

H₂Oregon

Fall 2015
Vol. 37, No. 4

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Highlights p. 4–6

Upcoming Conferences p. 23

2016 Jeff Swanson Memorial
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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:

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CONTENTS

Influential Habits by Jason Green, Executive Director	3
Highlights from OAWU's Summer Classic in Seaside.....	4-6
Say More with Fewer Words by Jeff Crowther, Wastewater Technician	7
The Broad Street Pump by Heath Cokeley, Programs Manager/Circuit Rider.....	8
Disbelief, Qualms, Apprehension and Questions by Tim Tice, Projects Manager.....	10-11
Water Loss Program by Scott Berry, Operations Manager	12-13
Mentorship by Hans Schroeder, Circuit Rider.....	14-15
Happiness in the Workplace by Mike Collier, Source Water Specialist	16-17
A Special Thanks to OAWU Sponsors.....	17
Follow that Fenceline! by Bruce Hemenway.....	18-19
A Road Warrior's Observations on the Art of Wastewater Treatment by Rick Allen, BioLynceus	20-21
System O&M Manuals Required	22
Need to Review Water or Sewer Rates? OAWU Can Help!	22
Upcoming Conferences	23
Quiz Corner.....	24
Jeff Swanson Memorial Scholarship.....	24
2015 Training & Events Schedule	25
Additional OAWU Benefits & Services	25
Where Do You Live? Throwing My Loop by Michael Johnson	26
Membership Application Form	29
Membership Roster	30-32

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Bancorp.....	23	Owen Equipment.....	13
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BMI.....	9	Public Works Supply	19
Branom Instrument Co.....	27	Sherwin-Williams	20
Cascade Columbia Distribution Co.....	13	Special Districts Assoc. of Oregon.....	15
DN Tanks.....	22	The Automation Group	Inside Front Cover
Engineering America	28	The Ford Meter Box.....	19
Ferguson Waterworks	9	TriPac Fasteners	20
H.D. Fowler	22	USABlueBook	Back Cover

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

Influential Habits

by Jason Green, Executive Director



Leadership practices and behaviors result in some manner of influence. Leaders desire or should, that those they are charged with willingly follow, but often the challenge is how does a leader cultivate the desired willing response? This brings to mind the two basic facts of leadership – there is the “position” and the “person” in the position and much of what problems are about begin with the boss as he or she sets the cadence for others. There are many studies, and both experienced and some not-so-experienced opinions regarding this age-old subject of leadership influence.

Positive influence of a leader often has depth of effect and long-term impact on us. Some of these influences cause us to respect, admire, like, want to be like our leaders and motivate us. We do not often consider the true value of a leader who has the emotional intelligence and who places an extremely high value, seen in action awareness and focus, upon their staff relationship and attention to staff, their growth and success. The following sample of qualities and practices are worthy of contemplation for the experienced leader and those considering or working towards a leadership position.

Influential leaders:

Are approachable. This leader knows that every employee is valuable, regardless of rank or ability. They value our time, input and questions and advice. This often self-proclaimed quality, if exhibited, can further motivate us to work right, harder.

Form personal connections with us, building trust, helping motivate. We know they believe we are important and not just a number. They are able to communicate with words and most importantly, exemplify their words and connection with us by their consistent actions.

Are humble and give credit and appreciation when and where due at the appropriate level. The humble leader does not make everything about “them” and often attempt to avoid the spotlight. Arrogance and the practice of its all about “me” kills respect and motivation in others quickly.

Practice being positive and trustful first. Saying no is different than being negative, though it is generally a negative response. Being positive is more relative in how we think and then is displayed in action and attitude. Connecting trust with being positive may be questioned, but consider how a negative attitude regularly corresponds with someone who distrusts. We often see others as we think – it is the discerning leader who is able to move beyond this shortcoming. This is not to say the leader should not question or verify or say no, it simply challenges the leader to first consider yes and trust before we know the full story. Conclusions are best timely without any jumping. Negative people do not appreciate those who are positive and interestingly, positive folks can easily identify negativity.

Are even-keeled. Following someone who is a regular emotional basket case, moody, prone to fits and outbursts is a challenging task! A calm boss, even gentle, is someone greatly appreciated and often admired for their restraint and self-control. They may be an extrovert, animated or “A” type personality, but consistently prove to be steady and able to take things in stride with grace.

Hoping these few qualities cause further considerations of our mental views, attitudes and our practices as seen by others, and how we might influence others in a positive way. We will add to this list in the future. Best wishes. ♦



OAWU's Summer Classic 2015

The weather this year was fantastic and the activities were great. Monday's pre-conference provided great classes and a few extra CEUs to those who attended. The conference was kicked off by an opening session given by OAWU's Executive Director, Jason Green, and a legislative update by Mark Landauer. Tuesday held the evening outdoor barbecue with a meet and greet social, exhibitor prize give-away, followed by a bonfire on the beach. Wednesday continued with a full day of classes; some took the afternoon off to participate in the annual Golf scramble at Gearhart Links. Thursday concluded the conference at noon with final words by OAWU's Executive Director, Jason Green; an emergency response overview by Heath Cokeley (Programs Manager) and Hans Schroeder (Circuit Rider); and the highly anticipated raffle drawings and cash prizes.

Thank you to this year's Silver sponsor – H.D. Fowler; and to our Bronze sponsors RH2 Engineering Inc., EJ, BergerABAM, and CoBank.

- Bonfire beverages sponsored, again this year, by Ferguson Waterworks
- Annual golf scramble at Gearhart Links which hosted 12 teams
- Thursday, during closing session, OAWU gave away over \$1500 in merchandise and \$200 in cash prizes.
- This year's OAWU raffle for a 47" flat screen TV was won by Ron Wanner from the City of Seaside.
- This year's Jeff Swanson Memorial Scholarship raffle for an iPad Air 2 64GB, Mark Kerns from Avion Water.
- The Lollipop board prize for a full registration to the OAWU Sunriver Conference in March 2016 was won by Grant Baughman from the City of Fairview.

Mark your calendars for next year's Summer Classic in Seaside, August 15–18, 2016. See you there! 💧





in Seaside, Oregon

OAWU's Annual Golf Scramble

Seaside, Oregon – Gearhart Links Golf Course – August 19, 2015

The sun was out the entire day, it was pleasantly warm and we had very little wind throughout the day; it was a perfect day to hit the links for this year's scramble. The staff at the Gearhart Links Golf Course were accommodating, friendly, and professional helping to make the day even more enjoyable.

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

The day was very pleasant and the banter helped build camaraderie throughout the scramble.

Special thanks to this year's sponsors: The Ford Meter Box, M&H Kennedy Valve, EJ, HD Fowler, and Lakeside Industries for their support of the attendees and association.

The three winning teams were:

1st place – Bryon Boyd, Rob Jackson, Dan Bradley, and Dave Seifert

2nd place – Don Lovas, Darrin Andersson, Bill Van Ek, and Brenton Adams

3rd place – Bill Huntley, Ed Pettett, and Rory Martin

The winners of the golfing competition games were:

- Longest Putt #1 – Dave Seifert
- Longest Putt #2 – Mark Moore
- KP #1 – Dave Bobbett
- KP #2 – Bill Huntley
- KP #3 – Mike Bray
- Longest Drive Men's #1 – Dave Lovas
- Longest Drive Women's #1 – DJ Ezell
- Longest Drive #2 – Troy Cairns

Special thanks to Jeff Crowther (Circuit Rider), Hans Schroeder (Circuit Rider), Mark Russell (Office Manager) and Mike Collier (Source Water Specialist), who helped make sure the scramble went off without a hitch. 💧



Mark your calendars for OAWU's next Summer Classic at Seaside, August 15–18, 2016. It is a great location to enjoy while you earn CEUs and network with the associate members and your peers.



Say More with Fewer Words

by Jeff Crowther, Wastewater Technician



When many of us began our careers in the water and wastewater industry, we did not know just how much writing would be required of us. It would be great if we could operate the facility and leave the writing to someone else. Unfortunately, with smaller operations we wear many hats and one of those hats require us to write detailed reports or requests.

There are many different types of reports required in our field, and while these reports may cover a variety of topics or uses, the basic fundamentals of technical writing tend to stay the same. Although, most of us manage to write the reports and make them readable, there is one mistake many of us unknowingly make. This mistake is wordiness, trying to add length to our reports to make them look more complete.

This practice was drilled into us as kids and young adults. We were judged by the length of our papers, they were required to be 2, 10, or maybe even 20 pages long. We had to add fluff to make our paper look complete. For many of us, this habit is hard to break. Instead of making our report look “more complete” these extra words now just makes the report hard to read and hard to find the pertinent information.

When writing a report, stick to only what needs to be included. Most people are looking at the report for a specific reason. If we are filling out the annual state required Inflow and infiltration report, for example, we should only speak to this aspect in the report. If we can check off all of the requirements for the report, then we have covered all that needs to be included.

A useful tool, often overlooked by water and wastewater professionals, is the bullet list. This type of list may not meet an English teacher’s standards, but:

- It is easy to see
- It conveys the information
- It can easily be inserted into the middle of a report
- We can stray from paragraphs
- We can include only that which is vital

So remember next time you write a report, it is not an essay. It is a document someone will be using to find specific information. We should make it easy for them to do this and this may mean the report is not wordy. If we can write a report that is short, to the point, and includes all of the necessary information. This is not a failure—it is a success. 💧

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The Broad Street Pump

by Heath Cokeley, Programs Manager/Circuit Rider

In 1854 there was a cholera outbreak in London. This was a fairly common event for the world at that time, but what was different during this particular outbreak was one doctor's point of view.

You see, at that time it was believed that cholera was spread by foul-smelling air, but one doctor, John Snow, had spent time in his early life treating miners for cholera. One thing he never understood was why he never contracted cholera, even though he was breathing the same air the miners were.

Dr. Snow moved to London in 1836 and for many years he attended lectures and worked on his hypothesis that cholera was actually spread by water. This may seem obvious to us now, but at that time he was going against the unwavering belief in the medical community that it was airborne and therefore his hypothesis was largely ignored. During the cholera outbreak in Soho London in 1854, Dr. Snow would have the opportunity to prove his hypothesis.

He was so convinced that cholera was spread by water and not air that he went door-to-door to document the number of deaths in the area the outbreak had been reported. Dr. Snow then developed a map showing the deaths at each address and this map would reveal that the deaths were centered on the community's water source. This source was known as the Broad Street pump, today called the Broadwick Street pump.

At the time it seemed obvious to Dr. Snow that there was a link, not only based on his map, but also how the outbreak subsided when he convinced local officials to remove the handle on the pump. Unfortunately, this link was not accepted by government officials who later reinstalled the pump handle.

Although Dr. Snow realized that cholera spread via water he did not live long enough to see what actually caused cholera, as he passed away in 1858. After Snow's passing, one of Snow's chief opponents, William Farr, realized it was indeed a water source that was spreading a cholera outbreak in a different location. Farr issued immediate orders that unboiled water was not to be consumed.

It would not be until 1883 that the bacteria that causes cholera would be discovered by a German bacteriologist named Robert Koch.

As for the Broad Street pump, it was also found, many years after Dr. Snow's investigation, that the well was located only 3 feet from a cesspool that was leaking. A baby who had contracted cholera at another location had had its diapers washed out into the cesspool and that is now believed to be the origin of the 1854 Soho cholera outbreak.

There are many things you could take away from this article. For one, I hope it highlights what you already know. The water/wastewater field is a vital industry, without which modern life could not exist as it does.

You may also be able to discern how to find something safe to drink. If you go online and look up Dr. Snow's map that shows the people who passed away due to this outbreak, you will see there is a building that is one block from the Broad Street pump with no victims listed. It is the only building for many blocks that has no victims from this outbreak. This was a brewery. For something safe to drink in those days, you often needed to find an alcoholic beverage.

I may cover brewing beer as the oldest form of water treatment in a later article, but for now, I will see you down the road. 💧



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Disbelief, Qualms, Appre

by Tim Tice, Projects Manager

Are there things that make you scratch your head, shrug the shoulders or simply say, "Really?" Occasionally, I see or hear something that does not make any sense. With all the reality shows, stunts performed on YouTube, or friends sharing the unbelievable; the shock factor has nearly been eliminated. With the fortunate ability to converse with many people around our state, the regular topics of discussion point to the cost of living, a decision making processes and/or asking "why?" regarding many topics.

Due to my ignorance it is difficult to explain and discuss some of the topics. It came to the attention of someone that banging your head against a wall uses 150 calories per hour. Who gets paid to test this theory, or was it simply an assumption for the amount of movement someone makes when banging their head? Is it truly important to know that the European and North American continents are drifting apart at the same speed a human finger nail grows? Really!

Along with silly hypothetical ideas, we often hear of unusual laws that were written, often a long time ago, that leaves us doubting our sanity. The observations of today stretches one's beliefs from yesterday. Oregon has a law that ice cream may not be eaten on Sunday (www.dumblaws.com/laws/united-states/oregon). Beaverton says one must pay an annual \$15.00 permit to be allowed to install a burglar alarm (www.beavertonoregon.gov). Marion County forbids ministers from eating garlic or onions before delivering a sermon.

Recently, I had a lengthy discussion on sampling drinking water for various contaminants and how maximum contaminant levels (MCLs) are determined. The discussion specifically drew focus on arsenic. Historically, arsenic was set at 50 parts per billion (ppb) and since 2001 the level was reduced to 10 ppb. The questions/points that pertained to lowering the level were:

- How much better are the people healthwise?



Picture of a "punt gun" to rid cities of unwanted birds, discharging a pound of shot with each pull of the trigger. Source: rarehistoricalphotos.com

Comprehension and Questions

Average Annual Costs for Treatment				
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Costs Per Household	\$ 327-\$162	\$ 71-\$58	\$ 38	\$32-\$0.86

- The treatment process is too complicated or expensive.
- Why is treatment so expensive?
- Does someone certified have to perform the treatment process?
- How do you handle the concentrated filter sludge?

Surveys of U.S. drinking water indicate that about 80% of water supplies have less than 2 ppb of arsenic, but 2% of water supplies exceed 20 ppb of arsenic. Levels of arsenic in food range from about 20 to 140 ppb. However, levels of inorganic arsenic, the form of most concern, are far lower (www.eoearth.org).

The inconsistency in household costs between system's sizes is due to economies of scale. Larger systems are able to spread the costs over a larger customer base. There is difficulty in determining accurate costs, as the table of costs per household and costs per community water system (CWS) indicates (see above). Benefits for additional treatment

is substantiated by the following two points:

- Reducing arsenic from 50 to 10 ppb will prevent 19-31 cases of bladder cancer and 5-8 deaths due to bladder cancer per year (www.epa.gov).
- EPA estimates that reducing arsenic from 50 to 10 ppb will prevent 19-25 cases of lung cancer and 16-22 deaths due to lung cancer per year (www.epa.gov).


The World Health Organization (WHO) set provisional guideline values for arsenic at a limit of 0.01 mg/L (10ppb) in 1993 based on concern for its carcinogenicity. In January 2001, EPA published a final rule lowering the maximum contaminant level for arsenic from 50 ppb to 10 ppb. Not sure if the second bullet above is based on a specific amount of water consumed, and how it incorporates how water contaminated with arsenic impacts the lungs, but someone more intelligent than I must have figured it out and proven it.

Most often, this holds true for myself, we are reluctant to ask the question "why?" To best understand a point, rule, or reason we have to engage in conversation allowing both parties to learn, share and grow from the information. We may not always agree with a point or a rule, but to accept something without questioning it, may allow an imperfection to flourish. Knowing we engage for a better outcome is a worthwhile proposition. It may also keep our shoulders square and our hair from being tousled.

Here are other oddities for a smile!

- Babies may not be carried on the running boards of a car.
- Dishes must drip dry.
- Person folds paper, inserts into fax machine, believing recipient would unfold to read it.

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Water Loss Program

by Scott Berry, Operations Manager

Maintaining system infrastructure to deliver clean and safe drinking water to customers is often a significant challenge for the operators of public water systems (PWSs). Much of the estimated 880,000 miles of drinking water infrastructure in the United States has been in service for decades and can be a reason for water loss. In addition to physical loss of water from the distribution system (leaks), water can be “lost” through unauthorized use (theft), administrative errors, data handling errors, and metering inaccuracies or failure. Water is a commodity that is produced by a PWS. Therefore, lost or unaccounted-for water can be equated to lost revenue. A water loss control program can help to locate and reduce these water losses and thus maintain or increase revenue and efficiencies.

A PWS must balance their resources to address the financial and personnel demands of: available funds, water availability, population, climate changes, regulatory requirements, operational costs, and public and environmental stewardship. A water loss control program can help identify and reduce actual water losses along with apparent losses resulting from metering, billing or accounting errors. Water loss control programs can potentially defer, reduce, or eliminate the need for a facility to expend resources on costly repairs, upgrades, or expansions. A water loss control program will also protect public health by reducing potential entry points for disease-causing pathogens.

A water loss control program is an iterative process that must be flexible

and customizable to the specific needs of a PWS. There are three major components of an effective water loss control program that must be repeated on a periodic basis to continually evaluate and improve the performance of a PWS. These three components are 1) the water audit, 2) intervention, and 3) evaluation.

Conducting a water audit is a critical first step in developing a water loss control program. A water audit quantifies the amount of water that is being lost. Most states have regulatory policies that set acceptable losses from the distribution in a PWS at a maximum of between 10 and 15 percent of the water produced by the PWS. This percentage of unaccounted water provides estimated losses and does not adequately quantify how or why this water is “unaccounted-for.” Lack of standardized terminology has historically added to difficulties in comparing water losses from different PWSs. The International Water Association (IWA) and the American Water Works Association (AWWA) have developed standard methods and terminology to perform water audits and to assist water utilities in tracking their distribution system losses. The AWWA/IWA water audit methodology is based on the water balance table, which categorizes different types of water consumption and losses. After the water audit a PWS can proceed with further identifying where losses are occurring or where efforts to control or eliminate the losses should be concentrated.

The intervention process begins to address the findings of the water audit and can include a variety of actions such as: gather more information, implement metering programs, add or change metering, and detect and repair leaks. The selected intervention option should provide the highest potential benefit, from the available resources, that will help to alleviate a flaw or deficiency in the distribution system.

The evaluation portion of the program consists of assessing the success of the audit and intervention actions. Example questions that may be included in the evaluation process are: Is your production back down to where it should be? What programs were highlighted during this process? Do you need to have production meters calibrated or customer meters replaced? Is there a need to install system meters to track how much water is going to certain areas of the system? Information is key. 💧



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Mentorship

by Hans Schroeder, Circuit Rider

Every year I write an article on what to prepare for after you have finished your busy summer season. Well this fall is no different. After traveling our great state, I have noticed several things all communities have in common, no matter what the size of the town. This article will give a proactive solution to a very real problem that several of us seem to have.

With many public works departments having employees that are part of the baby boomer generation and starting, or at least thinking about, retirement we need to start proactively seeking out the younger generations to encourage them to go into our field. If we aren't careful knowledge will be lost. Many systems don't have diagrams of the meters, pipes, or valves that were installed in the 60s, 70s, 80s and 90s. The information is just in the mind of the Public Works Director who has worked there forever and is now thinking of retiring.

In the fall many schools have job fairs where business people show up to influence high school students to start thinking of a career, especially the juniors and seniors. Of course, we all realize, the different branches of the service are there; bankers, realtors, and local business people. Have you ever thought of attending the local high school's fall job fair?

This would be a great way to reach out to the community, that pays your wages and benefits, and get our younger generation thinking about going into either the wastewater

or drinking water industry. What kind of things would you talk to the students about? Well, what about a student who likes to work outside, work with his or her hands, is good at math, repairing things, welding, or is mechanically inclined? You also want to talk to them about building a retirement, having benefits (health, dental and vision insurance), and accruing vacation and sick days. Point out to them that if they have vacation and sick days even when they take time off work they can use their leave to keep their paycheck the same and not lose any pay. Most students haven't even thought about those things, not to mention, the rewarding hours worked and the paid holidays.

Did you know that all students that graduate in Oregon are required to do a senior project? Most of the students spend 9 to 18 weeks to accomplish this requirement and if they do not pass they don't get to graduate from high school. What a great way to give back to the community, by letting a student, or even a few students, job shadow you or your co-workers. They can learn what is required of them to go into our great field and what kind of classes they need to take if they attend college. Plus, being a mentor is a great way to give of yourself and show the community how much we truly love and appreciate our career.

Another thing to start planning and talking to your liaison about is to have an internship program and offering it to the student who took the most interest in the job shadowing program.

It needs to be put in the budget, so making a plan with your liaison early is key to making sure the funds are in the budget or that a grant can be applied for to help pay the expense of the student's wages. We all know we need extra help with mowing the parks, cemeteries and doing clean up from the many functions that happen during the summer months in our towns. Why not offer just a little bit more? Have them help at the sewer plant, water plant, reading meters, communicating with the City Hall staff, mayor, councilors and most of all the people of the community. This will keep them motivated to pursue a career in the public works field.

I hope this helps to get you thinking of something other than the things that were on your list to accomplish during the summer that you didn't quite get to, and besides hoping we don't have another winter with no snowpack and dealing with another drought-stricken summer in 2016. 💧




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Happiness in the Workplace

by Mike Collier, Source Water Specialist

How can we get the most productive work from our work force? If employees are not engaged and productive at work, maybe it is because they are not happy. Over the next year I plan on writing several articles that will cover the ideas behind happiness in the workplace. In this series of articles we will look at the connection between happiness and work productivity, how the individual can become happier, and finally look at how managers/bosses can help workers become happier and more motivated. Hopefully, we can all learn something, become more productive and become a little easier to be around through the process.

This kind of happiness we are talking about is not a sudden carnal pick-me-up (like getting a new T.V., as happiness from this will be fleeting), but rather is the overall feeling of ease and wellbeing. This type of happiness is subjective, what makes one person happy could make another person miserable. Three primary factors influence this type of happiness (feeling of happiness or wellbeing over the long term - chronic): circumstance (rich, poor, job, the nation one lives in, geographical, ethnicity, religion, personal history – childhood trauma, accident, etc.) interestingly this makes up only 10% of our overall happiness. People adapt rapidly to new circumstances and life events. An example of such an event would be getting a raise you had been hoping for. This raise may bring increased happiness for a while, but if you weren't satisfied with your pay before you got the raise, it won't take long to also be unsatisfied with the

new amount of money you are making (there is a caveat to this – if you were not making enough, prior to the raise, to meet basic food, shelter, and other needs.)

Studies have shown that we all have a set point of happiness and this is determined by genetics and cannot be changed or controlled – which makes up 50%. The final 40% is based on intentional activity (or the actions one has chosen) which can create positive or negative feelings. A majority of what we can control to become happier are the actions and reaction we make and how we perceive the situation and outcomes. We will get more into this idea in the next articles.

Back to how happiness is connected to productivity. According to research by neuroscientists Richard Davidson and V.S. Ramachandran and by psychologist Shawn Achor, happy people are better workers. Those who are engaged with their jobs and colleagues work harder and smarter.

A team of economists also researched this topic and they saw clear links between happiness and productivity. They found that happiness has a positive effect on productivity. Positive emotions appear to energize and rejuvenate, while negative emotions have the opposite effect. The economists found that, for both men and women, happier workers were 12% more productive and that those that were unhappy were 10% less productive. Even a short 10 minute comedy video can cause enough happiness to increase productivity at the job

Pursuing Happiness: The Architecture of Sustainable Change. Lyubomirsky, Sheldon, and Schkade. Review of general psychology. 2005, Vol. 9, No. 2, 111-131.



Follow that Fenceline!

by Bruce Hemenway

Many years ago as I was hunting in the deep woods, by myself, when I suddenly became unsure of my location. In my inner self, I was quite comfortable that I was not lost. But that small little voice, deep inside, was questioning my confidence. I kept following my course still believing, I would return to my point of origin.

Even though this was a new region for me, it had many of the landmarks that I had become accustomed to while navigating my way through the hills, mountains, valleys, and treed areas of the NW. Although maps and compasses had been in use for longer than I had been on this planet, the GPS had not yet come to the market place. My dad had taught me how to navigate my way in country like this and, after all, he'd never been lost. I had learned to trust the skills that my father had passed on to me.

So, on I trudged. Climbing hills and descending ravines. Crossing streams and traversing meadows. At this point, as near as I could determine, I was less than a mile from where I had left my pickup. Then, I came upon a fence line. A fence line will generally lead to a road, or a building, or some type of inhabited location. But, how far would that be? The question; do I follow my instinct, or do I follow that fenceline?

It is not unusual for a person, when they become lost, to wonder in circles. Around and around and around they will wander, crossing their own path often is quite normal. Many years ago, a young

man became lost in Oregon while hunting. He was never found, but in the process of rescue workers looking for him, they discovered he had done just that; wandered in circles.

That fence line was a type of crossroads for me that day. Many are the times in a person's life experience that he or she will come to a crossroad in life. Do I follow that new direction, the fence line, or do I stay the tried and proven course?

Often what seems to be a better, possibly an even easier course, in fact may have many unknowns which can bring about unneeded pitfalls. I'm one who will try something new, on occasion. However, I believe, for myself at least, I should proceed with caution. My grandmother used to say, "Make Haste Slowly." How easy it is to choose a new course in the midst of an endeavor and head down a fence line that could lead for miles in an unknown and incorrect direction.

My life experiences dictate to me, it is not generally a good idea to change direction in the midst of a pursuit. At a crossroad, I believe rather than asking myself which way should I go? It is a better question to ask myself, why would I change my travel plans?

A crossroad is just that—an option. Yes, one can choose a different direction, but did you ever notice when at an intersection if you turn left or right you will end up at a different location than if you had followed the road straight ahead? If my purpose is to arrive at a destination that is in a straight line beyond that intersection,

Oregon Association of Water Utilities

I must travel the road ahead to accomplish my desired venture.

I do realize that at times we can become disoriented. In those situations, caution should be observed. As for me, I like to return to a place that is familiar, broken ground. Regroup and start out afresh. As I mentioned, the young man who became lost, wandered in circles until he had lost everything.

Today's society offers multiple options. Personally, I believe focus is the key to accomplishment. When I decide to purchase an automobile, I don't just stop at the first car lot I find and buy the first car I come to. No, before I even go shopping, I go researching. What type of vehicle will best meet my needs? Then, of that style, which has the best ratings? What car lot has the best reputation? And so on.

By all means, I enjoy trying something different. However, before I do, I research. Not losing focus is the course that I take as I pursue something new. Using a GPS for instance, to navigate my way and not become



lost. I do have, and now use, a GPS. However, my first experiences with the handy little device, was in proven places I had been to in the past. I now have confidence in the apparatus that has led me successfully across unfamiliar territory.

There are times following a fence line would be a good pursuit. If, for instance, a person was hunting in an area that was new, one could follow a fence line as far as they wanted to go, then return by following it back to where they'd started with total confidence, they would not become disoriented. But that would have been the goal from the beginning, not a changing in direction.

What did I do that day as I encountered my fence line type crossroad in

the woods? I simply stayed the course. To this day, I don't know where that fence would have lead. But this I do know, I was moving in a northerly direction while the fence would have lead me either east or west. Yes, I walked out of the woods less than 100 yards from where I had left my truck. Today, using my Global Positioning System, I would have returned to my truck as well, which would have been less than 5 feet away.

One final thought: I have found as I pursue diverse adventures, I frequently look over my shoulder to see from where I've come, just in case I ever need to retreat for a ways, I know how to return to what is common ground.

Lord Bless. 💧


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A Road Warrior's Observations on the Art

Are you a practicing Artist in the Field of Wastewater Treatment?

In my travels around the country teaching classes and visiting wastewater facilities, I am often amazed at the ingenuity of the operations people at water and wastewater systems. What some of these operators design and build can be amazing; even to the point that I have recommended they get a patent on it. I have been told stories from operators that say "the engineers say this will not work, but it does here." One of my favorite systems to visit is in New Jersey. The Director of this facility would be the classic definition of a multiplier because he encourages his team members to research, experiment, design and create better ways to complete the art of wastewater treatment. It is people like this who blend the art and science to achieve great success in Wastewater Treatment!

I was watching a presentation by Al Garcia of Region 8 EPA a few months ago and he asked the question, "Are you practicing the Art or the Science of Pretreatment?" This same question would apply to all aspects of wastewater: Fats, Oils and Grease (FOG) management, H₂S control for odor and corrosion, sludge reduction, solids, lagoon or mechanical plant operations and even nutrient removal!

Ask yourself, are you practicing the art or science of wastewater in your community? A prime example of this is wastewater treatment plants that by the book should work, but do not. Have you modified the recommended processes of your system? If you are making changes to how your system is managed or operated, you may be actually practicing more art than science.

I have seen wastewater sites that "should" work by the engineer drawings and the building of the system, but ultimately do not perform as expected. I have seen lagoons with large amounts of aeration produce DO levels exceeding 8 or 9 when all that is really required to maximize processes and stay in compliance are DO levels around 2. Some of the operators are now deciding to save electricity and run their systems at the recommended DO of 2. One system actually saved almost \$100,000 in electricity costs in one year. This practice would fall into both the Art and Science of wastewater treatment. Science, because DO of 2 is recommended by the governing agencies and Art, because the operator has decided to change the operation of the plant from the original design by the consultant or engineer who built or designed the plant.

The same idea is true of Fats, Oils and Grease (FOG) management. An organization can buy really expensive

equipment to jet and vacuum lines to prevent or correct Sewer System Overflows (SSO) or we can practice the Art of FOG management by enacting the proper ordinances for major grease producers and educating the citizens at large. There are many solutions operators can use for reduction of FOG, the science of chemicals to liquefy grease or the art of bio-degradation to remove considerable amounts of FOG. Although Bacterial Augmentation has been considered Snake Oil or the Art of FOG removal for years, it is now being accepted as a science, also! If you decide to use bacteria, make sure you know the Colony Forming Units (CFU) and Species Richness Diversity (SRD) of any products you are considering. Contact me if you have any questions about these types or products. Oh, and do not put anything in Grease Interceptors or Grease Traps.

In the world of wastewater and the production of H₂S, there are many mechanical or science avenues to follow for mitigation of the problem. Some of these avenues are chemical treatments that prevent H₂S production because they are anti-bacterial. Other chemicals may be giving the bacteria a different food source. Many of these chemicals do work. Some of them are very hazardous to handle or store. And some may even cause additional problems at the



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Wastewater Plant. There is recent data available that is showing H₂S can be controlled by getting the right bacteria into the system. Are you installing new mechanical devices such as ventilation, air scrubbers or chemical treatments? This is science. Are you adding silicon seals around every manhole cover, or possibly adding activated charcoal in baskets under the manhole covers to reduce odor complaints? This is still science. Which are you doing, the art or science or possibly a combination of both?

Solids wasting is a very expensive program for your system. What are the options within your system to reduce the amount of solids you create? Do you waste just because that is the way the system was designed or do you waste as needed? What does it cost to handle all of those solids? The dewatering, the hauling, the land applying and the composting can be very expensive. What other options are there to reduce solids and save money? Some options may be very inexpensive and fall into that area of art/science of treatment. Some operators have discovered repeated circulation through their system will help reduce solids. Some have discovered that Bio-Augmentation or Bio-Stimulation with the correct bacteria will help reduce solids wasting and solids build up.

EPA requirements on nutrient removal require some wastewater systems to design and build elaborate mechanical systems for the removal of nitrates, phosphates, ammonia and many other chemicals. Although these systems usually work, there are times when they need major adjustments. Get creative and play with the operation of your system until you achieve the adequate results. Starting out with the science of wastewater treatment can then require you to use your creativity and end up using the art of wastewater treatment.



Pretreatment is a really gray area when it comes to science or art. Although EPA and the State Departments of Environment have set the limits for Significant Industrial Users (SIU), they often forget that pretreatment should be an art not a science. I see municipalities that put way too much emphasis on the science of pretreatment and not enough on the art.

Should your regulators, engineers, architects and supervisors require you to do everything by the book or allow some latitude for the art of wastewater treatment as long as you are meeting your permit requirements? Yes. Microbreweries, meat packing plants and many other SIUs do add significant BOD and TSS loading, but should they just be charged top of the rate surcharges or be allowed to use the art of pretreatment to reduce the loading?

Remember that there is the theory/science of wastewater treatment being taught at universities everywhere and there is the art of wastewater treatment being executed daily by system operators. Those that adhere to the science/theory of the treatment of wastewater can actually diminish the ingenuity and

core competencies of their team. I have said many times that those who design wastewater and water systems should have to spend at least a one year internship actually working in a system, before they design one. This same rule should also apply to regulators, before they are allowed to advise systems on how to run their operations.

And, just a little extra about Bio-Augmentation and Bio-Stimulation, it is actually backed with science these days. Third party verified data moves everything from art to accepted science. So, if you have operators or regulators telling you there is not any science to prove it works, they are incorrect! It is all science but it just depends on how the operator or regulator views the science for them to consider it art!

As a final thought, if you want to class it up a little, you may want to tell people you are a Wastewater Artist! If nothing else, you may become a topic of conversation at your next social gathering.

I usually do not recommend books, but I highly recommend that everyone in a supervisory role (this includes regulators, and all supervisory personnel) read the book *Multipliers* by Liz Wiseman. 💧

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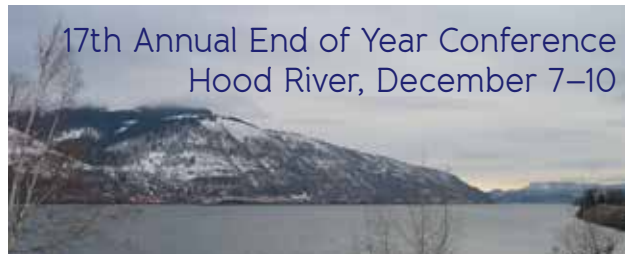
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SMOKE TESTING
TRASH PUMPS
TRICKLING FILTER
WET WELL

Jeff Swanson Memorial Scholarship

Jeff Swanson passed away on July 4, 2009, from esophageal cancer. Mr. Swanson was an accomplished and passionate Circuit Rider and Programs Manager for ten years at OAWU. He was a great water operator, manager, troubleshooter, treatment plant operator, instructor and a great friend.

Jeff had a warm and memorable personality, exceptional integrity, personal character and work ethic.

It is to Jeff Swanson's memory that this scholarship is named; he believed that obtaining education

was paramount to a person's success and encouraged people to obtain it.

As Jeff would often say regarding one's attitude and actions, "Choose to make it a great day!"

An application with further details is available on the OAWU home page at www.oawu.net. The scholarship is awarded at the Annual Management and Technical Conference in Sunriver.

Please submit application by December 3, 2015 to: OAWU Scholarship Committee, 935 N. Main St., Independence, OR 97351, Attn: Scholarship 2015. 💧



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
Water Conservation Management Planning • Lagoon Profiling • Job Referrals, Announcement & Services

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

FOR AVAILABILITY & PRICING CALL OAWU: (503) 837-1212 OR VISIT OAWU.NET

OREGON ASSOCIATION OF WATER UTILITIES 2015 TRAINING & EVENTS SCHEDULE

Date	Class Title	Location	CEU Information	ESAC#, Fee/Free
October 6	Water Rights & Other Legal Issues	Springfield	0.4 Water	2717 FREE
October 6	Wastewater Law 101	Springfield	0.2 Wastewater	2893 FREE
October 7	Developing Your O&M Manual	Independence	0.6 Water/Wastewater	2780 Fee
October 21	Math for Operators	Independence	0.4 Water/Wastewater	2885 FREE
October 28	Preparing for Your Water System Survey	Eugene	0.4 Water	2881 FREE
November 3-6	Small System Operators Conference	Florence	2.0 Water/Wastewater	3038 Fee
November 12	Lagoon Operation & Troubleshooting	Madras	0.4 Wastewater	3069 Fee
November 17	SDWA Update	Bend	0.4 Water	2887 FREE
November 18	Confined Space & Jobsite Safety	Independence	0.6 Water/Wastewater	2886 Fee
December 7	Effective Utility Management	Hood River	0.6 Water/Wastewater	3073 FREE
December 8-10	17 th Annual End of Year Conference	Hood River	2.0 Water/1.4 Wastewater	3073 Fee
Feb 29-Mar 4, 2016	38 th Annual Management & Technical Conference	Sunriver	2.3 Water/Wastewater	TBA Fee
August 15-18, 2016	22 nd Annual Summer Classic Conference	Seaside	1.7 Water/Wastewater	TBA Fee

Levels 1-4 Water Operator Exams

Trained and certified operators are necessary to ensure that 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 applying for a Level 4 certification. Reciprocity from state to state ensures that the operator has 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>

State Wastewater Exam Dates

All categories: <http://www.deq.state.or.us/wq/opcert/stpopere examsqry.asp>
(2015 dates have not been announced)
Year-round, open schedule for exams

For additional wastewater exam information, visit
<http://www.deq.state.or.us/wq/opcert/opcert.htm>

Oregon ESAC/CEU accreditation

Phone/Fax: 503-698-8494
info@oesac.org www.oesac.com

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.

Where Do You Live?

Throwing My Loop
by Michael Johnson

Like most people in small towns do, I go to an early breakfast in the mornings. At the local coffee shop, you can learn all the news there is to know. You can ask the old cowboys anything about everything. The only thing you can't do is tell them anything.

I've done that all my life. I went to breakfast with my daddy when I was a boy, and I enjoyed the times we had. As a small child, I sat by my father and listened as the men talked about horses, who roped well last weekend and why, and the price of cattle. I listened to them talk about the droughts in their lives and the hardships they lived through. I heard jokes I wasn't supposed to hear and I heard stories about the depression, and on rare occasions, about the war – though they didn't say much about the war. When I asked my daddy why they didn't tell more war stories, he said, "Too many memories, I guess." Even at that young age, I knew not to speak of that again. Most of the time though, there was laughter back then. My dad and I always seemed to be in a good mood when we left. Lately, when I go to breakfast, that feeling is slipping away. I've noticed the topics and conversation tend to drift in different directions these days. There's less laughter now.

Recently, someone said, "Those kids up at that college aren't like we were. Most of them are just no good." I didn't know that. I just heard the other day that our girls' softball team had no player with less than a 3.8 GPA. I was completely unaware those young women were no good.

Another day, a fellow said we were wasting time having a rodeo team at the university. He said, "Those rodeo kids don't care about graduating. They just care about fighting and raising cane." You know, I didn't know that either. I had just met the rodeo team here at this university recently, and was charmed off my feet by their manners and courtesy – both young men and young women, and by the rodeo coach who told me his number one priority was graduation rates. Most every rodeo coach I've ever met tells me the same thing.

And on and on the coffee shop crowd goes. It's much the same at the doughnut shop and the other breakfast place in this small town. The government is terrible, the president is stupid, and the military is ruined. I heard all those comments in one week. Hmm...and I thought about my nephew.

He was valedictorian of his graduating class at Baylor University. Now he's an oral surgeon. He could have a private practice in a high-rise in Dallas and make tons of money, or he could teach at Baylor Medical and live the life of a college professor, but that boy doesn't do that. Instead, he puts himself in harm's way every day of his life. He goes where the bad things are. You will find him in Iraq where our soldiers give their lives, in Tahiti where people are shattered after the earthquake, and in Norman, Oklahoma, where lives were destroyed, and in Joplin, Missouri, where the wind blew away all the textbooks and destroyed the school. He's just a kid. He's in the Navy. The Navy sends him to all those places where he spends 18 hour

days sewing up children, indigent natives, and our warriors, in a little trailer called a "MASH Unit." He says they call it that because when people come to him, they are usually quite "mashed." And he laughs and he tells every one of them not to give up hope.

I wonder if that old man in that coffee shop – that old man, who thinks America is ruined – the same old man who never had a job that required him to work outside, and never spent a day in the military, yet the same one who calls himself a "patriot," I wonder if he thinks that boy – my nephew – is ruined?

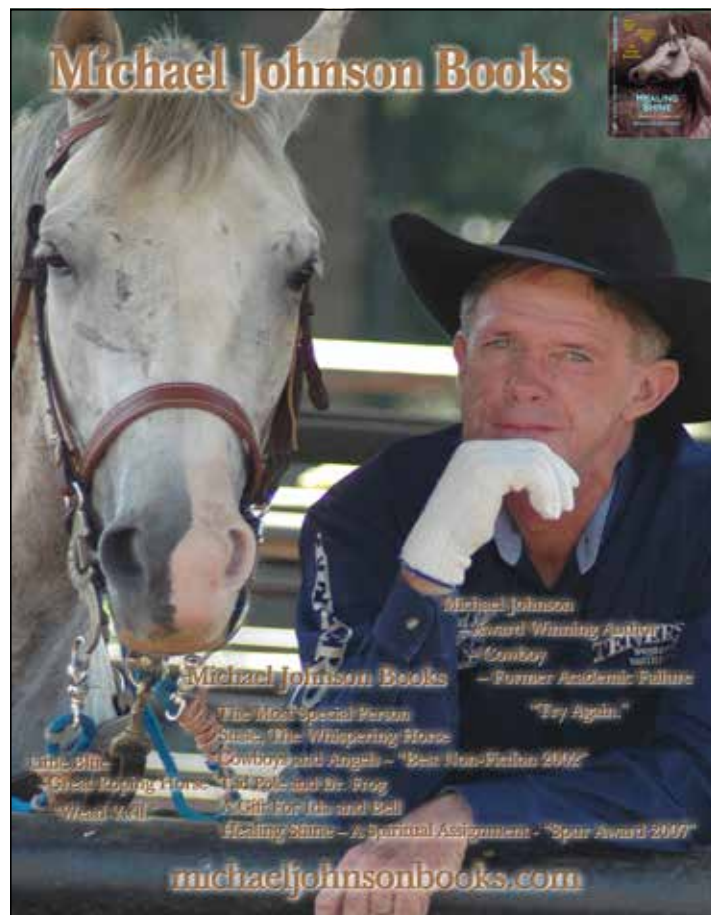
I live in a town where the teachers care and the police risk their lives for us every day.

Where I live, the wood ducks swim in the lake, three roping horses try their hearts out for me, with my dog who would give his life for me, as my friends would, and I would give mine for them. In my town, there are hummingbirds, deviled eggs, and barbeque sauce, and I get to witness the wonder of my granddaughter catching a bream, and to see a sparrow take a bath in the sand. All that and a good woman who loves me. So I suppose I shouldn't be angry with those old men.

After all, we don't live in the same town anymore. ♦

"This is the day the Lord has made. Let us rejoice and be glad in it."

— Psalm 118:24



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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 + 30 cents per hookup
101 to 500	\$80 + 30 cents per hookup
501 to 1,000	\$90 + 30 cents per hookup
1,000 and up	\$100 + 30 cents per hookup
Maximum dues is	\$930.00

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

MB15-B



MEMBERS



62nd Court Mutual Water Company
 Adair Village, City of
 Adams, City of
 Adrian, City of
 Agate Water Company
 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 Association
 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 River Improvement District
 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
 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
 Junction City, City of
 Juniper Mobile Home Park
 Keizer, City of
 Kelly's Brighton Marina LLC
 Kelso Water Association
 Keno Water Company, Inc.
 K-CB-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
 Manzanita, City of
 Mapleton Water District
 Maupin, City of
 McKay Acres Improvement District
 McKenzie Palisades Water

MEMBERS

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

Scravel 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!

Mark Lewis	Amil Zell	Donita Parks	Rick Norris	Joel Kuhnke	Thomas Weber
Josh Lapierre	Matthew Wales	Peter McManus	Tracy Furr	Craig Smith	Steve Wabschall
Austin Bogart	Ron Lake	Kendra Bull	Tim Myers	Jack Grell	

INDIVIDUAL MEMBERS

Individual Members	Davis, Guy P.	Handler, John	Lapierre, Josh	Pendell, Keith	Strassner, Bob
Adams, John	Desroche, Ron	Hanes, Cameron R.	Larman, Dan	Penselin, Stephanie	Tabrum, Walter
Anson, James	Dillard, Bob	Hannen, Scot	LaRoque, Scott	Perry, Richard	Thayer, Bradley
Anthony, Joe	Dix, Edgar	Harrod, Ron	Lawson, Brian	Pinson, James	Thompson, Jake
Ashenberger, Jacob	Dolbow, Elizabeth	Hayes-Gorman, Linda	Lewelling, Keith	Porter, James	Thompson, Kamen
Baker, Scott	Dunn, Frank	Hecox, Thomas	Lewis, Mark	Powers, Ron D.	Thompson, Matt
Barr, Patrick	Durfee, Kenneth C.	Heiken, Robert	Lund, Darrell	Rader, Jonathan	Thomson, Henry
Bell, Ron	Eckley, Paul	Henderson, Shane	Maine, Mike	Rettke, Tim	Tilander, Tim
Bevard, Cody	Edwards, Audrey	Hengler, Kyle	Malley, Susan	Rigwood, Brian	Tinkess, Andy
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