

H₂Oregon

Spring 2016
Vol. 38, No. 2

Mini Expo
July 12, 2016
Independence, OR
*see Training & Events
Schedule, p. 27*

OAWU offers
new services!
see p. 25

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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 to the editor and interesting stories. Please send submissions (no more than two pages in length) to:

Oregon Association of Water Utilities

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Cover Photo:
The Pinnacles at
Crater Lake National Park
by Heath Cokeley

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

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

Oregon Association of Water Utilities

OAWU Expanded Services

by Jason Green, Executive Director



Each new year brings with it lists of work to be completed and tight schedules within the utility business. OAWU maintains experienced operators and managers ready to assist your utility and personnel. A few examples include: water main and sewer pressure testing; sewer line smoke testing; chlorination, flushing and pressure testing of new water mains; valve and hydrant exercising and main flushing; fire hydrant maintenance; construction inspection, etc. The Association has a reputation for providing superb training and consulting/technical assistance over the last 39 years. We find that utility members are in need of additional services such as the ones previously listed. The ad below also includes many such examples that may be taken advantage of. In addition to general operational and maintenance needs, OAWU may be able to assist in specific tailored training at your utility, assist with public meetings, board training/workshops or facilitate a workgroup. We are experienced in advertising/locating managers and operators or working alongside your utility through an interview process. Many utilities have taken advantage of either a temporary or long-term arrangement to manage and/or operate their water or wastewater utility. Others have requested assistance for operator of record/DRC services after losing a key person or certificate holder for the system. Unexpected loss of a key person at a utility places many additional burdens on personnel and a temporary management arrangement or operator of record/DRC service may buy your utility time to maintain compliance, keep personnel focused and provide time for a qualified full-time replacement. A number of utilities have extended this service to multiple years in order to train existing personnel and allow them to work up to meet the required system certificate level.

Several additional services which OAWU receives high marks in and maintains a solid reputation are water and wastewater utility rate reviews/studies, water management and conservation plans, required management plans, sampling and emergency plans, wastewater lagoon profiles, etc. The most recent additions to our member services lineup include Industrial/Commercial Wastewater Discharge Surveys and Inspections which are being required with newer DEQ permits and Environmental Reports (ER) which are required within utility loan/grant applications. One of our service to members goals, if possible, is to tailor each service to meet your specific needs. Should you have questions, need assistance or a quote, please do not hesitate to call. ♦

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38TH ANNUAL HIGHLIGHTS Management & Technical Conference SUNRIVER, OREGON

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

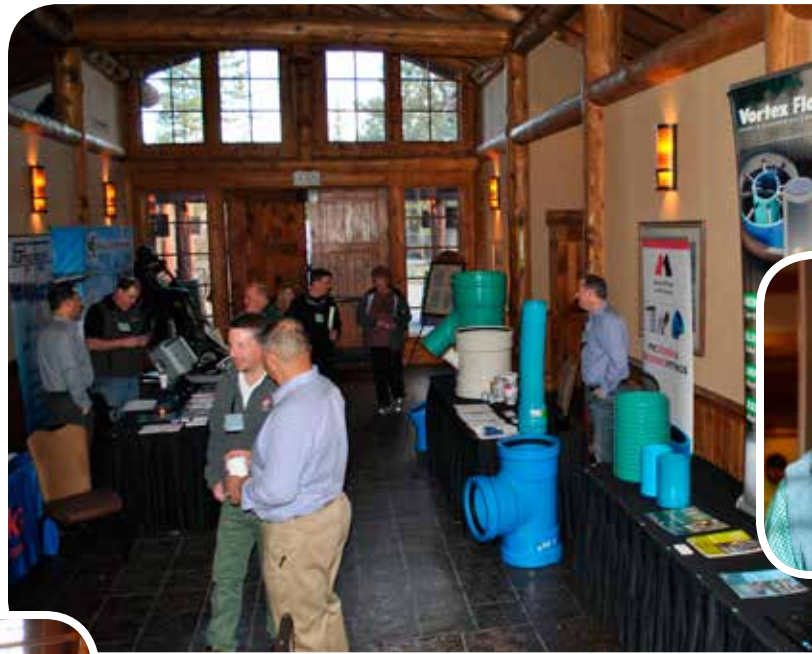
The conference sessions were lead off by Jason Green, OAWU Executive Director, and Mark Beam, OAWU Board President. They welcomed attendees and discussed the state of your association. They were followed by Glen Womack, National Rural Water Association Executive Committee board member from Louisiana. Glen provided an update on the issues the industry is facing at a national level. This was followed by Mark Landauer who presented an update regarding the legislative issues at the state level.

For those who stayed in the main hall they were intrigued by Mark and Frank Bain, from Bain Wealth Financial Group and by their brother Dr. Matt Bain, MD, with Mid-Valley Direct Primary Care. Mark and Frank Bain presented on the different retirement options that are available and Dr. Matt Bain, MD, presented on the different variety of health insurance and options that are available.

The OAWU annual business meeting was held after class sessions ended on Tuesday. President Mark Beam presided over the meeting as attending members heard committee updates and participated in board member elections. The slate of board members who were re-elected to the board were:

Mark Snyder, K-GB-LB Water District
Don Chandler, Nantucket Shores Water Co.
Mark Beam, Ice Fountain Water District
Micah Olson, City of Columbia City

At Wednesday's regular board meeting officer elections for 2016 occurred. They are: **Mark Beam** as President, **Ed Pugh** as Vice President, **Phil Davis** as Secretary, Micah Olson as Treasurer, and **Mark Snyder** as Past President.





Many attendees and families were present at the awards banquet on Thursday evening. The ribeye steak was great and good conversations could be heard throughout the Great Hall. A Board Service Recognition was given to Jerry Arnold for his years of services, leadership, and commitment as a board member of OAWU. The 2015 Manager and Operator award recipients are:

The **Manager of the Year** award went to Tim Lyda from the City of Tillamook.

The **Office Manager of the Year** award went to Shanti Burns from Corbett Water District.

The **Water Operator of the Year** award went to Bill Hill from Crooked River Ranch Water Company.

The **Wastewater Operator of the Year** award went to Don Costello from the City of Harrisburg.

The **Rookie of the Year** award went to Russ Foltz from the City of Mill City.

The **Associate Member of the Year** award went to Schneider Water Services.

The **Friend of Rural Water** award went to Don Van Veldhuizen from USABlueBook.

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



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





At the Exhibitors' Hospitality Night on Wednesday there was good food and drink, many door prizes, raffles, and an auction for a massage at the Sage Springs Spa and Sunriver stay won by **Jamie Hildebrandt** from **Sun Mt. Water**; we also auctioned a bottle of Jack Daniels which was donated by **Frank J. Martin** and was first won by **Kriss Schneider** from **Schneider Water Services** and Jason Green from OAWU for \$600 who donated the bottle back to be auctioned off again at which point it was won by **Gene Vroman** from Yoncalla for \$100, the money went to support the Jeff Swanson Memorial Scholarship fund. Scholarship raffle proceeds totaled \$3,280.

This year's Jeff Swanson Memorial Scholarship in the amount of \$1,500 was awarded to **Travis Gibson**, whose dad works for the **City of Monmouth**.

The raffle winners were: **Fred Schatz**, **Crystal Springs Water District**, won the 50" Magnavox HD-LED Smart TV from the OAWU raffle; the winner of the WaterPac Raffle of a .223 Remington 700VLS rifle with a Leopold Scope, was **Scott Hartley** from **Crystal Springs Water District**, and the winner of the .357 Smith and Wesson for the Jeff Swanson Memorial Fund Raffle was **Dale Fletcher** from **GC Systems**.

The winners of the ping-pong and cribbage tournaments were announced. First place in ping-pong was **Dave Bobbett** of **Whitney Equipment Inc.** **Jake Obrist** from the **City of Bend** came in second. **Chris Young** from **DN Tanks** came in third. **Jim Shaver** of **Pace Engineering** came in first for cribbage, receiving the championship board. **Nathan Skoglund** from **Cascade Head Ranch District** came in second and **Brian Coulter** (retired) came in third. Find the Logo contest winner was **Derrick Johnson** from the **City of Redmond**.

We wish to thank our Associate Members for their donations, time and support of this conference and of course the members who continue to believe in and support the Oregon Association of Water Utilities. Specifically, we would like to thank our Silver Sponsors for this year's conference: **EJ, HD Fowler Company, Inc.** and **Kennecy/M&H Valve** and our Bronze Sponsors for this year's conference: **BergerABAM, CoBank, and RH2 Engineering Inc.**

Be sure to sign up for the Annual Conference next year, the first full week of March 2017, as there will be a slate of new classes to attend, people in our industry to visit with, food to eat, and fun to enjoy. See you there! Best wishes to you, our friends. 🍀





Making the Call

by *Tim Tice, Projects Manager*

Making a decision can be tough; yet, not making a decision can be equally tough. We are not immediately sure of the outcome prior to when a decision is made. Those who are placed in a position of responsibility to steer an organization for the better will adopt good sound policies.

Boards, councils, and managers make informed decisions everyday with probably the most important being hiring, firing, compensation and motivation/building of personnel. What is ironic to such important decision making, is that parents are not hired, fired or compensated for the most difficult task of all, raising children. As a parent, we do not follow our children through their classrooms, managing their every step, but we inquire, and discuss how their day went. As children grow and advance in school their decision making process is a direct reflection on how they have been coached.

Duties of parents correlate to duties of decision makers, (i.e. boards and councils) by caring for the family (organization), showing fidelity (loyalty), as well as, providing a guide towards respect, (obedience). When sound practices, either in the family or organization, are instilled in all participants, disorder and chaos are muted.

Sound practices are fortified early by introducing areas of responsibility and showing ways of serving others. If I, as a father, teach certain actions are wrong, then I am seen acting in a way contradictory to the teaching, how can I direct and discipline on that area? A weak foundation of policies and procedures will crumble the organization.

Prioritizations change routinely and with discernment and discussion they

can help an organization reach its goals. Besides reading the “Parenting 101 Manual”, there are resources available to guide decision makers in the process. It takes more than simply showing up for a monthly meeting.

When we are either hired, elected, or volunteer, it is essential to understand and familiarize ourselves with the roles and responsibilities in any new position. Particularly with a volunteer, it is difficult to take the time to educate ourselves about what it takes to make a great board member or council person, as well as a “parent.” Anyone who has reached a “professional level” has studied the majority of their lives to know their subject.

I have often admired the story of the major league baseball umpire who made a call, incorrectly, which cost a pitcher to lose the ultimate goal, a “no-hitter.” After the game, the umpire discussed the call with the pitcher and apologized for the mistake. Here we have an educated man (in the game of baseball) stepping up and admitting wrong. The entire career of the umpire is to gain complete knowledge of the game, yet had a moment that caused him to stumble. This professional had to make a real-time decision. With all aspects within the game of baseball developed on speed, how much more difficult do the calls become? Just watch some instant replays.

It is apparent, pun intended, that as time goes by, it seems that many of us, as either parents or decision makers, have the same hurdles to get around. It also seems that the decisions that are made to any particular event are similar within a like group. Maybe it is called learning as we go, but if we stop learning for the betterment of both



personal growth and growth of the organization, the seat needs to be vacated. Unlike parenting, leaving may simply be what would be the best for the group or organization.

At times we are unsure of the impact of that day's vote or decision, and again, only time will reveal the impact. By postponing a decision for

the time may seem to be the correct action, what picture is painted for the constituents? Indecisiveness may be the single largest point of frustration among constituents, and the future outcome may prove exponentially wrong. To quote the lyrics of the band Rush, "If you choose not to decide, you still have made a choice!"

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Filaments

Submitted by Jeff Crowther, Wastewater Technician

During a review of articles I found this short discussion on Nocardia posted by Drew Wiersema, NRWA Staff, to the Waterpro website. It gives an operators' perspective regarding foaming in an activated sludge treatment plant. I felt that it was good information and wanted to pass it along.

Excessive foaming is a frequent problem in activated sludge systems. Light fluffy white foam usually occurs during startup. Some researchers believe that "young sludge" produces a surfactant similar to detergent, which causes this kind of foam. Even after the plant is in operation, it is not unusual to get fluffy foam if you waste too much sludge. I guess that the bugs think that they are starting up all over again. Soaps and detergents cause white fluffy foam, however bugs can eat some kinds of detergents.

Dark scummy foam, which can be very hard to get rid of, can be caused by a certain type of actinomycetes called *Nocardia*. Actinomycetes have a similar structure like fungi and grow in branched filaments. They do not cause bulking like *Sphaerotilus* and some other straight filaments. The branched filaments have a waxy coating that resists water and allows it to float. The branches act like tiny nets, catching little bubbles which float and trap the solids.

The dark scum can make a real mess when it gets out of hand. It may get into the effluent if the clarifier scum skimmers can't handle all of it. It looks like chocolate mousse. It can overflow the aeration tanks and get into the recirculation compressors in pure oxygen plants. Defoaming agents don't seem to do any good on this stuff. High volume water sprays will break it up and re-dissolve it in the Mixed Liquor, but eventually it will come back.

There is a lot of research being done on *Nocardia* foaming, but it seems to "come and go" at will. One thing which

seems to make it go is lowering the solids inventory. Some plants run at a very short MCRT to keep it down. The bacteria are resistant to chlorination and most systems can only get rid of it by wasting the heck out of it. Many coastal systems that have a lot of restaurants seem to have the *Nocardia* outbreak during tourist season. The theory is that this foaming has been due to large amounts of grease from restaurants. There seems to be no real evidence that oils and greases in sewage are the cause, although it is possible that some of these materials give the foam greater stability.

Some have suggested that *Nocardia* can only grow at long sludge ages, however, it is now evident that even high rate plants can suffer. Temperature and other environmental conditions presumably affect the minimum sludge age at which *Nocardia* can establish; once foaming begins ample residence time for proliferation is available in the foam phase.

It has been suggested that anaerobic conditions in at least part of the sludge in the bottom of the clarifier could give them an advantage over other aerobes in the mixed liquor. This could be provided by the products of anaerobic fermentation, acetic acid for example, by facultative anaerobes in the sludge. Tests under aerobic conditions have shown that *Nocardia* grows more strongly on acetate than on glucose or other substrates.

Foaming can only occur in the presence of a sufficient concentration of suspended solids. Regardless of the

concentration of actinomycetes, mixed liquor will only foam at solids concentrations above about 1500 mg/l, and foaming worsens as the solids concentration increases. Temperature appears to be a key factor. Over the range of 0-30 degrees C foaming becomes steadily more severe as the temperature rises. Finally, the degree of foaming is also related to the intensity of mixing.

Possible Cures

- Operate at a minimum MLSS concentration consistent with other operating goals.
- Operate at lowest mixing intensity. This means operating at minimum DO concentration consistent with satisfactory SVI and solids suspension.
- Increase the sludge recycle rate and scraper speed. To minimize solids accumulation in the clarifier the recycle rate should be in the range where only clarification failure can occur. 🍀



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Life's Surprising Journey

by Hans Schroeder, Circuit Rider

As I travel Oregon as a Circuit Rider I hear many stories from many different folks. All the stories could easily be compiled into a book. From elk hunting trips, rafting trips, kids' softball games, birthday parties, car accidents, new born babies/grand babies and the list could go on and on. The chapters in this book could be endless. Allow me to share a story that definitely would top most others I have heard.

When I was traveling through Southern Oregon I met a man at one of the systems I visited. I found myself looking forward visiting with him every trip I made to Southern Oregon. I was drawn to his stories about his upbringing, his adult life, hunting trips, family functions, career and the passing of his parents. The longer we visited and built a closer friendship I learned that he was adopted as a 6 month old baby. The more we visited I found we had more in common. We shared back and forth about being adopted. How there really wasn't a driving force to find our biological parents. He stated that his parents were always supportive to help him find his biological parents if he ever wanted. I shared that my parents too always were in full support to assist me in finding mine as well. Months would go by before my travels would get me back to pay him another visit.

Six months or so had passed before I had another trip to visit with this Operations Specialist. When I informed him that I would be coming through, he was on a hunting vacation, he stated he had some crazy news to share with me and that he would come back from his vacation and meet me at the local cafe for coffee. That next morning couldn't come soon enough. We planned on meeting at 7:30 am, but the anxiety was killing me to hear the news he had to share.

I was at the cafe well before our agreed time. He showed up right at 7:30 am. We had a few cups of coffee and talked about getting our deer tags filled, got caught up on our families and then I noticed he starting to beam. I finally asked, "Well, what's the news you wanted to share?"

He said, "You won't believe this Hans. Last May I needed my birth certificate. I asked mom if she knew where it was. We searched her house high and low and could not find it. She recently had hip replacement surgery so she was not very mobile at the time. We went to the bank to check her safety deposit box. She sat in the car while I went into the bank. She said, 'While you're in there you might as well grab your adoption papers.' I said, 'Nope, I don't want to.'

"While looking for my birth certificate, I did take the liberty to open the envelope of my adoption decree and find my pre-adoption last name. My birth certificate was not in the deposit box. I ordered my birth certificate online from the State of Oregon Vital Records. I saw where I could order my pre-adoption birth certificate as well, so I did."

With the technology provided to us this day and age he hit Facebook searching his birth last name.

"I think I have a brother that lives up in your neck of the woods," he said.

I was astonished. "What do you mean?"

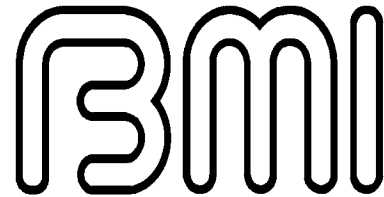
He said, "Here, look at this." On his phone was a picture of his original birth certificate.

I looked at it with a dropped jaw, I'm sure. Literally with a tear in my eye, I looked at him and said, "I not only know a guy with that very same name but he is a close friend of mine!"

He said, "I always said I would not pursue finding my birth family while my parents were alive. I had a great Christian upbringing and a wonderful childhood with parents that loved me and a sister and brother that loved me as well. The only way I could tell I was adopted was that I was taller than everyone in the family pictures. I can't say that I didn't Google my birth name a few times and find people with the last name that I assumed were probably related. I eventually found a man online with the exact name that was on my pre-adoption birth certificate. I shared this information with my wife Becky. It was intriguing, but I was comfortable just looking from a distance.

"I didn't know how or want to open a can of worms by contacting a family member or ruin a family with something that happened fifty years ago. Dad has been gone eleven years now and mom passed away unexpectedly on Father's Day, June 22, 2015."

Stay tuned to read how this amazing story unfolds. ♦



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A Different Point of View

by Heath Cokeley, Programs Manager/Circuit Rider

How do you take a bacti-sample? I typically start by running the water for some time at high flow, shut the flow off, douse or spray rubbing alcohol on the faucet, torch it and then run the water at a lower flow for a few minutes, then take the sample. Do you do it differently? If you do, is my way the right way or is yours? Obviously, for some tasks there is a wrong way to do them, but frequently, there are many correct ways to complete any particular task. If you lock yourself into only having one way to complete something what other possibilities do you miss out on?

One major problem I have is how school age children are being taught, specifically in math, that there is only one way to do it and if you don't it in this manner it is incorrect. In reality, math problems have a number of different approaches to complete them and as long as certain rules are followed you can get the correct answer. If we lock our kids into only completing problems a certain way every time and never thinking outside the box, what are we at risk of losing in our next generation? I believe the reason we have come so far as a country, in the last 100 plus years, is individual ingenuity. The ability to approach a problem from a different perspective than someone before and potentially solve it.

An example I will use to portray this is in 1903 a flying machine was finished and ready for trial. This machine cost roughly \$70,000 dollars of which \$50,000 was spent by congress to develop it. It incorporated the truths held at the time about what a machine needed to look like in order to have a

sustained manned flight. While most of the history books will agree that the first sustained manned flight in a machine such as this happened in 1903 it was not this machine that accomplished that flight. For this machine would plunge into the Potomac River immediately after being launched. What most history book recognize as the first sustained manned flight would be accomplished by the Wright Brothers later that year, after three years of development and only \$1000 dollars of their own money. That is not to fault the scientist who developed the first machine for its failure as his experiments only helped the Wright Brothers to develop their machine, but had they not questioned the beliefs about flight at that time and taken the original equations on flight as law and not done the experiments themselves, ultimately finding inaccuracies and correcting them, they likely would not have accomplished their goal of flight.

I am not suggesting that every school age child will develop something that will fundamentally change the world, but would argue that each child has that potential. I believe we need to foster that kind of ingenuity and drive not paint the next generation into a box that dictates that there can only be one correct answer. When we close our minds to new ideas I believe we freeze our growth as an individual. Then again you may have a different view or approach, which is great. For if we all thought and acted the same this would be a very boring world to live in. With that said I will see you down the road. ♦

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How a Boss Can Improve

by Mike Collier, Deputy Director/Sourcewater Specialist

In the previous two articles we began to look at the question: How can we get the most productive work from our work force? We looked at what happiness has to do with it and then looked at what we could focus on, what we can do, and how our personal perspective or view point can change the mood and productivity in the workplace. We saw that happiness at work increases performance because happy people work better with others, they are more creative, they fix problems instead of complaining about them, they have more energy, they are more optimistic, they are more motivated, they get sick less often, they learn faster, they worry less about making mistakes and make fewer mistakes, and they make better decisions. Now it is time for the final chapter where we will unpack how we may be able to help our co-workers' mood to potentially increase productivity and/or how a manager or boss can help the workplace in this way.

Employees are far more likely to have new ideas on days when they feel happier. Conventional wisdom suggests that pressure enhances performance, however, it is proven that most workers perform better, at a higher quality, when they are happily engaged in what they do. Anyone can help others in the workplace increase their happiness, but the boss/manager is the one that can greatly increase mood and positivity, they are the ones who shape the workplace culture, they set the example, and they interact with the other employees throughout the day.

Be positive as a manager and appropriately praise your employees for their work. Specific recognition deliberately delivered can be a great motivational tool. Having an irritated or apathetic tone, or a scowl on our face will foster negativity. Just as important as what you say to employees is how you say it—delivering instructions in an angry, negative tone will handicap the employee before they even begin the task. Starting with warmth, or cheerful enthusiasm will have the employee leaving the meeting and set out to begin their work with a positive demeanor.

Managers can help ensure that people are happily engaged at work. Doing so isn't expensive. Workers' well-being depends on a managers' ability and willingness to facilitate a workers' accomplishments—by removing obstacles, providing help and acknowledging strong effort. The most important factor to keep an employee engaged at work is that they feel they are making progress in meaningful work, this comes ahead of traditional incentives like raises and bonuses. Managers can help by enabling worker independence, giving sufficient resources, and making sure that everyone has the opportunity to learn from mistakes and/or problems.

Four areas that can help to improve the conditions to promote thriving employees are:

Decision-making opportunities

Employees at every level are energized by the ability to make decisions that affect their work. Empowering them

Mood in the Workplace

in this way gives them a greater sense of control, more say in how things get done, and more opportunities for learning. The challenge for managers is to avoid cutting back on empowerment when people make mistakes.

Sharing information People can contribute more effectively when they understand how their work fits with the organization's mission and strategy.

Minimizing incivility The costs of incivility are great. About half of employees who experience uncivil behavior at work intentionally decreased their efforts. More than a third deliberately decreased the quality of their work. Two-thirds spend a lot of time avoiding the offender, and about the same number said their performance had declined. Many who have been on the receiving end of uncivil behavior sabotaged their peers, spread gossip to deflect attention, or narrowed their focus to avoid risks.

Managers establish the tone when it comes to civility. Here are a few examples of how a boss' words can ruin the effectiveness of their employees:

"‘You made a mistake!’ for a sin as minor as a typo. His voice would resonate across the floor, making everyone cringe and the recipient feel acutely embarrassed."

"My boss asked me to prepare an analysis. This was my first project, and I was not given any instructions or examples. He told me the assignment was crap."

"My boss said, ‘If I wanted to know what you thought, I’d ask you.’"

"My boss saw me remove a paper clip from some documents and drop it in my wastebasket. In front of my 12 subordinates he rebuked me for being wasteful and required me to retrieve it."

"On speakerphone, in front of peers, my boss told me that I’d done ‘kindergarten work.'"

Performance feedback feedback, when done correctly, creates opportunities for learning and energizes. By resolving feelings of uncertainty, feedback keeps people's work-related activities focused on personal and organizational goals. The quicker and more direct the feedback, the more useful it is.

Additional key points that may encourage an employee are: that they know the expectations, daily they have the opportunity to do what they do best, in the last week have received recognition or praise, that someone at work seems to care about them, their opinions seem to matter, they are connected with the mission of the organization, their coworkers are committed to doing quality work, they have a best friend at work, and in the last year they have had opportunities at work to learn, grow, and be challenged.

Some simple ways a boss might help the general mood in the workplace would be to allow time for exercise, volunteering, meditation, or just being outside. Provide frequent recognition and encouragement of these types of things, they take a small amount of time out of the

day, but increase mood and productivity. Quickly calling a friend or watching a short funny video may seem like a waste of time, but if it improves moods it may actually give a net increase in productivity (when done on occasion). And why not? Everyone is happier and more productive when they have fun together. Some leaders don't understand that when people are not having fun, they're tense. Then as a result making decisions and being creative becomes more difficult.

Work should enable, not suppress, the human spirit. Promoting a worker's well-being makes economic sense. Leaders can help to show meaning in any employee's work in respect to the organization as a whole. Many times managers address daily hassles and help with technical problems. A boss should believe there mission is to support the workers' everyday progress. Be a leader who is open to empowering employees and who sets a positive tone in the workplace. ♦

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Buick: Commodes to Cars

by Scott Berry, Operations Manager

In 1882 the Alex Manufacturing Company of Detroit, a maker of iron toilet bowls and wooden water closet tanks, went bankrupt. The company's plant foreman, David Dunbar Buick, and his partner William Sherwood took over the company and nursed it back to health. David Buick was an ingenious man and before long he had received 13 patents on various plumbing fixtures including valves, flushing devices, and lawn sprinklers. His most significant patent was for an improved method of affixing white porcelain, such as bathtubs and toilets, onto an iron surface.

The rapid growth of urban areas and the increased adoption of indoor plumbing made the 1890s the perfect time to be in the plumbing business and David Buick's fortune seemed to have been assured. Instead, he flushed it away in favor of another interest, gasoline engines and automobiles.

In 1899 Buick and Sherwood sold their company for \$100,000 and Buick used his share of the money to found the Buick Auto-Vim and Power Company. This new company manufactured gasoline engines for industry, farming, and riverboats. By 1901 a horseless carriage, referred to in letters as "The Buick Automobile," was in existence. David Buick tried to sell it that year to his former engineer, Walter Marr, for \$300. Marr held out and got it for \$225. Marr had, in all probability, built the car for Buick. In 1902 Buick changed the company name to Buick Manufacturing Company and began making cars. Buick's automobile engine, the valve-in-head engine, was one of the most advanced of its day and delivered 22-29 horsepower. By 1903, the name of the company was changed to the Buick Motor Company. This company produced engines for power boats and stationary applications.

Buick and his engineers argued often. Marr later said he worked for David Buick three times, and each time the company had a different name. But between Buick, Marr and another engineer, Eugene Richard, the sensational valve-in-head engine was developed. It was powerful, reliable, and developed more horsepower with its displacement than other engines of like size then on the market. Eventually the entire industry would make use of the principle. But in 1903, David Buick had neither the manpower nor money to fully develop it.

In 1903, Buick's financial backer, Benjamin Briscoe Jr., sold his interest in Buick to a group of wagon makers in Flint, Mich., 60 miles north of Detroit. Eighteen years later, Briscoe observed that Buick's success story was "so fraught with romance that it made the Arabian Nights tales look commonplace."

Although Buick retained a seat on the board of directors, he was so deeply in debt that he had been forced to sell all but one share of stock in the company that still bore his name. ♦

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The Dreaded FLUSHABLE

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What is a flushable? According to Webster, “FLUSHABLE” is anything that will not plug a toilet when you push the handle. That being said, many things are flushable, such as kid’s toys, peoples dentures, blankets, jewelry and money, etc. Of course money and jewelry (real gold) are always acceptable when found in your bar screens.

Another definition is anything that fits through a 4 inch pipe. Many things will fall into this category, including 2x4s or, in the case of one municipality, even a car fender.

Of course the flushables of concern these days are the handy wipes, baby wipes, sanitary wipes, and cleaning tissues used by many industries and homeowners.

JUST BECAUSE THE BOX SAYS “FLUSHABLE” DOES NOT MEAN THAT IT SHOULD BE FLUSHED!

In our continued efforts to make everything germ-free these days, manufacturers have figured out great marketing campaigns. They are continuing to make disposable wipes for cleaning everything from the kitchen sink to a baby’s derriere and from engine parts to nursing home residents. Ironically, sometimes the same wipes are used for all of these.

These sanitary wipes are creating many issues in wastewater systems all across the globe. The problem with these materials is not just the fact that they will flush, but that manufacturers label them as flushable. They do not break apart or change in form after several hours, days, weeks, or even months in a collection system.. Because they do not break down, they are responsible for causing pump issues in lift stations and

SSOs (Sewer System Overflows) in many cities. Some cities report that the cost of flushables in their system can be as high as \$100,000 per year. These costs are related to line blockages and lift station malfunctions that create cleaning and removal issues. Hauling and land filling these materials is also costly. And of course if these cleanings happen after hours, then overtime is involved. I know of a system in Arizona that was cleaning their lift station that was located downstream from a women’s center at least two to three times per day due to the sanitary wipes used at the center.

Canada reports that wipes contribute to \$250 million dollars a year in added cost at their treatment plants. Washington D.C. spent \$1 million dollars to install grinders in an effort to grind up the wipes before they plug a lift station. The city of Denver reports spending \$100,000 per year to haul off the wipes they remove from their collection system.


Excerpt from NY Times:

“Wet Wipes Box Says Flush.
New York’s Sewer System Says Don’t.”

By Matt Flegenheimer – March 13, 2015

The city has spent more than \$18 million in the past five years on wipe-related equipment problems, officials said. The volume of materials extracted from screening machines at the city’s wastewater treatment plants has more than doubled since 2008, an increase attributed largely to the wipes.

The cost to our cities trying to manage these wipes will never really be known but estimates are in the

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multi-millions of dollars. The manufacturers of these wipes are reporting their revenues can be as high as \$600 Million per year. This is creating a Catch-22: cities are paying big money to mitigate wet wipes and industry is making big money selling them.

I understand that people using these wipes do not want to have the dreaded poke-through event when cleaning someone's bottom, so manufacturers are making the wipes stronger. Some may be adding nylon fibers to the material to make them stronger.

I cannot say that flushables are the thing that causes every plug and SSO, but they definitely are suspected of contributing to the problem. As you have all seen, when a sanitary wipe hangs up in the wastewater system, either due to obstructions or gets to your lift station, it can start to collect solids and grease. From there, it can collect other wipes and more solids and



Sometimes FLUSHABLES need help, so in the mid-1800s (experts think probably around 1850) this handy tool was invented. As you can see, they are so popular these days that some facilities need to chain them to the wall to keep them. Or... they could now become a flushable themselves.

grease until you have the two-ton blockage that needs to be removed.

So now, the question is, what can you do to help reduce the problems with FLUSHABLES? As you have heard me say many times over the years, the best place to stop contamination is "AT THE SOURCE"!

The best way to control these materials is through PUBLIC EDUCATION!

How do you educate the public? The same way we educate the public about FOG (Fats, Oils and Grease). Start with making a site visit to every Hospital, Nursing Home, Medical Clinic, School, Day Care, or other facilities that might use these wipes and request they throw them in the trash instead of in the toilet. One city in New Mexico reports cleaning the line from the hospital

FOG (Fats, Oils, and Grease) can form accretions in sewer systems.



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at least once a month to remove wet wipes. Of course the best people to educate are the middle school kids through your public education programs. Remember to get your teachers to plan field trips to your facility to teach them about water and wastewater. Just like with your FOG program, teach them about wipes. A great visual would be a trash can full of wipes you have removed from a lift station or headworks. If you need help with a public education program, please contact me.

One of our clients has actually seen what appears to be identical packaging from one manufacturer's products. One package has "FLUSHABLE" in big letters on the front and the other has "do not flush" in really small print on the back.

On a side note: I recently spent 3 weeks in the country of Greece and discovered they do not allow people to even flush toilet paper down the drain. Every restroom has a covered trash can available for you to discard your used toilet paper. That includes all dirty toilet paper used

for any purpose. Evidently in some European countries even toilet paper causes plugging and SSOs.

Is there light at the end of the tunnel...or...pipe?

We think there is and we hope it is not an oncoming train. There are several third party studies being run at this time. We are hearing of municipalities joining together to fight this problem, along with some cities and even states filing class action law suits against some of the manufacturers. Who knows what will happen in the near future, but in some cases the problem is just in the packaging.

And the last thing we need to discuss about flushables and packaging is for you to not get caught up in the terminology of biodegradable. Most things can be considered biodegradable—even Uranium 238. The challenge with Uranium 238 is the half-life of approximately 4,000 billion years. This being said, some biodegradable products can take decades to decompose. Be careful what you allow in your system. ♦



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L	Y	R	S	E	N	U	I	W	X	K	P	S	N	T
K	Z	E	I	E	V	T	Y	N	J	J	V	J	Z	Y
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Due to a production error, a few lines of letters were missing from the winter issue's Word Search. The puzzle is reprinted here in its entirety.

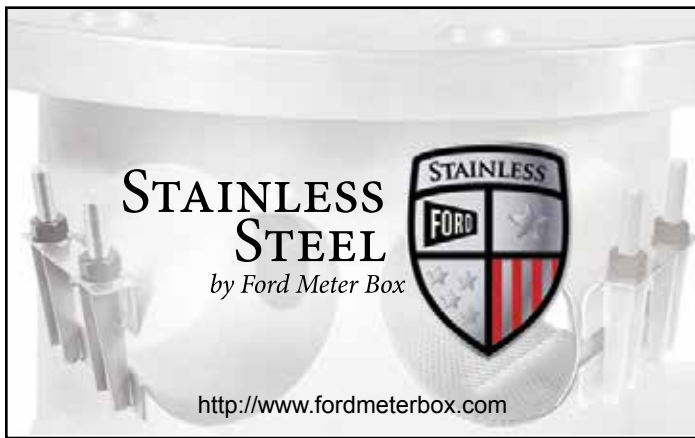
chlorine
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ADDITIONAL OAWU BENEFITS & SERVICES

Sewer I&I Testing • Smoke Blower • Well Testing • Line Locator, Leak Detector, Etc.
Operator of Record Services • CCR Templates & Report Preparation
System Performance & Evaluation • O&M Manuals • On-Site Training & Classes
Water Conservation Management Planning • Lagoon Profiling
Job Referrals, Announcement & Services • Rate Studies

**OAWU has extended its services to include DRC,
Operator of Record, Operations, and Construction projects!
Please contact us if you need any help.**

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2016 TRAINING & EVENTS SCHEDULE

Date	Class Title	Location	CEU Information	ESAC#, Fee/Free
April 5-6	Water Treatment Water Distribution Certification Review	Salem	1.4 Water/0.7 Wastewater	2787 Fee
April 13	Control Valves	Portland Area	0.7 Water	2863 FREE
April 19	Developing Your Operations & Maintenance Manual	Coos Bay	0.6 Water/Wastewater	2780 Fee
April 20	Math for Operators	Salem	0.4 Water/Wastewater/OS	2885 Fee
April 20	Source Water Protection Planning	Salem	0.3 Water	TBA Fee
May 10	Math for Operators	Springfield	0.4 Water/Wastewater/OS	2885 Fee
May 10	Source Water Protection Planning	Springfield	0.3 Water	TBA Fee
May 11	Hydrants and Distribution	Salem	0.4 Water	TBA FREE
May 11	Confined Space	Salem	0.3 Water/Wastewater	TBA Fee
May 25	SDWA Update	The Dalles	0.4 Water	2887 FREE
June 7-8	Water Treatment Water Distribution Certification Review	Salem	1.4 Water/0.7 Wastewater	2787 Fee
June 14	Math for Operators	Winchester Bay San.	0.4 Water/Wastewater/OS	2885 Fee
June 14	Source Water Protection Planning	Winchester Bay San.	0.3 Water	TBA Fee
July 12	Mini Expo	Independence	0.4 Water/Wastewater	TBA FREE
July 13	Pumps and Pumping	Tillamook	0.4 Water/Wastewater/OS	2862 Fee
July 13	Math for Operators	Tillamook	0.3 Water/Wastewater/OS	TBA Fee
July 19	Pumps and Pumping	Pendleton	0.4 Water/Wastewater/OS	2862 Fee
July 19	Math for Operators	Pendleton	0.3 Water/Wastewater/OS	TBA Fee
August 10	Developing Your Operations & Maintenance Manual	Eagle Point	0.6 Water/Wastewater	2780 Fee
August 16-17	Water Treatment Water Distribution Certification Review	Bend	1.4 Water/0.7 Wastewater	2787 Fee
August 22	Effective Utility Management	Seaside	0.6 Water/Wastewater	TBA FREE
August 22-25	22nd Annual Summer Classic	Seaside	1.7 Water/Wastewater	TBA Fee

Levels 1-4 Water Operator Exams

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

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

More Resources

Drinking Water Data Online	https://yourwater.oregon.gov
Center for Health Protection	http://public.health.oregon.gov/PHD/Directory/Pages/Program.aspx?pid=4
Drinking Water Services	http://public.health.oregon.gov/PHD/Directory/Pages/Program.aspx?pid=58

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

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

System O&M Manuals Required

Have you completed your state-required Operations & Maintenance Manual?

Oregon Association of Water Utilities has prepared a full day class to assist operators in outlining an operations and maintenance manual per the Oregon Administrative Rule 333-061-0065 which requires each water system to develop an operations and maintenance manual. This class will assist the water and wastewater system operator in outlining the specific points in developing the draft of the O&M manual. Step by step, each attendee will create their draft as it relates to their utility system during class. The e-file may then be completed back at the system office.

Class cost is \$155, or if you are unable to attend a class you may purchase a thumb drive with e-files for \$155. To sign up for the class, or to have a thumb drive mailed to you, contact OAWU for more information. ♦



WHY AREN'T YOU A MEMBER OF OAWU?

Serving Water & Wastewater Utilities Since 1977

- We provide onsite technical assistance and training, meaning that we will come to you and help with any problems you may be encountering with water or wastewater.
- We provide water and sewer rates and lagoon profiling. Call OAWU at 503-837-1212 for a bid or estimate. We can save you money!

These are just a few facts about OAWU. The next time you are in need, pick up the phone and call us before hiring outside help. We are here to help. ***It's our industry. It's what we do.***

To join or for more information,
visit www.oawu.net or call 503-837-1212.

Oregon Association of Water Utilities
935 N. Main Street
Independence, Oregon 97351
Phone (503) 837-1212
Fax (503) 837-1213 www.oawu.net



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

MEMBERSHIP APPLICATION

Name: _____

Address: _____

City/State: _____

County: _____ ZIP: _____

System Email: _____

Phone: _____ Fax: _____

Operator: _____

Contact Person: _____

Number of Hook-ups: _____

Were you referred? By whom _____

Type of System:

☐ Water ☐ Wastewater ☐ Both

Membership Category Amount of Dues

<input type="checkbox"/> Regular Member	\$ _____ See schedule below
<input type="checkbox"/> Associate Member	\$400.00
<input type="checkbox"/> Individual Member	\$75.00

Regular Member Dues Schedule

1 to 100	\$75 + 31 cents per hookup
101 to 500	\$80 + 31 cents per hookup
501 to 1,000	\$90 + 31 cents per hookup
1,000 and up	\$100 + 31 cents per hookup
Maximum dues is	\$940.00

Mail payment to: OAWU
935 N. Main Street
Independence, OR 97351

*If paying by credit card, please call
the OAWU office at 503-837-1212 for
processing and receipt.*

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 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. For Associate Member Benefits, please contact OAWU.

Annual Dues \$400.00 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 \$75.00 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 in your area about upcoming training courses
- 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 (Regular & Associate Members)
- Positive contacts with other organizations
- Camaraderie with water and wastewater professionals
- Operator Of Record services
- Job referrals, announcements and searches
- Well testing
- Plan review
- System performance evaluation and options
- Additional programs and services
- Disaster response assistance and planning



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

MB16

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 Adams, City of
 Adrian, City of
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 Albany Rifle & Pistol Club
 Alpine Crest Improvement Dist.
 Amigo Villa Water Service, Inc.
 Amity, City of
 Ananda Center at Laurelwood, Inc.
 Arch Cape Service District
 Arlington, City of
 Arrah Wanna Water Company
 Arrowhead Mobile Home Park
 Aspen Lakes Utility Company, L.L.C.
 Athena, City of
 Aumsville, City of
 Aurora, City of
 Avion Water Company
 Baker City, City of
 Bandon, City of
 Banks, City of
 Barlow Water Improvement District
 Barlow, City of
 Bay City, City of
 Bay Hills Water Association
 Beaver Water District
 Bella Casa Mobile Home Park
 Bend Research Inc.
 Bend, City of
 Benton County Service District
 Berndt Creek Water Corp.
 Biggs Service District
 Black Butte Ranch
 BLM Eugene
 Blue River Water District
 Blue Spruce Mobile Estates
 Bly Water & Sanitary Dist.
 Boardman, City of
 Bonanza, Town of
 Boring Water District #24
 Bradley Lake Estates
 Brandy Bar Landing, Inc.
 Breitenbush Hot Springs
 Bridge Water District
 Brooks Community Service District
 Brownsville, City of
 Buell-Red Prairie Water District
 Bunns Village Properties, LLC
 Burns, City of
 Burnside Water Association
 Butte Falls, Town of
 Camp Rilea
 Canby Utility
 Cannon Beach, City of
 Canyon City, Town of
 Canyonville, City of
 Carlton, City of
 Cascade Head Ranch Dist. Improv.
 Co.
 Cascade Locks, City of
 Cave Junction, City of
 Cedarhurst Improvement Club, Inc.
 Century Meadows Sanitary System,
 Inc

Century Meadows Water System, Inc.
 Chaparral Mobile Ranch
 Charles Tracts Water Company
 Chehalem Mt. Sun Ridge Association
 Chenoweth Water PUD
 Chiloquin, City of
 Christmas Valley Domestic Water
 Cimmarron City Water Co., Inc.
 Circle C Improvement District
 Clarks Branch Water Associatioin
 Clatskanie, City of
 Clayton Creek Water Association
 Cline Butte Utility Company
 Cline Falls Mobile Home Park
 Cloverdale Sanitary District
 Cloverdale Water District
 Coburg, City of
 Colton Water District
 Columbia City, City of
 Columbia Hills HOA
 Columbia River PUD
 Conagra Foods
 Condon, City of
 Coquille, City of
 Corbett Water District
 Cornelius, City of
 Country Club Water District
 Country View Mobile Estates
 Covanta Marion, Inc.
 Cove Orchard Water Association
 Cove, City of
 Crater Lake National Park
 Crescent 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
 Deception Creek Mobile Park
 Deer Creek Estates Water Assn.
 Deerhorn Community Water
 Association
 Depoe Bay, City of
 Deschutes Valley Water District
 Detroit, City of
 Dexter Oaks Mobile Home Park
 Dexter Sanitary Service
 Diamond Peaks Tract 1355
 Diamond Summit Association
 Dietz Airpark Water System
 Donald, City of
 Drain, City of
 Drifters Mobile Home Park
 Dufur, City of
 Dundee, City of
 Eagle Point, City of
 East Yamhill Rural Water Company
 Eastmont Water Company
 Eastshore Water Improvement
 District
 Echo, City of

Elkton, City of
 Enterprise, City of
 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 View Water Company
 Fischer's Place Mobile Home Park
 Fishhawk Lake Recreation Club, Inc.
 Florence, City of
 Forest Park MHP
 Fossil, City of
 Garden Valley Water Assn
 Garibaldi, City of
 Gaston, City of
 Gates, City of
 Gearhart, City of
 Gervais, City of
 Gilchrist Water Co., LLC
 Gladstone, City of
 Gleneden Sanitary District
 Glenmorrie Co-op Association
 Glide Water Association
 Goble Water Association
 Gold Beach, City of
 Gold Hill, City of
 Government Camp Water Company
 Grand Prairie Water Supply
 Company
 Grand Ronde Community Water
 Association
 Grand Ronde Sanitary District
 Grand View Mobile Home Park
 Granite, City of
 Grants Pass, City of
 Green Oaks Mobile Ranch
 Greenhoot Properties
 Gresham, City of
 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 District
 Heppner, 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 Water System

Huntington, City of
 HWY 58 Trailer Park
 Ice Fountain Water District
 Idanha, City of
 Idleway Improvement District, Inc.
 Imbler, City of
 Independence, City of
 Indian Meadow Water Company
 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
 Junction City, City of
 Juniper Mobile Home Park
 Keizer, City of
 Kelly's Brighton Marina LLC
 Kelso Water Association
 Keno Water Company, Inc.
 K-GB-LB Water District
 Kingswood Heights Water
 Association
 Klamath Falls, City of
 Klippel Water, Inc.
 Knappa Water Association
 Knoll Terrace MHC
 L.A. Water Cooperative
 La Casa Mia
 La Pine, City of
 Lady Creek Water System
 Lafayette, City of
 Laidlaw Water District
 Lake Grove Water District
 Lakeshore Estates
 Lakeside Water District
 Lakeside, City of
 Lakeview, Town of
 Lakewood Utilities, LTD
 Lamontai Improvement District
 Lamplighter Water Association
 Lane County Parks
 Langlois Water District
 Lark Meadows Water Association
 Laurelwood Water User's Co-op
 Lawrence Subdivision Water
 Association, Inc
 Lebanon, City of
 Lexington, Town of
 Lincoln City, City of
 Little Beavers Preschool
 Long Creek, City of
 Lostine, City of
 Lowell, City of
 Luckiamute Domestic Water Co-op
 Lyons-Mehama Water District
 Madras, City of
 Madrone Hill MHP
 Malin, City of

MEMBERS

Manzanita, City of
 Mapleton Water District
 Maupin, City of
 McKay Acres Improvement District
 McKenzie Palisades Water
 McLain Village Water
 McMinnville Water & Light
 McNulty Water PUD
 Merrill, City of
 Metolius Meadows Prop. Owners Assn.
 Metolius, City of
 Midland Water Association
 Mill City, City of
 Milo Adventist Academy
 Minikahda Water District, Inc.
 Mitchell, City of
 Modoc Point Sanitary District
 Molalla, City of
 Monmouth, City of
 Monroe, City of
 Monument, City of
 Moran Water System Association
 Moro, City of
 Mosier, City 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
 NeahKahNie Water District
 Nehalem, City of
 Nesika Beach-Ophir Water District
 Neskowin Regional Sanitary Authority
 Neskowin Regional Water District
 Netarts Water District
 Netarts-Oceanside Sanitary Dist.
 Newberg, City of
 Newport, City of
 North Corvallis Mobile Home Park
 North Hill Water Corporation
 North Plains, City of
 North Powder, City of
 Northwest Newberg Water Association
 Nyssa, City of
 Oak Lodge Water District
 Oakland, City of
 Oakridge, City of
 Oaks Mobile Home Park
 Oceanside Water District
 Ochoco West Water & Sanitary Authority
 Odell Sanitary District
 Odell Water Company
 Olney-Walluski Water Association
 OPRD Main Office- Salem
 Orchard Heights Water Association

Orchard Point Mobile Homes
 Oregon Shores Beach Club, Inc.
 Oregon Water Wonderland II Sanitary District
 Orient Drive Mobile Estates, LLC
 Otter Rock Water District
 Pacific High School
 Paisley, City of
 Paradise/ Rogue Meadow WS
 Parkdale Water Company, Inc.
 Parrett Mountain View Estates
 Perrydale Domestic Water Association
 Pete's Mt. Water Company, Inc.
 Philomath, City of
 Phoenix, City of
 Pilot Rock, City of
 Pine Grove Water Dist.
 Pinecrest Water Company
 Pioneer Park Water Co-op
 Pioneer Village Water Company, Inc.
 Pleasant Valley Water Company
 Pleasant View Water Company
 Polehn Heights Water Association, Inc.
 Ponderosa Pines Water Company
 Port of Morrow Commission
 Port Orford, City of
 Power City Water Co-op
 Powers, City of
 Prairie City, City of
 Prineville, City of
 Pristine Water Source, LLC
 Quincy Water Association
 Rainier, City of
 Redmond, City of
 Redwood Water Service, Inc.
 Reeder Ranch, Inc.
 Reedsport, City of
 Rhododendron Water Association
 Richland, City of
 Rickreall Community Water Association
 Riddle, City of
 Rimrock West Improvement District
 River Meadows Improvement District
 River Point Farms, LLC
 Riverbend-Riverbank Water District
 Riverfront RV Park
 Rivergrove Water District
 Riverside Water District
 Riverview Trailer Park
 Riviera Mobile Park
 Roats Water System, Inc.
 Roberts Creek Water District
 Rock Creek Water District
 Rockaway Beach, City of
 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

Running Y Utility Company
 Salem, City of
 Salem Keizer School Dist.
 Salmon River Mobile Village
 Sandy, City of
 Scappoose, City of
 Scio, City of
 Scotts Mills, City of
 Scrael Hill Water Co-op
 Seal Rock Water District
 Seneca, City of
 Shadow Hills Park Cooperative Water Association
 Shangri-La Water District
 Sheridan, City of
 Sherwood, City of
 Siletz, City of
 Silver Falls School District 4J
 Silverton, City of
 Sisters, City of
 Skylane Farm
 Skyview Acres Water Co-op
 Sleepy Hollow Phase 1 Water
 Sodaville, City of
 South Fork Ranch Homeowners, Inc.
 South Fork Water Board
 South Hills Water System, Inc.
 Southwest Lincoln County Water District
 Southwood Park Water District
 Spirit Mountain Gaming, Inc.
 Spray, City of
 Springbrook Water Association
 Squaw Creek Canyon Development
 St. Paul, City of
 Staffordshire Water System, Inc.
 Stanfield, City of
 Star Satellite Improvement District
 Steeves Mobile City
 Storlie Water Company Inc.
 Sublimity, City of
 Suburban East Salem Water District
 Sumpter, City of
 Sunridge Estates
 Sunrise Water Authority
 Sunriver Water LLC
 Sunset Acres Water Improvement Co.
 Sunset Lake RV Park
 Sunset Water Systems, Inc.
 Sunshine Village Water Association
 Sutherlin, City of
 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 Creamary Association
 Tillamook, City of
 Timber Water Association
 Toledo, City of

Tollgate Water Co.
 Tone Water
 Trappist Abbey
 Tri City Water & Sanitary Authority
 Troutdale, City of
 Tualatin Valley Water District
 Turner, City of
 Twin Rocks Sanitary District
 Tygh Valley Water District
 Ukiah, City of
 Umatilla, City of
 Umpqua Basin Water Assn.
 Union, City of
 Vale, City of
 Valley View Water Co-op
 Valley View Water District
 Veneta, City of
 Vernonia, City of
 Vida-Lea Community Cooperative
 VMWID
 Waldport, City of
 Wallowa Lake Co. Service District
 Wallowa, City of
 Warm Springs, Conf. Tribes Reservation of OR
 Warren Water Association
 Warrenton, City of
 Wasco, City of
 Water Wonderland Improvement District
 Watseco-Barview Water District
 Wedderburn Sanitary District
 Welches Water Company
 Weldon Mobile Home Park
 West Hills Water Company
 West Linn, City of
 West Slope Water Dist.
 West Yamhill Water Company
 Western Heights Water Association
 Westfir, City of
 Weston, City of
 Westport Water Association
 Wheeler, City of
 Whispering Pines #4
 Wickiup Water District
 Willamette Water Company
 Willamina, City of
 Wilson River Water District
 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's Washington Family Ranch
 Young's River Lewis & Clark W.D.
 Zig Zag Water Cooperative, Inc.

WELCOME, NEW MEMBERS!

Dawna Lactzsch
Brian Lawson

Laura Ohman
Ryan Smith

Robert Winters

McLain Village Water
Kennedy/M&H Valve

INDIVIDUAL MEMBERS

Adams, John	Daniel, Morgan	Hecox, Thomas	Malley, Susan	Porter, James	Tabrum, Walter
Anson, James	Davis, Guy P.	Hengler, Kyle	Marshall, John	Powers, Ron D.	Thayer, Bradley
Anthony, Joe	Desroche, Ron	Hensley, Daryl	McClenathan, Mike	Rader, Jonathan	Thompson, Jake
Ashenberger, Jacob	Dillard, Bob	Hesse, Todd	McFadden, Tim	Rettke, Tim	Thompson, Kamen
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Barr, Patrick	Durfee, Kenneth C.	Houston, Colin	McManus, Peter	Risley, Michael	Tilander, Tim
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Bull, Kendra	Geiman, Dave	Klinger, Martin	Norris, Rick	Simmons, Edward	Wenzl, James T.
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Caire, Tim	Gonzalez, Roy	Laetzsch, Dawna	Ohman, Laura	Smith, Randall	Winters, Robert
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Carson, Paula	Griffin, Beverly "Bev"	Larman, Dan	Parks, Donita	Sollee, James	Woody, Max
Cass, Bradley	Halverson, Bruce	LaRoque, Scott	Parry, Betsy	Stark, Chris	Zell, Amil
Chavez, Vince	Hamilton, Howard	Lawson, Brian	Patch, David	Steele, Mark	
Clement, Tony	Hammond, Joni	Lewelling, Keith	Pendell, Keith	Steidler, Matthew B.	
Close, Greg	Handler, John	Lewis, Mark	Penselin, Stephanie	Stevens, Bret	
Collentine, Mary Ellen	Hannen, Scot	Lund, Darrell	Perry, Richard	Stonesifer, Vincent T.	
Crum, Dale	Hayes-Gorman, Linda	Maine, Mike	Pinson, James	Strassner, Bob	

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4B Engineering & Consulting	Consolidated Supply Co.	HD Fowler Company, Inc.	Oregon Public Utility	Taylor Made Pump Stations
Abbey Systems, Inc.	Corix Water Products	HD Supply Waterworks	Commission	The Automation Group
Advanced Control Systems	Correct Equipment, Inc.	Hydra-Stop	Owen Equipment Company	The Ford Meter Box Co., Inc.
Advantage Precast Inc.	CUES	Instrumentation Northwest, Inc.	OXARC Inc.	The Sherwin-Williams Company
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American Flow Control	Ditch Witch Northwest	Jordan Ramis PC	Pittsburg Tank & Tower Co.	Tripac
American Leak Detection	DN Tanks	Kamstrup Water Metering	PIXIS Laboratories, LLC	Trumbull Industries
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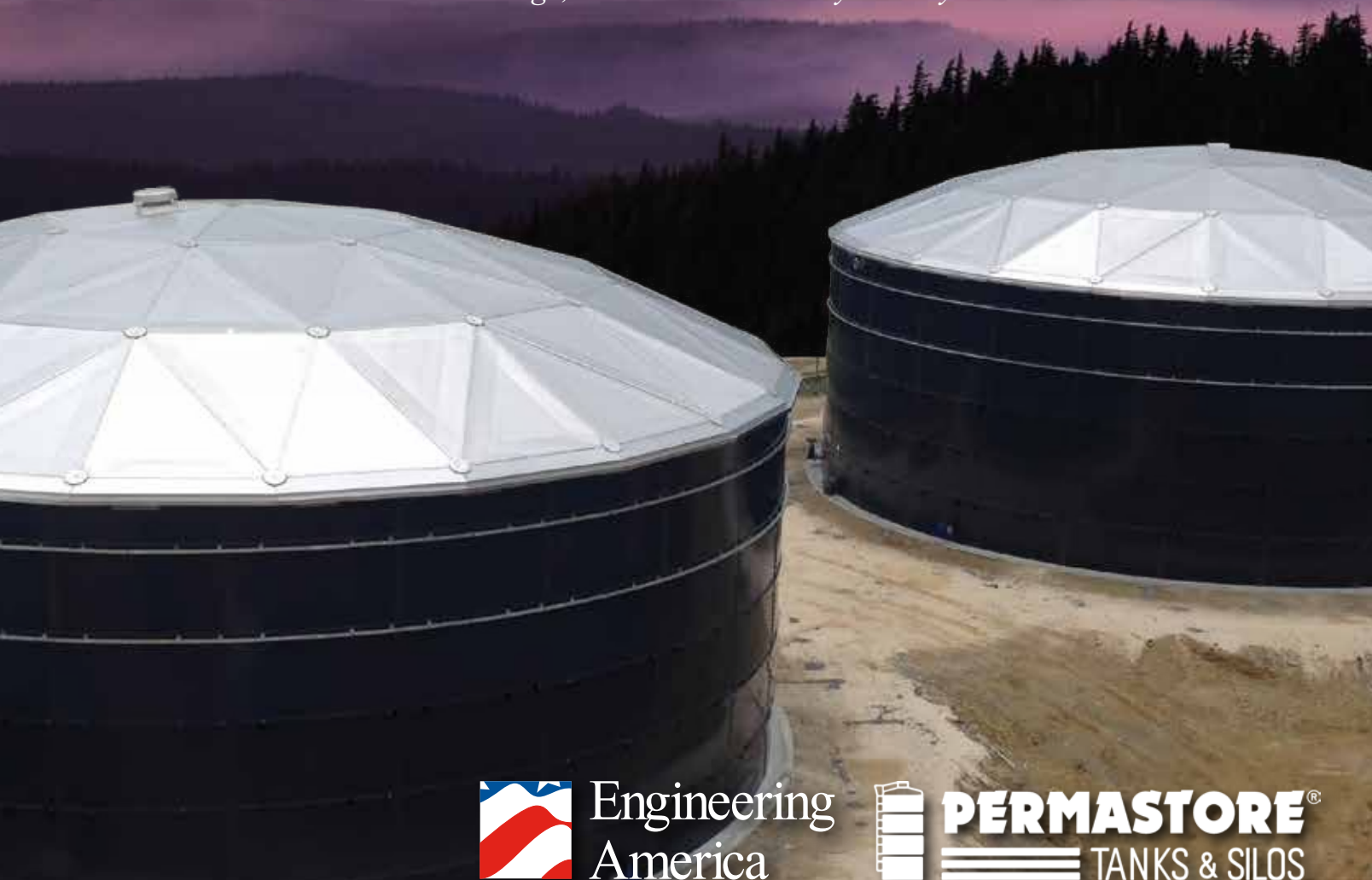
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