingbird
B. Fly
C. Bat
D. Water Bear
3. What was the due date for a water systems lead service line inventory?
A. October 1, 2025
B. October 16, 2024
C. September 11, 2005
D. January 1, 2000
4. Which of the following is the single most important consideration about any drinking water supply?
A. Freedom from iron staining
B. Freedom from disease-producing organisms
C. Freedom from dissolved solids
D. Freedom from chlorides
5. In a Combined Sewer System, storms can potentially cause:
A. No effect
B. Sewer overflows
C. Decrease in flow
D. Sediment accumulation
6. A one-acre wastewater treatment pond with a depth of 3 ft holds approximately:
A. 0.5 million gallons
B. 1 million gallons
C. 2 million gallons
D. 3 million gallons
7. How many US states start with the letter “M”?
A. 3
B. 8
C. 10
D. 4
8. What year was Oregon inducted into the Union?
A. 1848
B. 1779
C. 1901
D. 1859
9. What is the world’s second longest river?
A. Amazon River
B. Mississippi River
C. Yangtze River
D. Nile River
10. What emblem is on the back of the Oregon State flag?
A. There is no emblem on the back
B. 36 stars representing the statehood
C. A beaver
D. A bear

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

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2026 OREGON ASSOCIATION OF WATER UTILITIES

MEMBERSHIP APPLICATION

Member Name: _____

Mailing Address: _____

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

- | | |
|--|--------------------------------|
| ☐ Regular Member | \$ _____
See schedule below |
| ☐ Associate Member | \$700.00 |
| ☐ Individual Member | \$100.00 |

Regular Member Dues Schedule

1 to 100	\$75 + 53 cents per connection
101 to 500	\$85 + 53 cents per connection
501 to 1,000	\$90 + 53 cents per connection
1,000 and up	\$100 + 53 cents per connection
Maximum dues is	\$1,600.00

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Membership Types

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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 \$700.00 per year

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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



MB26

MEMBERS

62nd Court Mutual Water Company
 Adair Village, City of
 Adams, City of
 Adrian, City of
 Agate Creek Water Association
 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
 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 and Sanitation 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
 Calkins Acres Improvements LLC
 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
 Chenoweth Water PUD
 Chiloquin, City of
 CHR Dist. Improvement Co.
 Christmas Valley Domestic Water
 Cimmarron City Water Co., Inc.
 Circle C Improvement Dist.
 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
 Colorado Lake Co-Op
 Colton Water District
 Columbia City, City of
 Columbia Hills Homeowners Association
 Columbia River PUD
 Condon, City of
 Coos Bay, City of
 Coquille, City of
 Corbett Water District
 Cornelius, City of
 Corvallis Waldorf School
 Cottage Grove, City of
 Country View Estates Water System
 Country View Mobile Estates

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
 Dietz Airpark Water System
 Donald, City of
 Drain, City of
 Drifter's MHP
 Dry Creek Airpark HOA, Inc.
 Dufur, City of
 Dundee, City of
 DWF Round Lake Utilities
 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, 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
 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
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 Harbor Water PUD
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 Hebo Joint Water & Sanitary Authority
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 Helix, City of
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 Hermiston, City of
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 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
 Lone, 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
 Kelly's Brighton Marina, LLC
 Kelso Water Association
 Keno Water Company, Inc.
 K-GB-LB Water District
 Kilchis Water District
 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.
 London Water Co-op
 Long Creek, City of
 Lostine, City of

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

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Ambrose, Lee	Clement, Tony	Gonzalez, Jeremy	Hunter, Ryan	Mauter, Stephen	Renhard, Chad	Sundstrom, Daniel
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Benzel, Sandy	DeHaan, Josh	Hammond, Tim	Kemper, Troy	Neal, David	Scott, Keri	Walley, James
Bernal, Antonio	Dewey, John	Hanks, Kevin	Keri, Scott	Nelson, Ron	Scranton, Keith	Walsh, Tom
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Brigham, Dustin	Elliott, Gary	Henris, Nicholas	Klann, Eric	Palmer, Spencer	Sinclair, Frank	Whiteman, Leonard
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Brown, Rick	Emerson, Tony	Hermansen, Dave	Koppel, Eric	Pedersen, Joshua	Smith, Gerard	Williams, Scott
Buchanan, Brent	Faulkner, Dan	Holmes, Dwight	Laetzsch, Dawna	Pesterfield, Dale	Smith, Guy	Wisegarver, Willard
Burg, Dennis	Flannery, Danny	Horn, Casey	Lane, Brian	Peterson, Phillip	Smith, Larry	Wiser, Mark
Buskirk, Jeff	Forrest, Dan	Houchin, Jeff	Lankford, Mark	Pierce, Matt	Speakman, Aaron	Witmer, Drew
Caldwell, Kevin	Fowler, Brian	Howell, Roy A.	Laudenslager, Brian	Pierce, Scott	Springer, Rondi	Wolfe, Trent
Calhoun, Christopher W.	Fraijo, Ashley	Howes, Timothy	Leach, Randall	Pippenger, Jebadiah	Stalker, Easton	Wood, Mick
Cameron, Zachary	Frazier, Paul	Hubbard, Tom	LeBret, Dean	Pippenger, Robert	Statchwick, Jeff	Woodward, Steve
Carlson, Rob	Freel, Milton	Hubbell, Lillian	Lewis, Tim	Pistoresi, Michael	Statham, Lee	
Carroll, Scott	Furnish, Allen	Huber, David	Lockard, Darrel	Polach, Ron	Steidler, Matthew B.	
Casale, Wes	Gallegos, Juan	Huff, Zach	Lueckenotte, Dustin	Powers, Ryan	Stewart, Jason	
Chambers, Sean	Gallino, Joseph	Hughes, Aaron	Lundblad, Christian	Ramos-Pino, Patricio	Stewart, Sheri	
Chipman, Kenneth	Gentry, Mike	Hume, Jeffery	Maas, David	Rand, Terry	Stewart, Tyson	

ASSOCIATE MEMBERS

120Water	Cleanwater1	Hose Solutions	Nurnberg Scientific	Sherwin Williams
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Adkins Engineering & Surveying	Columbia Laboratories	Hydra-Stop	Optimal Control Systems	Silversmith Data
Advanced Control Systems	Consolidated Supply Co.	HydroCorp	Oregon Meter Repair & Water Solutions	Smith & Loveless Inc.
Advanced Underground Utility Locating Inc.	CORE & MAIN	HYMAX by Mueller	Oregon Public Utility Commission	SNF Water Science
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AMAROK	Dan's Leak Detection, LLC.	InfoSense, Inc.	Owens Pump & Equipment	Tank Maintenance Solutions
American AVK Company	Ditch Watch West	Inland Environmental Recourses	PACE Engineers, Inc.	The Automation Group
American Flow Control	DN Tanks	Instrument Technology Corporation	Pacific NW Sales	The Ford Meter Box Co., Inc.
American Leak Detection	Duke's Root Control	Integrity Pump Solutions, Inc.	Perma-Patch, LLC	Thompson McLean Assoc.
Ampstun	EJ	Kennedy/M&H Valve	Peterson Power Systems, Inc.	TMG Services
Anderson Perry & Associates	Energy Trust of Oregon	Kleen Tides, LLC	Pittsburg Tank & Tower Co.	Tnemec, Inc.
Aqualitec Corp.	Enviro-Clean Equipment, Inc.	Ladtech, Inc.	PumpTech Inc	Treatment Equipment Company
Backflow Management, Inc. (BMI)	Eurofins Environment Testing Northwest LLC	Lakeside Industries/EZ Street	Puttman Infrastructure, Inc.	Tripac
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Business Oregon Development Dept.	Goble Sampson Associates	Mountain States Pipe & Supply	Sarkinen Industrial Pipelining	Western Systems
Calhoun & DeJong, Inc.	Granich Engineered Products	Mueller Company	Schneider Water Services	Whitney Equipment Company, Inc
Cascade Columbia Distribution Co.	Harmsco Filtration Products	Neptune Technology Group	Schroeder Law Offices, PC	Wm H. Reilly & Co.
Cascade Waterworks	Harrang Long Gary Rudnick PC	Nicor, Inc.	Seattle Pump & Equipment Co.	Xylem, Flygt Products
CIMCO-GC Systems, Inc.	HD Fowler Company, Inc.	Northstar Chemical Inc.	Sensus USA	Xypex Chemical Corp.
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