

H₂O Oregon

Spring 2014
Vol. 36, No. 2

**36th Annual
Conference Highlights
Sunriver, Oregon**

**Summer Classic XX
coming up August 18–21 in Seaside**

A publication of Oregon Association of Water Utilities

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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 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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H2Oregon is the official publication of the Oregon Association of Water Utilities, and is published quarterly for distribution to representatives of rural and municipal suppliers. Issues are mailed free of charge to member and nonmember rural water/wastewater associations. Articles and photos are encouraged with payment in complimentary copies.

H2Oregon is published for the Oregon Association of Water Utilities by **Mt. Angel Publishing, Inc.**
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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

Farewell and Welcome

by Jason Green, Executive Director



Wishing OAWU's Wastewater Circuit Rider, David Branham, a wonderful retirement. Dave has been with the association for fourteen years and has provided his depth of application, solutions and suggestions along with hours and hours of training and instruction to wastewater operators all over Oregon. Dave's last day of employment was March 31st. David will be greatly missed. We wish he and his wife the very best.

With losing an employee through retirement comes the challenge of attempting to fill that void. We are pleased to announce the employment of Jeff Crowther as the association's new Wastewater Circuit Rider. Jeff returns to the association with experience as a circuit rider through the ARRA program. Jeff has had experience in training, operations and management at various systems. His vast wastewater experience and personality are welcomed to TEAM OAWU! 💧



CONSUMER CONFIDENCE REPORTS

Don't forget your CCR! Consumer Confidence Reports (CCRs) must be delivered to customers by July 1st. By rule, a copy of the CCR must also be submitted to Oregon Drinking Water Services (DWS) by July 1st.

**IF YOU NEED HELP DEVELOPING A CCR,
CALL OAWU: (503) 837-1212**



HIGHLIGHTS

36th Annual Management and T

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

The conference sessions were lead off by Jason Green, OAWU Executive Director, and Mark Snyder, OAWU Board President. They welcomed attendees and discussed the state of your association. They were followed by Russ Cooper, National Rural Water Association Director. Russ provided an update on the issues the industry is facing at a national level. This was followed by a NRWA update by NRWA President, Doug Anderton. Mark Landauer then presented an update regarding the legislative issues at the state level.

Back again to Sunriver this year, by popular demand, was Joe Chambers. Joe talked with us Tuesday and Wednesday about calming upset customers. The attendees who went to this presentation were able to better understand the necessary interpersonal skills for communicating to customers and resolving conflicts. Joe, as usual, was inspirational and thought provoking.

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

Tim Bunnell, City of Harrisburg
Russ Cooper, City of Monmouth
Phil Davis, Odell Water Company
Ed Pugh, Deschutes Valley Water District

At the conference the full Board of Directors met to conduct regular business and elect officer positions. These positions are: Mark Beam as President, Russ Cooper as Vice President, Tim Bunnell as Treasurer, Ed Pugh as Secretary, and Mark Snyder as Past President.

Many attendees were present at the awards banquet, on Wednesday evening, as well as some of their families. The food was great

and many good conversations could be heard throughout the Great Hall. During the night we gave David Branham a retirement farewell and recognition for his 34 years of service in the wastewater industry. The 2013 Manager and Operator award recipients are as follows:

The **Manager of the Year** award went to Eric Quinn from the City of Riddle.

The **Office Manager of the Year** award went to Cynthia Dillman from Crooked River Ranch Water Company.

The **Water Operator of the Year** award went to Derek Osterman from Umpqua Basin Water Association.

The **Wastewater Operator of the Year** award went to Craig Pack from the City of Newberg.

The **Rookie of the Year** award went to Derek Rodrigues from Cline Butte Water, LLC.

The **Associate Member of the Year** award went to Ed Butts from 4B Engineering and Consulting.

The **Friend of Rural Water** award went to Nina DeConcini from Oregon DEQ.

Special Recognition was given to Mark Snyder from the K-GB-LB Water District for the time and dedication he has given to your association by serving as the Board President for the last three years.

Congratulations to all 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 you would like to nominate for next year's awards, submit the information to the OAWU office for consideration.

Our Best Tasting Water award recipients this year were Rhododendron Water Association for Best Surface Water and Crooked River Ranch Water Company for Best Groundwater. The submissions are judged by 4 individuals who hold different responsibilities in the water community of Oregon for 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 Crooked River Ranch Water Company. 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 Thursday there was good food and drink, many door prizes, raffles, and we had an auction for a massage at the Sage Springs Spa and Sunriver stay won by Bob Grek from the City of Lake Oswego, the money went to support the Jeff Swanson Memorial Scholarship fund. Special thanks go to Dale Fletcher at GC Systems for supporting this scholarship fund with a substantial donation during 2013. Duane Young from the city of Paisley won the Best Safety Gear contest.

Raffle Winners

Todd Latchaw from Nelson Environmental won the 47" LG LED TV/LG from the OAWU raffle, the winner of the WaterPac Raffle of a Remington 700 CDL 300 Win. Mag. rifle with a Leupold scope, was Tim Sexton, Oak Lodge Water District, and the winner of the Taurus PT1911 SS .45 ACP for the Jeff Swanson Memorial Fund Raffle was Mark Burnett, Jackson County Parks.

The winners of the ping pong and cribbage tournaments were announced. First place in ping pong was Dave Bobbett from the Xylem Flygt Products. Jake Obrist from City of Bend came in second. Jade Mecham from the CH2M Hill, Lebanon came in 3rd. Tony Degn from the City of Medford came in first for cribbage, receiving a championship board. Gene Dahl from Pollardwater.com came in second. Tom Tuski from the City of Banks came in third. Find the Logo contest winner was Steve Smith from the City of Scappoose.

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 Bronze Sponsors for this year's conference: EJ, CoBank, BergerABAM, RH2 Engineering Inc. Be sure to sign up for Sunriver next year, the first full week of March 2014, 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. ♦

ITS REVIEW

Technical Conference in Sunriver



An Empty Classroom

by *Tim Tice, Projects Manager*



Take a moment and remember back when have arrived at school early, to an empty classroom. Or, as a parent, you attend a teacher conference only to find the teacher has stepped out, leaving the classroom empty. An empty classroom is filled with so much to see, it can take us back down memory lane and conjure up feelings forgotten in a distant time. During school we are caught up in a whirlwind of activities, that we seldom grasp the nuances make us who we are today. Riding that same whirlwind called “life” the hustle and bustle never seems to slow down for us long enough to catch our breath and savor those subtle times of learning and growth.

We take time every year to stop and relax, these are called holidays. A break during spring, another at the beginning and end of summer, thankfulness during fall, are times we stop to catch our breath. Many times we complicate this period of supposed quiet relaxation by adding more hustle and bustle. That empty classroom provides us time to reflect both in and outside the classroom of life. Where is the empty classroom in your daily schedule? Could the place be a soft chair next to the fireplace, or a swing on the front porch, or possibly a walking trail out behind the large reservoir? Do each of your family and friends have such a quiet place?

With the hurry up schedules of work and family, we don’t often get a chance to visit our empty classroom, getting time to reflect. Years ago, Franklin-Covey had a seminar that created a daily task of organizing one’s workload into categories, A-1 through D-4. That daily task, completed at the end of each day, allows us to start

tomorrow with a plan of attack. The idea behind this daily task was to write down, in priority, the “to-do” list, thus taking it off of your mind and onto the paper, giving a more restful night to come.

There are many things that keep me out of the “empty classroom” and it’s a possibility the same can be said of you. It is important to enter the classroom daily in order to keep a balanced life for ourselves and for those who are in our lives.

Human beings live in a relational existence. We become who we are by those relationships, not by being an isolationist. “We are shaped, for better or for worse, by those we choose to follow.” I cannot remember where I obtained this quote, but to reverse the idea, others are shaped by our actions and words, for better or for worse.

Find yourself an “empty classroom” each day, close the door and enjoy some quiet time. Time to reflect, plan, learn, challenge, consider others we have impacted and hopefully during this short time continue to learn and mature. It is surprising how the workload is lessened, the tasks seem to be completed and the stress of the daily hustle and bustle is lowered.

The best that life has to offer! ♦



OAWU extends a very appreciative thank you to the following exhibitors for their support at the 36th Annual Conference:

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Trumbull Industries
USDA, Rural Development
USABlueBook
Utility Service Company, Inc
Wonderware PacWest
Xylem Water Solutions

OAWU thanks our speakers for sharing their time and expertise at the 36th Annual Conference.

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Jim Bailey Shannon-Wilson
Genet Belete, DEQ
Aron Borok, DEQ
Brent Budden, LiquiVision Technology, Inc.
Ed Butts, 4B Engineering & Consultants
Simon Cartwright, Xylem, Inc.
Joe Chambers, Chambers Consultants
Greg Chase, Portland Engineering
Vince Chavez, Clean Water Services
Judi Croft, SAIF Corporation
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Pam Swires, USDA Rural Development
Lewis Titus, Titus Industrial Group, Inc.
Don Van Veldhuizen, USABlueBook



Who's Got Your Back?

by Jack Hills, Source Water Specialist

What first goes through your mind when you see the “Black Screen of Death” or the “Blue Screen of Death” on your computer? I hope you're thinking, “I'm sure glad my backups are up to date!” Surely, you have had to deal with a problem computer, glitches, a “crash” or an outright failure of the hard drive that holds all the data for everything you are doing.

We are certainly well into the information age, in the high technology era and moving quickly forward to “who knows where” next. Generally, the technology is progressing so quickly that our equipment and software applications simply become obsolete and incompatible. The last thing we want to do is upgrade our equipment and procedures. We simply just want to move our archived and historical data over to a new machine and carry on.

What about those emergency times when the equipment dies and you need to rely upon the backed up data to restore everything that was lost from the crash? Have you been diligent in maintaining a backup procedure so that your data is protected and always available in that crucial moment when “black and blue” strikes?

I used to ask the question, “What data or information on my computer can I live without Monday morning when I fire up the computer?” If the answer is not any, then it's prudent to establish a very reliable method of preserving your system's data. You know the saying well; “It's not a matter of “if” it happens, but “when” it happens.

I am no expert on computer systems and management of backup methods. I just want to encourage you to be wise and not take for granted that your data will always be there just when you need it the most.

What I really want to know is, “Who's got your back?” when it comes to protecting your drinking water supply. Who is responsible to see that you are delivering

safe clean water to your customers? Is that you? Most likely, or at least you are a part of the equation to ensure that quality water goes to the tap. Do you see the photo titled, “What's in your aquifer?” That is a typical map of what you get with a Source Water Protection Plan from OAWU. There is a wealth of information available to you just in that one picture. The color photo is an upgrade from the maps and details that you have in your old Source Water Assessment.

In this picture the concentric circles are showing the “fixed radius” of the delineated drinking water protection area. Beneath this area is the designated aquifer that is providing water to the well. Each circle represents a total Time of Travel (TOT) that is estimated by the source water assessment, the time it would take for water located beneath each circle to reach the well. Typically they show a 1, 2, 5, and 15 year travel time.

Also, plotted on the map, within the drinking water protection area, are the Potential Contaminate Sources (PCS) that have been noted in your Source Water Assessment. PCS' are designated with a low, medium or high value of risk to the aquifer depending on the nature of the contaminate, aquifer type, and soil type. Each potential contaminate has a method, or a Best Management Practice (BMP), that can be put into effect or applied in a manner to mitigate, remove the potential contaminate or at least reduce its risk to the aquifer.

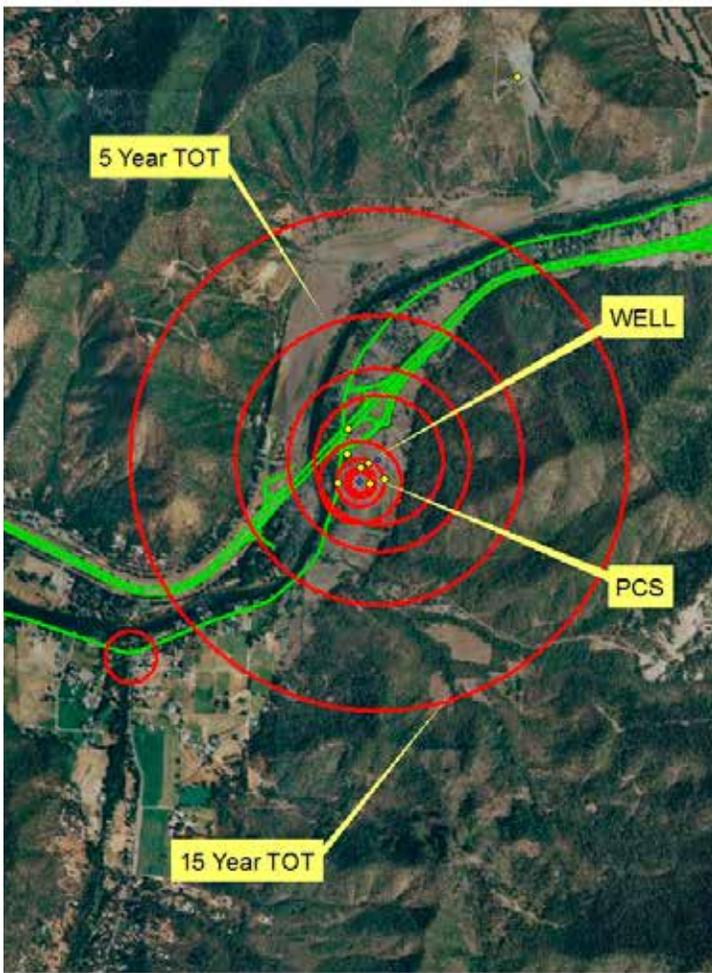
That's where the system's operators and management come in to provide leadership and direction to furnishing this information as fliers, educational materials, and presentations to their customers. They bring an awareness to the consumers of where their drinking water comes from, (not just out of the tap), how aquifer works, where potential contaminates

are located and their relative risk, and what Best Management Practices can be implemented to remove or mitigate the risk of contaminating their source of drinking water.

Just like you protect your computer information from the results of a disaster, get involved with reducing the risks to your water supply by knowing where your water comes from, know what the risks are and how to deal with them, and most of all let your community of consumers know how they can help protect the water they drink.

Would you like to get a copy of the updated map showing your drinking water protection area and PCS'? There is no fee to you for OAWU to assist you with your Source Water Protection Plan. Call us. ♡

WHAT'S IN YOUR AQUIFER?



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Choices for Communities

by David Branham, Wastewater Technician

As the cost of collecting, treating, and disposing of human waste continues to spiral out of control, many factors enter into the fray. Mandatory wastewater rules and regulations have changed considerably from the days of the big boom of rural infrastructure that took place during the 1970s and 1980s. Thanks to major Federal funding during this period, installation of centralized wastewater systems to meet citizens' needs was not only common, but expected.

During the '70s and '80s, most rural communities considered only two options to meet their wastewater management needs:

Continue using poorly maintained traditional septic systems, or

Install an extensive pipe network that collects wastewater to a centralized, highly maintained wastewater treatment plant.

These centralized systems have been termed as the "big pipe" approach. Involved in this approach is an intensive network of large sewer pipes throughout a community to collect wastewater and bring it to a central treatment plant, followed by disposal in a stream or body of water.

Historically, wastewater treatment has been viewed as a disposal process, but today's emphasis is leaning more and more toward reuse and recycling and thus decentralized options abound.

Today there are multiple alternatives to centralized sewerage other than the conventional septic system. This holds especially true where soil conditions are not favorable for conventional septic systems. Some of these include:

- Sand filters
- Peat filters
- Pressure distribution system
- Drip-irrigation system
- Disinfection system

These types of systems are considered Cluster Systems and usually serve communities of about 5 to 100 houses. These systems bring the effluent to a common treatment and disposal area. One of the main cost

considerations that make these systems attractive is that they use small-diameter gravity sewers and pressure systems that are less expensive to install than the large pipes used in the centralized approach.

While these land-based, alternative wastewater systems are recognized as viable options, the treatment strategies are relatively new and are not often recommended by some of the private sector. And in times past, these treatment techniques were not considered to be mainstream options that communities could depend on.

Fortunately, times have changed and land-based systems are now known to be cost-effective and environmentally sound wastewater treatment options for rural communities, now and for the future. These systems pose minimal environmental impacts on streams and rivers; however, the regulatory community must still require assessment of land based alternatives. Bear in mind, land-based systems require extensive planning and stepwise implementation, depending on the area to be served.

Management, maintenance and inspection are the keys for success of the decentralized approach. It is imperative that a management program is established which assures that the systems are regularly inspected and maintained. Also, trained and certified systems operators will ensure that the systems function effectively. The centralized management can be provided on a community, county or multiple county level.

A new long-term strategy is needed!

The clean water act of 1972 provided federal money for planning, design and construction of public wastewater infrastructure. From 1972 until 1993, when the Federal Construction Grant program existed, millions upon millions were spent in federal money. Even with these expenditures, it was clear that billions in unmet water and wastewater infrastructure still needed to be addressed. After 1993 other federal and state agencies stepped up to the plate and provided grant

monies for systems, and all seemed well, until after the turn of the century.

A couple important things happened after that. Almost all grant monies disappeared and the 1972 built systems had reached their life expectancy, leaving many systems in dire need of repair or replacement.

Expansion of sewers throughout rural areas using the centralized approach is quickly becoming an option that is out of reach for many communities. Without grant monies available it has simply become too costly. In many cases the cost of the collection system alone accounts for 70% to 90% of the construction costs for a community wide sewer project (GAO, 1994). The expense of constructing an extensive community collection pipe network becomes most costly in less densely developed communities.

Therefore, a comprehensive strategy needs to be developed for a timely and cost-effective treatment of municipal wastewater, especially in rural areas.

What are the Wastewater Treatment Options?

Wastewater can be treated and disposed of using either surface or subsurface land-based technologies or surface-water discharge systems. Land-based systems include land application systems that discharge on top of the ground (called nondischarge systems) and those that discharge underground into the soil (called subsurface disposal systems).

Nondischarge systems are permitted through the Department of Environmental Quality, Division of Water Quality. These systems operate under what is known as a Water Pollution Control Facility (WPCF) permit. Systems that discharge to surface waters are permitted through the National Pollutant Discharge Elimination System (NPDES) program administered through the Department of Environmental Quality (DEQ).

Land-based systems are judged to be the most cost-effective and environmentally sound for rural communities under present and anticipated future conditions. Communities must determine the most cost-effective balance between on-site and cluster or community systems when utilizing land-based technologies. Because of minimal environmental impacts on streams and rivers, the regulatory community seems to prefer the land-based alternatives.

Comparison of the Centralized and Decentralized Approaches

Few cases exist where the decentralized approach to wastewater management has been compared evenly with the centralized approach. However, recently Congress asked the U.S. Environmental Protection Agency (EPA) to evaluate the capabilities and cost effectiveness of the decentralized approach to wastewater management and to identify barriers and solutions to implementation of this approach. According to the EPA Response to Congress (EPA, 1997), decentralized systems:

- Protect public health and the environment
- Are appropriate for low density communities
- Are appropriate for varying site conditions
- Provide additional benefits for ecologically sensitive areas, and
- Can provide significant cost savings while recharging local aquifers and providing other water reuse opportunities close to the points of wastewater generation.

In its assessment, the EPA developed a detailed analysis of costs, in a hypothetical rural community, comparing the decentralized approach with the traditional centralized approach to establish a wastewater management infrastructure. The rural community was assumed to have 450 people living in 135 homes. These homes were located on one-acre lots or larger that were serviced by conventional septic systems. It was assumed that 50% of the septic systems were failing. Three wastewater management options considered for the rural community were installation and long-term operation and maintenance of:

- a centralized system
- cluster system
- managed on-site system

Expenditures included the capital costs necessary to install the system and annual costs to operate and maintain them. Costs, in the table below, are presented in 1995 dollars. (A special note about these figures: The monetary figures are in 1995 dollars. By today's standards, I believe the differential amounts to be much greater.)

SUMMARY OF HYPOTHETICAL EPA RURAL COMMUNITY TECHNOLOGY COSTS			
Technology option	Total capital cost (1995 \$)	Annual O&M cost (1995 \$)	Total annual cost (annualized capital plus O&M) (1995 \$)
Centralized systems	\$2,321,840–\$3,750,530	\$29,740–\$40,260	\$216,850–\$342,500
Alternative SDGS** collections & small cluster systems	\$598,100	\$7,290	\$55,500
On-site systems	\$510,000	\$13,400	\$54,500
NOTE: The rural community consists of 450 people in 135 homes			
* O&M means operation and maintenance			
** SDGS stands for small-diameter gravity sewers			

(Adapted from EPA, 1997)

Community-wide management of on-site systems rarely has been utilized in the United States. Infrastructure limitations, however, are rapidly changing due to the realization that land-based treatment technologies are frequently the most cost-effective and environmentally productive methods for handling municipal wastewater in rural and small communities.

Today, a multitude of infrastructure choices that range from centralized to decentralize and all options in between are available to serve community needs. In our state, land-based option such as on-site systems, cluster systems; and especially, the use of land application systems are being widely adapted.

Land-based options such as cluster systems and land application systems are frequently a more environmentally friendly approach where surface waters are particularly valuable or vulnerable to contamination. Plans for future growth, cost issues and water quality as well as quantity concerns regarding nutrient-sensitive watersheds, are of great concern, and available funding should be utilized to provide economically sound, dependable solutions to the largest number of communities possible. More rural communities will be positively impacted if land-based wastewater treatment options are embraced to meet future community needs. ♦

New financing option available

Communities in Oregon now have a new option to help them finance wastewater and other water treatment improvement projects. The Oregon Environmental Quality Commission has unanimously approved amended state rules which allow for longer-term financing for projects eligible under the state's Clean Water State Revolving Fund Program.

A recent U.S. Environmental Protection Agency survey documented Oregon needing nearly \$5 billion to address water quality infrastructure needs.

The Oregon Department of Environmental Quality (DEQ) operates the Clean Water funding program, which allows local governments and public utilities to finance water quality improvement projects. Longer-term financing, as covered by the approved amendments, applies to "treatment works" projects, such as wastewater, industrial and stormwater treatment, equipment and collections systems.

The new option is not a loan; rather, it allows a public agency to sell DEQ a revenue bond with repayment terms up to 30 years or the operational life of the treatment works, whichever is less. Communities will continue to have the existing option of pursuing a loan agreement with DEQ, with low-interest terms up to 20 years. As a result of the new option, communities may be able to refinance their existing loans.

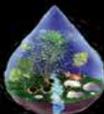
For more information, see DEQ's updated Clean Water State Revolving Fund webpage at www.deq.state.or.us/wq/loans/loans.htm under "Current News," or contact Katie Foreman, program coordinator, at 503-229-5622 or foreman.katie@deq.state.or.us.



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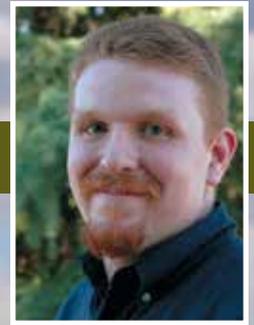
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Inspect Those Tanks

by Heath Cokeley, Circuit Rider



How long has it been since you have inspected your water tanks? Has it been several months, years, or even decades? Our water reservoirs are an essential part of our distribution systems and require proper operation and maintenance, just like any other part of the system does. I know how easy it is to put tank inspection and maintenance off, as it feels like one of the smaller fires. The tank will still be there tomorrow and today there may have more pressing things to get done. There will be times when one may need to put the smaller issues off to put out a bigger fire, but I want to encourage you to remember one of the system's most expensive assets.

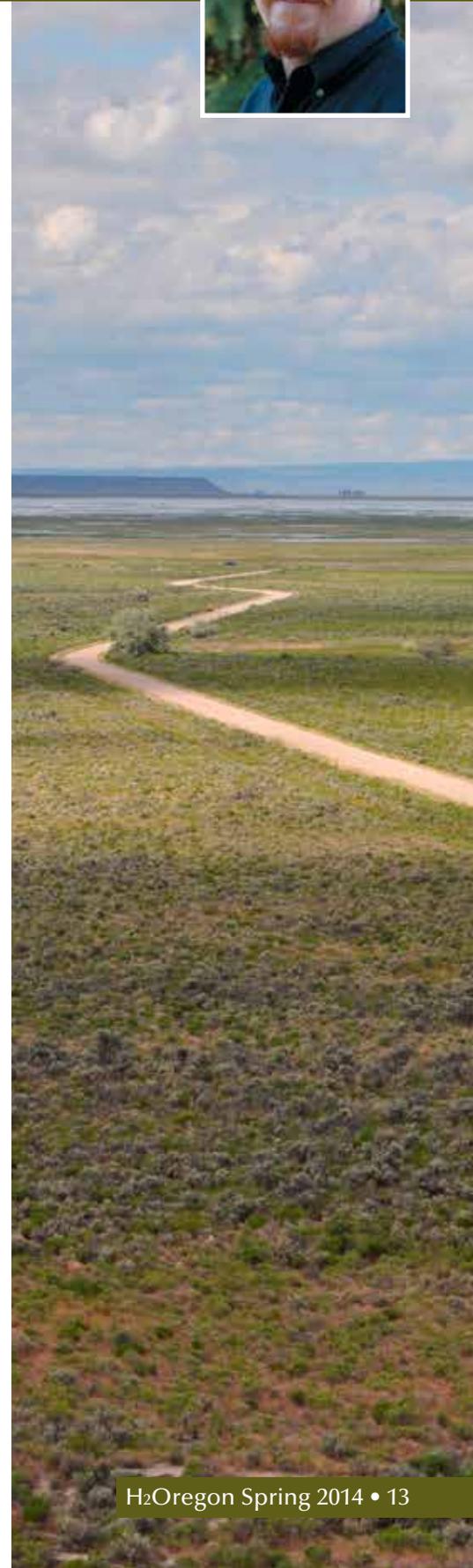
Water utility tanks are exposed to the weather and also provide a direct access point to the system's drinking water and a route to possibly introduce contaminants. It is extremely important that at least once a year, and preferably more often, to do a thorough walk-around on all the reservoirs, checking for leaks or anything else that seems out of place. Check for soil or other debris in direct contact with the tank's base, which could cause corrosion. Verify all access points of the tank are locked, all screens are intact and of the appropriate size. Also, check to make sure that there are appropriate means to keep bugs, rainwater or surface water runoff from entering the tank. This includes appropriate overhangs on vents or on smaller tanks making sure the vent pipes are pointed down, as well as, making sure there is adequate drainage around any in-ground concrete tanks.

Now that we have covered the simple inspections on the exterior of the tanks, let's review a little about the interior. While it is important to keep an eye on the outside condition of the tank, every bit as important and more so, is the condition of the inside of the tank. I realize this is harder to do because of access issues, but it may better protect water quality and the tank itself. Just like any other preventative maintenance task, it is cheaper, in the long run, to identify and repair a small issue before it becomes catastrophic. For instance: if the lining on

the interior of a steel welded tank begins to fail, doing spot repairs to the liner or having the interior sand blasted and recoated will be costly, but if allowed to continue to fail, will cause a greater expense in the future. If no one at the system has done a project like this before, it is important to know what kind of liner is currently installed. Any liner or coating installed in 1979, or before, will likely have lead in it or in the primer under it, which will make the project cost go up due to the need for lead containment and proper disposal. Also, identifying early how to have the tank down while the work is being completed, will help the project get off to a smooth start. The same goes for tanks without a coating or liner, as far as interior inspection, do them early and often. Some concrete tanks will have a liner and some will not. If a crack develops in a concrete tank without a liner, what starts as a small crack can be made much larger if water freezes and thaws in it. Remember that these tanks often hold thousands and up to millions of gallons of water. That much water, if released, due to a catastrophic tank failure, could be devastating to anyone or thing located near that tank.

Please don't let me scare you with this article, I wish to encourage a watchful eye on the different aspects of the system's reservoirs. AWWA recommends that the interior of reservoirs be inspected and cleaned every 3 to 5 years, but really this depends on water quality, reservoir condition, and climate. A clean water source that is not aggressive may leave a tank just as clean at the bottom as it was when it was installed, but keeping an eye on this, detecting and repairing any lining failures could save big, in the long run. If the tank is unable to be taken off line and drained for an inspection, remember there are companies that can dive your tank and inspect it without the need to drain it. If there are questions about anything in this article or you would like a visit to discuss a tank project, please don't hesitate to call one of your OAWU Circuit Riders.

I'll see you down the road. ♦





Life Changes

by Mike Collier, Training Specialist/Operations

Death is something that is ever prevalent in our society, but rarely is talked about. It makes us uncomfortable and when brought up in conversation we often become deflated and feel down. Now that the subject has been broached, it seems to be a good time to have a quick discussion on the topic. Recently, we have had multiple deaths within Oregon's water industry, also the employees here at OAWU have had family members that have either died this past year or are on their last leg.

Often when someone close to us dies, we take time to evaluate our own lives in two main ways. We may think about how we should change our lives, we wonder if we are living life to its fullest, or if we are doing all that we can do – are we content, are we missing out on something? The second thought that often passes is: what is after death, what comes next, do we believe in heaven and hell, reincarnation, nothingness, or something else?

As the second of the two topics is somewhat of a personal question, we will not be getting into it here, but I would encourage you to figure out where you stand, what you believe about things after death, and one must be confident in their answer, as it may be the difference in their eternity.

If you believe that whatever happens after death makes no difference to you, consider this statement written by C.S. Lewis in *A Grief Observed*, "It is hard to have patience with people who say 'There is no death' or 'Death doesn't matter.' There is death. And whatever is matters. And whatever happens has consequences, and it and they are irrevocable and irreversible. You might as well say that birth doesn't matter."

That is all that will be said on the matter of what comes after death. The remainder of this article will address our present. What things should we consider in our own lives, knowing that others around us have recently passed away and that it may be our time at any moment?

When looking at our own lives through the idea that we could die at any time we may start to consider if we have made an

impact, an imprint on this world, or did we begin a slow journey starting with hopes and aspirations and ending with mediocrity and laziness.

Conservative historians describe any man with passion for greatness as a megalomaniac. 'look at him,' they say to one another, 'the idiot! Why doesn't he settle down and establish himself in the community? Why is he forever restless, forever trying to get something beyond him? The man is crazy.

These conservatives are partly right. Play life safe and you will keep out of harm. Be careful, be cautious, don't take risks and you will never die on Mount St. Helens. Your failure is measured by your aspirations. Aspire not, and you cannot fail. Columbus died in chains. Joan of Arc was burned at the stake. Let us all live snugly without risk, and life will soon be little more than a thick gelatinous stream of comfortability and ignorance. (Myles Connolly, *Mr. Blue*. New York: Macmillan, 1928. Page 91.)

Living a full life can look differently for different people, it does not mean that we should put down our family and throw away our friends, to then run off into the wild blue, but rather that when you have a fork in the road don't fear the one that feels new or unsafe. Be wise, but consider that something risky might turn out to be the best change you have ever had in your life. This will help us from becoming stagnant.

When considering this issue, I came upon a great quote from *Self-Renewal: The Individual and the Innovative Society*, by John W. Gardner. w.w. Norton, 1963 (reissued 1995).

"Many young people have stopped learning in the religious or spiritual dimensions of their lives long before they graduate from college. Some settle into rigid and unchanging political and economic views by the time they are 25 or 30. By their mid-30s most will have stopped acquiring new skills or new attitudes in any central aspect of their lives. As we mature, we progressively narrow the scope and variety of our lives. Of all the interests

we might pursue, we settle on a few. Of all the people with whom we might associate, we select a small number. We become caught in a web of fixed relationships. We develop set ways of doing things.”

John Gardner practiced what he preached. He took on a new job at 77, he made it his goal to show people that it is important to never stop learning, to continue to challenge oneself, and to always look around you with the wonderment and curiosity.

When young we risk, but as we age we are less willing to risk, we become rigid in our ways, less creative, we often cannot meet new challenges that come from left field. So I give this challenge today: as we get older and are more set in our ways, slowly locking ourselves deeper into a routine of friends, family, work, hobbies, and ideals – to Break Out! Try something new, different, a past time or hobby, enjoy time with a new friend, read a book (with an open mind) by someone you normally would not agree with, or take a class in a field much different than what you have been doing for the last 20 years.

Every day we should continue to stretch ourselves and continue to develop. We don’t know how we may be useful and who we might turn into unless we continue to challenge ourselves and change. We never know which day will be our last. ♦



Leslie Graff, Office Manager for Water Wonderland. Seen here representing her association near Green Lakes in the Three Sisters Wilderness.



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Systems Helping Systems

by Scott Berry, Circuit Rider/Program Manager

With the threats that water and wastewater systems have to face at any given time, isn't it nice to know that help can be as close as a phone call away. OAWU and the National Rural Water Association have been promoting the Utilities Helping Utilities concept for years. ORWARN is a formalized agreement between the parties involved in that grassroots principle.

If you are not already an ORWARN member, take a moment, do some research, and make the decision that I feel is right for your system as well as all the other member systems in the state and across the country. Join.

OAWU is excited to be more involved in ORWARN and I would be happy to talk with you and help in your decision. Mary Ellen Collentine, who currently serves as the Secretary for the ORWARN Board of Directors, submitted the article below that further explains who ORWARN is and what the benefits of membership are.

ORWARN

A statewide mutual aid organization for water and wastewater utilities

Some of you may have heard of ORWARN and wondered what it is all about and what it can do for you. ORWARN stands for Oregon Water/Wastewater Agency Response Network. The WARN Initiative was started by grass roots utility efforts in the aftermath of Hurricane Katrina. AWWA and EPA funded workshops throughout the US, and introduced the "Utilities Helping Utilities" concept and whitepaper, which is a blueprint for starting a WARN. Oregon utility representatives from both water and wastewater agencies attended a workshop in Spring 2006, and came back to Oregon convinced that Oregon needed a WARN organization. Oregon formed the 8th WARN in the nation, and currently has over 100 utility members, along with associate members. Since then the WARN initiative has grown to include every state in the US, and Canadian Provinces.

ORWARN provides a mechanism and framework to provide intrastate mutual aid for water and wastewater utilities, both public and private.

ORWARN can be activated with or without a formal disaster declaration, and there is no cost to join. In January 2008 ORWARN responded to a call for help from the City of Detroit, who was experiencing a snow emergency. With record snowfall, the road to the water treatment plant became inaccessible. The area was out of power and the propane fueled generator keeping the treatment plant on line was going to run out of fuel in a day or so. Detroit sent an email to the ORWARN Chair, and Salem's Public Works Department mobilized an immediate response. Salem crews reopened the road to the treatment plant and propane was delivered in time. They also were able to clean out some of the higher elevation streets that plows could not get to and made them passable for Detroit citizens. Subsequently Marion County was able to respond and hauled away vast amounts of snow. An email from the City of Detroit thanked ORWARN and ended with ORWARN works!

City of Detroit snow emergency

ORWARN holds an annual conference where topics of interest to utilities are presented and a table top exercise for attendees is held. Table top exercises have also been held in other communities. ORWARN has held three full scale exercises where utilities have practiced either responding to or receiving help. ORWARN has sponsored training for utilities that is OESAC approved for CEUs. ORWARN members have also gone to communities to present more information of the benefits of ORWARN.

Damage Assessment Team composed of Portland, EWEB and Pendleton utility personnel at full scale exercise in Pendleton

ORWARN has a website with more information and is located at www.orwarn.org. The mutual aid agreement is available for download on the website. ORWARN is an all-volunteer organization that depends on the involvement of its membership. If you have questions, or would like more information about joining, contact the ORWARN Chair, Ken Schlegel, 503-681-5125 or one of the board members. A list of board members and their contact information can be found at www.orwarn.org/board. ♦

Oregon Association of Water Utilities

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Reality vs. Perception

by Hans Schroeder, Circuit Rider



What is the public perception when a new piece of equipment is purchased for a water system? Does the Public Works, City Council or City Hall get many complaints? Are there statements made like... "Why do they need a new backhoe, truck, or pump?" or, "I bet our utility rates will go up again."

The perception is that a utility purchased a new piece of equipment because "they wanted it" or "didn't like the old one." When the reality is: the old piece of equipment is costing more to repair than its value. Systems need to regularly evaluate the operations and maintenance costs for equipment. The perception of some citizens, when a new piece of equipment is purchased, is the city made another purchase without thinking it through. The reality is that the department had been planning, saving and discussing the purchase for a good six months to a year. The majority of the public, usually, just see the final result of the planning and decision making when the new equipment shows up. Education is of great benefit and reminds citizens that there are budget committee meetings and other various committees to get involved with or monthly council meetings, where most of the prep work is done before submitting their items to the budget committee. They don't have to attend every single meeting, but the more involved they are, the more weight their opinions will carry. Remind them also to read the monthly newsletter or read the minutes available on most cities' websites.

Many pieces of equipment are multi-purpose. The backhoe may be used in the summer for water/sewer line installation and in the winter months, for snow removal. It is important that the equipment, no matter what it is, be ready to work when called on to do so. If the utility is spending time repairing the equipment or waiting for parts, then the down time can be costly. Utilities need to continually evaluate the life

span versus the cost for replacement. If you are inexperienced at conducting cost analysis on your own equipment, ask the city recorder or office personnel if they can keep track of it for you with their bookkeeping system. Just remember you need to code your invoices for each piece of equipment so an accurate cost analysis can be done.

Your association (OAWU) has been doing some evaluating as well. Our Executive Director, Jason Green, and the Board of Directors have been looking at ways to save money for the whole association. There have been countless hours spent looking at ways to cut costs. They have communicated with many other State Associations like OAWU and found that utilizing the Ford Fleet Program through NRWA would be a great way to save on expenses. OAWU has purchased one Ford pickup as a pilot program to do our own cost analysis and see if the expense of owning a company owned vehicle outweighs the expense of reimbursing employees the standard mileage rate.

Remember be a good steward of the City's money: implement a cost analysis program and educate as you go, especially when you know your department may need to upgrade equipment—no matter how large or small! In the long run it will save you headaches and time.

So when you see this vehicle in your area know that it is there to provide assistance to you and your system. ♣



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Leave the Cell Phone Alone & Drive!

Mary L. Howell, Backflow Management Inc.

Several years ago, I wrote an article for our client newsletter about driving respectfully and safely in road construction and utility work zones. A tragic event was in the headlines at the time: A traffic flagger in a work zone was hit and killed by a speeding car, leaving behind a young family. The driver of the car was not physically hurt; his only injury was to his psyche. Without a doubt, he will be dealing with the consequences of his carelessness for the rest of his life. I found this whole story so sad and senseless that I asked our clients to use the article as a public education piece. I'd hoped it would serve to remind people that every one of those utility workers or flaggers out there is part of a family; someone loves them and is probably waiting for them to come home. When that young father who was killed did not come home that day, the landscape of many lives was changed forever.

This past summer, an equally senseless tragedy occurred that brought me right back to where I'd been several years prior. Actually, it took me even lower. It was a fatal case of "distracted driving", a phenomenon that is becoming more common in our gadget-focused culture. Usually,

the distraction is a cell phone, and this case was no exception. This particular accident stood out from the other cell phone-related fatalities because the victim's family does business with my company, BMI. Like BMI, theirs is a family business within the water industry, so we had crossed paths often through the years. The family was known and liked by our entire staff. It was inconceivable that something like this could happen so close to home.

Sondi was a young woman who was truly in the prime of her life. She had a husband and young daughter, friends, a career she enjoyed. She was smart. She had everything going for her and a bright future ahead. But somehow, her cell phone caused her to become distracted on that day last summer, and her vehicle veered off the road. In an instant, a promising young life ended. What do you say to someone who has just told you they lost their daughter in such a manner? As Sondi's mother broke the news of her death to us, the anguish in her face and voice was indescribable.

As we would expect, there was much discussion about how the cell phone became a distraction.

Was she texting, or did she drop the phone and then reach for it? Does it matter? She is gone, and the loss is felt by many. Whatever it was that caused Sondi to become distracted by her cell phone, it was not more important than her life. If only we could see these things before it's too late! In this age of instant gratification and amazing technology, we forget what's truly important. We are also guilty of thinking "That can't happen to me" or "Replying to this text will just take a second"... please, don't make that mistake again. Whatever it is, it can wait. If it can't wait, you can always pull over. Make wise decisions for yourself and the people that love and depend on you.

Speaking of loved ones, try this: Make your cell phone's home screen image a photo of a loved one. Or, record the voice of a loved one and turn it into a ringtone. The next time your phone goes off while you are driving, you will be reminded of what's truly important. It's a subtle, but powerful reminder. These senseless deaths can be prevented. Leave the cell phone alone, and drive.



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See you at the station

Mark Taylor, Taylor Made Pump Stations

“Keep it simple, sir,” when designing a packaged wastewater lift station.

No disrespect here, as the acronym “KISS” is well known to stand for “Keep it simple stupid.” Sir is much more appropriate as we are dealing with professional engineers and public works officials who undertake a difficult task when specifying a packaged wastewater lift station. Experienced packaged wastewater lift station builders, with the goal to design with value in mind, must consider long term operating cost. An easy to operate wastewater lift station is beneficial to both the end user and the maintenance workers charged with overseeing the stations daily operations. Wastewater lift stations need not be complicated in their design. Specifications are DEQ originated, in most cases, and because the regulations governing waste water lift stations are generally standardized, albeit with some variance, making it easy for an experienced builder to follow and construct.

The licensed engineer will work with the packaged builder of the wastewater lift station from concept to test run-up. This situation can be reversed if the builder of the station is generating the order, either way it is a close working relationship. The municipal wastewater station is, more times than not, a custom built station

having more to do with add on equipment and mostly as it applies to the motor control equipment and the level of SCADA requested.

A basic municipal wastewater lift station may function fine without VFDs, noting if they are low horsepower pump motors, and flows are fairly constant, the additional cost and operating expense of VFDs may be substituted for soft starts or even across the line starts if the conditions are such that recouping the initial cost of such equipment would be over too many years to be economically viable. Remember, in the laws of physics, you do not get something for nothing. The VFD has an initial capital cost that must be considered and there is additional cost in energy use (slight as it is) that the VFD requires at BEP or higher flows. This can actually increase energy costs over time.

A wastewater lift station is comprised of four basic components. The precast concrete section is where we find the concrete structure consisting of the standard 6' diameter barrel sections, occasionally lined with HDPE, and commonly in depths of 20'. The base of the station is also concrete and historically sloped where the sides have a fillet design to keep sludge from settling at the outer circle. This design is changing, as of recent, to an easier to clean design to save on fuel and labor costs as well as the regulatory costs in conforming to OSHA. Discharge piping and valves are usually housed

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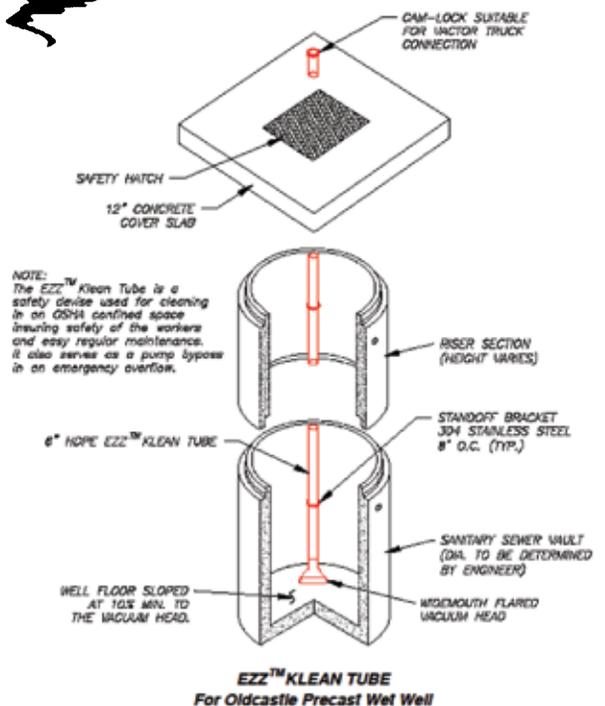
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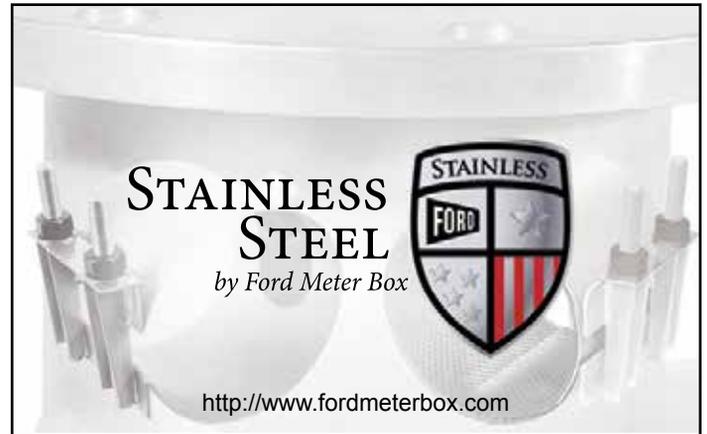
in a concrete vault and included in the scope of supply “precast concrete.”

The mechanical equipment includes the pump and motors, usually arranged in a duplex configuration with the pump of choice being of a submersible design. Valves with a precast valve vault are included with most packaged stations and come with adjustable pipe supports and wastewater rated pressure gauges and discharge piping with pressure gauges to withstand the demands of wastewater is specified in the mechanical package. All submersible pumps need a retrieval system and we include all stainless steel guide rails in the metals section. Hatches and lids made of stainless steel, but sometimes aluminum and are included under specialty metals.

The main benefit of specifying a packaged pump station becomes clear in the integrating of the station’s electrical controls and components. The controls of increasing proficiency are integrated in the manner that they are matched to the motors and in most cases, made by the VFD manufacturer, when drives are specified. Most things done repetitively will usually produce a better product over time. Many Civil and Mechanical Contractors comment, in opposition, as to the need for a “packaged wastewater lift station” as they believe, as contractors, they can build one as well.

The overall pros and cons of what “build out” method for producing a reliable wastewater lift station works best, I will leave to the Civil Engineer and his client. I do know that if a customer needs

a wastewater lift station quickly, usually the packaged builder has the upper hand in returning the product on time. Also, there is an advantage to the packaged built lift station organization that works daily with the engineers and design professionals who are constantly specifying the latest products and innovations available for the sanitary lift station market. I think both a site built standard RFP or a design built package station, have their merits of producing a good wastewater lift station. For those in the wastewater industry that lives and “yes,” many times, breathe wastewater, I say “thanks,” for without all of you professionals; the world would be a very difficult environment in which to live!



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1. If your home is constructed three (3) feet below the 100 year flood zone. How many times or what are the chances that it will be flooded?
A. Once every three (3) years
B. Three times every fifty years
C. A 1.0 percent chance each year
2. Some cities have storage tanks that look like a golf ball sitting on top of a tee. What would be the storage capacity of a unit (sphere and "tee") with a "ball" of diameter 48 feet sitting on a 60 inch diameter pipe "tee" buried in the ground 20 feet whose top elevation is 528.00 feet and the ground surface elevation is 400.00?
A. 116,569 gallons
B. 447,820 gallons
C. 872,108 gallons
3. What would be the soil pressure at the end of the pipe "tee" due to the weight of the water alone? (ie. Not including the weight of the empty tank and "tee")
A. 371 PSI
B. 1425 PSI
C. 2775 PSI
4. Which of the following is always included in an odor complaint form?
A. description of smell
B. physical condition of the complainant
C. industry in the immediate area
D. operator in charge at the time of complaint
5. A facility that belongs to an independent authority and operates to generate revenue to contribute to the authority is also known as what?
A. generally-funded utility
B. enterprise-funded utility
C. multipurpose utility
D. contract facility
6. Using the formula for a circle in the water and wastewater industry, involves pi or the number 3.14.... The furthest extended decimal representation of pi is computed to:
A. 10 trillion digits
B. 1 quadrillion digits
C. 5 billion digits
D. 10 billion digits
7. What does the term "fixed radius delineation" mean?
A. Your flat tire has been repaired.
B. Your drinking water protection area is concentric about your well.
C. You are determined to designate a watershed supply area
D. That a specific calculated amount of water is in the aquifer
8. What does the abbreviation TOT stand for in relation to Source Water Protection?
A. Tertiary Onsite Treatment
B. Tortoise on a Treadmill
C. Time of Travel
D. Turbidity of Tetrafoam
9. What does the abbreviation PCS stand for in relation to Source Water Protection?
A. Positively Contained Substances
B. Paralyzed Critters in Substrate
C. Practical Characterized Surface
D. Potential Contaminate Source
10. Process unit efficiency can be determined by knowing:
A. Loading and flow
B. Length of unit
C. influent and effluent characteristic
D. Pounds of solids removed
11. The primary purpose of a secondary digester is to:
A. Increase gas production
B. Stabilize volatile solids
C. Provide additional storage for detritus
D. Allow for solids separation

10-C, 11-D

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

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Cozy Bugs

© Rick Allen, Environmental Trainer, BioLynceus August 2013

Do your bugs need hats, coats, gloves and insulated underwear?

In my opinion, they do not!

One thing that has continued to show up year after year for the last 20 years in the environmental business, especially the wastewater industry, is the idea that you need different bugs in winter than in summer.

Although I would be one of the first to agree that temperature does affect how bacteria work and how fast they work, I am not one to recommend winter and summer bugs. We all know that nitrogen bugs like water temperatures over 40 degrees and do their best work at around 77 degrees. Phosphorous accumulators reportedly quit cell dividing at temperatures above 68 degrees and become less effective.

There are many reasons for my reluctance, but most stem from the practices I have seen used over the last 20 years by some sales people to get you to buy more than one container of bugs. Over the last 20 years, I have seen summer bugs, winter bugs, grease bugs, sludge bugs, collection line bugs, grease interceptor/trap bugs and lift station bugs. And the list goes on. Sometimes these myriad of formulas are all offered by one company. Granted there are specific bugs for specific situations, like petroleum hydrocarbon remediation, but you as the consumer need to be cautious about what you are buying.

Recently, in Wyoming, a sales person told the operator at a municipality that they should be using his winter/cold weather bugs because his label did not say "DO NOT FREEZE" like his competitor! And in his opinion, because the "do not freeze" statement was on the label it meant that the product did not perform in cold weather. In reality, I know most of you are aware of what happens when you freeze a container that is full of liquid! The container breaks and the liquid will run out on the floor. Also, many bacteria may not survive when they are frozen solid. Our experience has shown that you can lose between 75 and 85 percent of the bug diversity and populations when bacteria solutions are frozen solid.

Do your bugs need hats, coats, gloves and long underwear? Not really, but you need to be aware that your bacteria will perform differently when temperatures change. Due to these changes in efficacy you should consider Bio-Augmenting your system year around, but most definitely in the colder months. Now the question arises, is the use of cold weather bugs being driven by ambient or water temperatures. If it is ambient temperatures that make the determination, then in places like the Rocky Mountain West, you could be adding cold weather bugs one day and warm weather bugs the next. If it is water temperature

that drives the use of cold/weather or warm/weather bugs, then you will have to monitor your water temperatures daily before deciding which formula to use. And at what depth of your system do you need to know the temperature? Do you need to know the surface temperature or the sludge layer temperature? Or do you need both? In my opinion, you would need to know the temperature at the bottom, where most of the activity is occurring during the winter.

Over the years, I have been on many lagoons that were showing biological activity even when they were completely iced over. We have seen gas bubbles bumping up against the ice which is one indication you may be getting biodegradation of contaminants, such as nitrogen. As long as your system does not freeze solid to the bottom, then some of your bacteria will survive. They may be dormant and may need to be jump started in the spring with addition of Bio-Augmentation or Bio-Stimulation processes.

A reminder for you is this: there is a significant difference between Bio-Augmentation and Bio-Stimulation. Remember the difference in Bio-Augmentation is the addition of live biological colonies to your system. Bio-Stimulation is the addition of food sources to your system.

So, for you serial entrepreneurs out there, you might want to investigate starting a new business manufacturing winter gear for bugs.

If you need more information or have any questions contact me, Rick Allen, via phone at (303) 888-2008 or via email at rick@environmentaltrainer.com.

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The Good and the Bad *Throwing My Loop* by Michael Johnson

We need both those, you know – the good and the bad. That’s what makes us who we are. I’m still learning that after all this time. I remember the first time I ever heard of such a thing. Years ago now, a fellow doctoral student was preparing dinner for several of us when the subject came up. His name was Michael Jamail, and a most interesting fellow he was...

Our host – and chef – was Father Michael Jamail, a Catholic priest and the son of the famous Jamail’s in Houston – a grocery store quite comfortable with catering \$1000.00 per plate fund raising dinners for politicians. But on this night, his mother and father weren’t cooking - he was - for a handful of hungry college students in his small apartment. I watched him that evening - this graduate of Notre Dame and holder of a doctoral degree in Canon Law from the Vatican - as he stirred the grape leaves, the rice, and the lamb. And then, I noticed the wall decoration behind him. On a burlap background with colored letters, the words spelled out...“Thank you, Lord. Thank you for the good and the bad. Thank you for it all.”

“What does that mean?” I asked him.

He stared at me for a time. “You don’t know?” he asked.

“No, I don’t,” I said. I remember he had a little smile on his face when he said, “You will.”

Like most of us, I avoid hard-times with a passion, but when we find ourselves in one, it helps to remember there is wisdom lying all around on that valley floor. My trials

with the horse called Shine caused me to question my sanity at times (and caused my friends to question my sanity at all times – sorry, ex-friends) but without those difficult times, Shine would have taught me nothing. While the “lessons” that disturbed horse taught me were hardly pleasant, (there were many) now I see how precious they were – for his well-being, and for mine. As has been said, “There is no better teacher than an emotionally disturbed horse.”

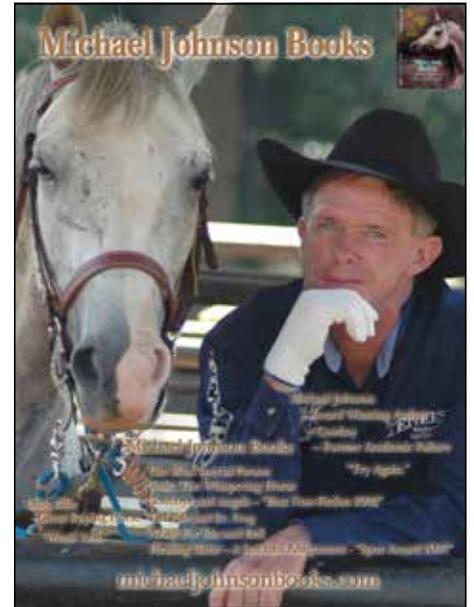
I’m not suggesting we seek out painful experiences, but it is interesting that as we age, we come to a place where we might not be so quick to erase an unpleasant time in our lives even if we could. The worst of times come to have great value. We don’t learn much when things are going well.

Like Shel Silverstein’s “The Missing Piece,” a story that haunted me for years because I just didn’t get it – simply could not understand what it meant.

A wheel is rolling along, and while he’s doing okay, there is a problem. He lacks a missing piece that would make him roll perfectly. Suddenly, he finds a piece that fits wonderfully. He inserts that perfect wedge inside, and man, can he roll now! He travels along at a high rate of speed – so fast in fact, that he no longer has time to visit with the worms, or the flowers, or the butterflies. He no longer sings because his piece fits so perfectly, it causes him to go much too fast.

And one day he stops. He gently takes the perfect piece out, and lays it softly on the ground...and he rolls away.

If you didn’t get that story, it’s okay.



You will.

A bit of the wonderful song called “Prayer 2000” by Eliza Gilkyson...

Thanks for all the songs

Thanks for all the good luck.

All the things that don’t go wrong.

And all the hopes that don’t give up.

Thanks you for my tears,

loved ones who forgave me.

Thank you for my darkest years

All the sorrow that made me.

And the beauty that saved me.

– Michael Johnson

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Type of System:

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Membership Category Amount of Dues

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See schedule below |
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 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
 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 Utilities, City of
 Labish Village Water Commission
 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
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- Malin, City of
 Manzanita, City of
 Mapleton Water District
 Maupin, City of
 McKay Acres Improvement District
 McKenzie Palisades Water
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 McNulty Water PUD
 Medford Water Commission
 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. 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
 Orchard Heights Water Association
 Orchard Point Mobile Homes
 Oregon Shores Beach Club, Inc.
- Oregon Water Wonderland II Sanitary District
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 Otter Rock Water District
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 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.
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 Phoenix, City of
 Pilot Rock, City of
 Pine Grove Water Dist.
 Pinecrest Water Company
 Pioneer Park Water Co-op
 Pioneer Village Water Company, Inc.
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 Powers, City of
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 Riddle, City of
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 Road's End Water District
 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
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 Rufus, City of
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- Salmon River Mobile Village
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 Scappoose, City of
 Scenic Fruit Company
 Scio, City of
 Scoffield Mobile Home Court
 Scotts Mills, City of
 Scrael Hill Water Co-op
 Seal Rock Water District
 Seneca, City of
 Shangri-La Water District
 Sheridan, City of
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 Sisters, City of
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 Sodaville, City of
 South Fork Ranch Homeowners, Inc.
 South Fork Water Board
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 Spray, City of
 Springbrook Water Association
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 Stanfield, City of
 Star Satellite Improvement District
 Steeves Mobile City
 Storlie Water Company Inc.
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 Sumpter, City of
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 Sunriver Water LLC
 Sunset Acres Water Improvement Co.
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 Weiss HOA, Inc.
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 West Hills Water Company
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 West Slope Water Dist.
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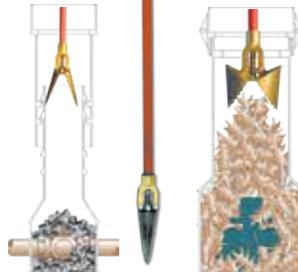
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