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Fall 2013
Vol. 35, No. 4

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Stage 2 DBP Sampling

by Heath Cokeley, Circuit Rider

If you're like me and were working for a water system back in 2006 or 2007, you may remember something about the Stage 2 requirements for Disinfection Byproducts (DBP). Back then a lot of us worked with Windy Marshal out of EPA region 10. I remember that name well as she helped me navigate what, at the time, seemed like a very confusing new rule, figuring out whether we needed an Initial Distribution System Evaluation (IDSE) or qualified for the 40/30 certification. When it was completed I remember filing it away and thinking, *Nothing more needs to be done 'til October 2013* and that was so far away I didn't need to worry about it.

Well, the time has flown by and guess what? It's time for the Community Water Systems (CWS) and Non-transient Non-Community (NTNC) water systems that add a disinfectant other than ultraviolet light with populations under 50,000 to start their Stage 2 sampling after October 1, 2013.

Let's get down to what this means. For most systems, if the water is chlorinated, then some Total Trihalomethanes (TTHM) and Haloacetic Acids (HAA5) samples may need to be taken after October first. If this is the case the system will need a compliance monitoring plan (CMP) on file which will outline when and where these samples need to be taken. Systems that completed IDSEs can use that as their CMP as it outlined the sample locations and when to be taken. If no copy of the IDSE is on file, call the state to get one. If there is no CMP and an IDSE was not used, this means a 40/30 certification or a very small system (VSS) waiver was given. If this is the case, simply keep monitoring as if for Stage 1 DBP.

With a 40/30 certification I recommend reading the article written by Gregg Baird on Stage 2 DBP that was published in the

April 2013 issue of *Pipeline*. This article outlines the requirements that need to be met for Stage 2 sampling both before and after the October 1, 2013 start date. The article can be found by going to this web address: <http://public.health.oregon.gov/HealthyEnvironments/DrinkingWater/Operations/Documents/pipeline/pipeline-2013-04-revised.pdf>.

Also, remember that a surface water system, a groundwater system under direct influence (GWUDI), or a purchaser of these with a population of more than 3,300, the CMP must be sent in and approved by the state.

The rest of the systems out there just need to keep the CMP on file for review during a System Survey.

I realize this has been a very short article on a very large subject, but unfortunately I do not have enough space to outline all the different steps that need to be followed by different sizes of systems. If this rule seems hard to understand, do not worry, many of us are in the same boat and we will get through this. Go to the OHA Drinking Water Program website and look on the left hand side of the page, under Rules and Implementation Guidelines, the third option down in that section is Stage 2 DBP rule. This will provide even more info on the Stage 2 DBP rule as well as templates for the CMP based on system size and type.

Feel free to give a Circuit Rider a call and one of us will come out and walk you through this rule step by step as that is just one of the many free services we provide.

I hope you found some useful information in this and as always, I'll see you down the road. ♦





Combined Efforts of Source

by Jack Hills, Source Water Specialist

How many entities, agencies, and companies support Source Water Protection? Have you ever wondered how many governmental agencies, cities, communities, companies and individuals consider the value of Source Water Protection?

I would like to think that it's near the top of everybody's list. However, this is probably not the case unless one is in the unfortunate situation of a drinking water crisis. During such an event it may be inconvenient to get water and one may need to purchase bottled water, or boil the water to make it consumable; the reality sinks in that more care or attention to the source of supply could have prevented the disastrous situation.

Kudos to our water System Operations Specialists, who are trained in how to respond in times of emergency to keep the water supply flowing and are "on call" all hours of the day and night. Not only are they working to maintain the integrity of the mechanical system and provide a quality product, they are continually increasing their knowledge of the water industry through education and training to maintain and upgrade their certifications and licensing.

Many resources are available to the System Operations Specialists, especially through the internet which is becoming more accessible through an ever increasing number of devices. From the rules and regulations side of the public water system, there are the Oregon Health Authority (OHA), Department of Environmental Quality (DEQ), and the Environmental Protection Agency (EPA) whose websites can be quite overwhelming with information. However, if you have a specific issue, for example if you want to zero in on Source Water Protection, these agencies have a wealth of information that will be useful to the average system. So, check out OHA "drinking water" and access an abundance of source water information.

Also, Oregon DEQ has Source Water Protection information in their Water Quality section. DEQ oversees the protection of our surface waters, many of which are the source of drinking water supply to communities and cities. Hazardous materials and pharmaceutical take back events are an amazing here towards keeping those chemicals out of our drinking water.

Browse the internet with your search engine for these agencies and source water protection. You'll be amazed at the amount of data and information available to you. As an example, search: "EPA Source Water Protection" and find "Water on Tap What You Need to Know", 36 pages of basic water information. (Look for answers to the Quiz Corner). Want to know about the contaminants listed by the EPA National Primary Drinking Water Regulations; their common source, health effects, and the Public Health goal? Check out page 23 in EPA's "Water on Tap What You Need to Know".

What about forest practices in the watersheds that our surface drinking water flows through? Again, just search the internet with "USFS Source Water Protection." You will be led to a myriad of sites related to USFS and source water protection; information that can be used to educate and inform people of the forest practices being used to protect the surface runoff waters that eventually become drinking water supplies.

Our state forestry programs also include source water protection. Check out their website, Oregon Department of Forestry (ODF) and do a search for source water protection; over 300 links to some aspect of protecting the quality of water related to forestry will come up.

Another federal level of source water protection is the U.S. Department of Agriculture (USDA). Under the Farm Service Agency (FSA), source water

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Source Water Protection

protection is supported at "... a grassroots level to educate and inform rural residents about steps they can take to prevent water pollution and improve water quality." It is this joint project with the National Rural Water Association (NRWA) that provides the assistance a water system may need to review and implement practices that reduce the possibilities of losing a drinking water source because someone ignored potential contaminate issues.

I could carry on listing the importance of protecting our drinking water, but I believe you get the picture. Source water protection crosses over many programs, agencies, communities, rural, suburban and metropolitan areas because of its importance to our constant need for clean drinking water. As always, if you need assistance with reviewing or implementing a Source Water Protection Plan for the water you are drinking, you can always call on us at OAWU. Again, thank you System Operations Specialists for your ever-vigilant diligence at keeping quality water flowing for us. 💧



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The Unseen Giant

by David Branham, Wastewater Technician

Well they tell me it's time to submit my magazine article. Seems like it was just a short while ago that I had finished the last magazine article. My, how time flies. Humm, well I have been sitting here for quite some time and decided that I would do a little something on the collection system side of the industry. Going over some of my notes and examining some of the past articles I have penned I decided to bring back an article that I wrote many years ago.

All of the points made still hold true with a few exceptions. For instance, I seriously doubt a dig, repair and fill on the collection system could be done for \$100.00 per foot, and I would venture to guess that in this day and age the cost will be much higher. I am positive that the thirty billion dollar price tag quoted in this article will be wholly inadequate to do the job in 2013.

Original Article

The most expensive piece of real estate any city or township owns is its wastewater collection system. I find it ironic that it is also the most neglected item that any city owns. The old adage "If it ain't broke, don't fix it," sure does apply here. You will find city and county officials that know the cost of each building and their total building budget. Bridges and parks are obvious and everyone can see neglect, but you will find few city and county officials who know for sure how many feet of sewers they have and the number of manholes in their system. Officials become aware of sewers mainly when the service is inadequate, a stoppage occurs, the system fails, odors are produced, or a portion of the street collapses.

Managers usually know how many pumping stations there are in the collection system, where the wastewater treatment plants are located, and the

number of people we think it takes to operate and maintain them. Numbers of operators will vary from city to city and you will find some agreement as to how many people it takes to operate the system. Unfortunately, officials often forget or neglect adequate inspection during construction, and fail to budget adequate personnel and equipment for the proper operation and maintenance of collection systems.

Maintenance and operation of wastewater collection systems on a trouble or emergency basis has been the usual procedure and policy in many communities and districts. Planned operation and preventive maintenance of the collection system has been delayed or omitted, in spite of the necessity to properly maintain the system to assure proper operation. Municipal officials tend to neglect collection systems as long as complaints are not excessive. To please constituents, officials often demand street and sidewalk repair be done by collection system crews, but seldom have they ever demanded preventive work done to the collection systems.

THE COST OF THE WASTEWATER COLLECTION SYSTEM

The Administrator of the Environmental Protection Agency cannot authorize grants for the construction of wastewater treatment plants if the wastewater collection system discharges into a plant that is subject to excessive infiltration. Consequently, municipalities must reduce infiltration to the extent that is cost effective and properly maintain the wastewater collection system to qualify for federal construction grants. Reducing infiltration/inflow is good practice because it allows the collection system to handle greater quantities of wastewater.

When collection systems are installed, often times, they cost significantly more

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than the cost of the wastewater treatment plant. If, for some reason the collection system fails in, let's say, twenty years the cost per foot for replacement could be as much as ten times its original cost. In some locations the replacement is practically impossible and extremely expensive because of the crowding of other utilities and the fact that everything is going underground now makes this even more of a problem. At last estimation it cost \$100.00 per foot to dig and replace or repair the collection system. It has been said, "one's capacity to endure is directly related to the quality of his maintenance." Certainly this is true of wastewater collection systems. Preventive maintenance is talked about, but seldom practiced. Decades of neglect, or grossly



inadequate maintenance, are two reasons why wastewater collection systems are now a thirty billion dollar price tag facing our nation, at a time the economy can ill afford the cost.

Good collection system inspection, operation and maintenance are by far the best ways to protect the large investment that

the taxpayers have placed in our hands. An effective inspection program will alert you to small problems that should be corrected before they become big problems. In the next issue of *H2Oregon* I will go over some of the in the field maintenance practices as well as go over ways to set up a preventive maintenance program. Remember WASTEWATER RULES. 💧



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Help—I Have Arsenic!

by Mike Collier, Training Specialist/Operations



It has been shown that chronic exposure to arsenic through consuming it in a drinking water supply can have both cancerous and non-cancerous effects when the arsenic concentration is well above the current MCL. The non-cancer effects include thickening and discoloration of the skin, stomach pain, nausea, vomiting, diarrhea, numbness in hands and feet, partial paralysis, and blindness. Arsenic has been linked to cancer of the bladder, lungs, skin, kidney, nasal passages, liver, and prostate.

Arsenic is found in drinking water supplies throughout Oregon. In many cases arsenic is in drinking water from the leaching of native materials. In other cases it may come from an introduced source. Some locations in Oregon must treat the water in order to ensure that it meets or exceeds the standards set by the EPA for a safe drinking water supply.

In 1990 the drinking water standard for arsenic was 0.05 ppm. Since that time, the EPA has set the current arsenic standard for drinking water at 0.010 ppm to further protect against chronic exposure to high concentrations of arsenic. A utility will need to optimize existing treatment or install new treatment if it has an arsenic concentration above the MCL and unable to achieve compliance through non-treatment options such as blending, seasonal use of sources, or development of an alternative source. This might be the case for many systems that have native arsenic and water with a concentration slightly greater than the new MCL, even though it has never been an issue in the past.

In this article we will review some possible methods to treat for arsenic, taken from EPA data, to reduce its concentration in the drinking water supply. To treat for arsenic, we must first understand that we commonly find it in two forms. Arsenic in surface water is commonly found as arsenate, AS (V), this is the oxidized

form of arsenic and is formed in aerobic conditions. Arsenic in groundwater is commonly found as arsenite, AS (III), this is the reduced form of arsenic and is found in anaerobic conditions. We will mostly look at the methods for removal of AS (V), which is negatively charged and is unlike AS (III) which is uncharged. Because of this difference in charge AS (V) can be removed by processes that are commonly used to remove anions. Additionally, to transform AS (III) to AS (V), making it an anion, we can simply use pre-oxidation. Additions of chlorine, ferric chloride, or potassium permanganate are accepted methods to do so.

Coagulation/ Filtration can remove AS (V) according to laboratory and pilot-plant tests. The most widely used coagulants for water treatment are aluminum and ferric salts, which break down in a chemical reaction with water to form aluminum and iron hydroxide particulates, respectively. These then settle out of solution. The type of coagulant, dosage used, and pH range of the treated water affect the efficiency of the process. Disposal of the arsenic-contaminated coagulation sludge may be difficult and expensive if nearby landfills are unwilling to accept it. This method may not be appropriate for most small systems. It is expensive, needs a well trained operator, and has variable process performance. If used alone, it may not consistently meet a low-level MCL. Ferric sulfate is most commonly used as a coagulant as it outperforms Alum and other coagulants. Ion Exchange may be useful as a polishing step to help the performance.

Lime Softening uses limewater (calcium hydroxide) to remove AS (V). Optimum pH range is greater than 10.5 to provide a high AS (V) removal for influent concentrations of 50 µg/L. It may be difficult to consistently reduce to 1 µg/L by lime softening alone. Not appropriate

for most small systems as it is expensive, needs a well trained operator, and has variability in the process performance. Systems using lime softening may require secondary treatment to continually meet the MCL. Ion Exchange may be useful as a polishing step.

Activated Alumina is effective in treating water that has high total dissolved solids (TDS) as it attracts and absorbs the contaminants. Selenium, fluoride, chloride, and sulfate, if present at high levels, may compete with AS (V) for adsorption sites. Activated Alumina is highly selective towards AS (V) and this strong attraction results in regeneration problems, possibly resulting in 5 to 10 percent loss of adsorptive capacity for each filter run. Some difficulties include the

lack of availability of F-1 alumina, chemical handling requirements for regeneration of the alumina, and disposal of the brine (highly concentrated waste streams with high TDS). Brine streams may require some pretreatment prior to discharge to either a receiving body of water or the sanitary sewer. This system is low-cost, simple to operate and requires minimal operator attention (part time) during treatment runs. The system can be run manually or can be adapted for automatic operation.

Ion Exchange is a physical-chemical process in which ions are swapped between a solution phase and solid resin phase. This technology is commonly used for softening and nitrate removal. Arsenic removal is accomplished by passing water,

under pressure, through columns packed with strong-base anion (SBA) exchange resin. Sulfate, TDS, selenium, fluoride, and nitrate compete with AS (V) and can affect run length. Suspended solids and precipitated iron can cause clogging of the Ion Exchange bed. Systems containing high levels of these constituents may require pretreatment. Disposing of the highly concentrated waste by-product stream with high TDS may be a problem. These brine streams may require some pretreatment prior to discharge. Passage through a series of columns may improve removal and decrease regeneration frequency. Recommended for small, groundwater systems with low sulfate and TDS and as a polishing step, after filtration, for surface water or if the system



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is still having problems with arsenic concentrations above the MCL with other treatment options.

Point of Use (POU) and Point of Entry (POE) devices can be effective and affordable options for small systems in meeting the arsenic MCL. Treatment devices are placed on a single tap and used only for drinking and cooking purposes. POE devices are used when the whole building is served with treated water. Activated Alumina (AA) and Reverse Osmosis (RO) may be used to remove 86% of the total arsenic. A Federal Register notice by EPA will delete the prohibition on the use of POU devices as compliance technologies. Few field studies exist on the application of POU and POE devices. Most POU devices do not address the issue of pre-oxidation. While RO may remove AS (III) to acceptable standards, to use AA or iron based sorbents to remove arsenic it will be necessary to first convert AS (III) to AS (V) at a centralized oxidation location.

There are a few additional technologies that are being further researched as viable treatment options for arsenic in drinking water:

Ion Exchange with Brine Recycle

can reduce AS (V) levels to below 2 µg/L even with sulfate levels as high as 200 mg/L. The higher sulfate concentrations give a shorter run length to arsenic breakthrough. The brine regeneration solution can be reused as many as 20 times with no impact on arsenic removal as long as adequate chloride levels for regeneration are maintained. Brine recycle reduces the amount of waste for disposal and the cost of operation.

Iron addition Coagulation with direct Filtration

— iron addition (coagulation) followed by direct filtration (microfiltration system) resulting in AS (V) being consistently removed to below 2 µg/L. Critical operating parameters are iron dose, mixing energy, detention time, and pH.

Conventional Iron/ Manganese removal processes, iron coagulation/filtration and iron addition with direct filtration are effective for AS (V) removal. The processes involve the oxidation of the soluble forms of iron and manganese to their insoluble forms and then removal by filtration. The addition of iron may be required if the concentration of naturally occurring iron/ manganese is not sufficient to achieve the required arsenic removal level. Source waters containing iron and/or manganese and arsenic can be treated to remove arsenic by using conventional Fe/Mn removal processes. These processes remove arsenic by the same mechanisms that occur with the iron addition methods.

As seen here there are many different options when it comes to treating drinking water for arsenic. If you are having problems meeting the current MCL for arsenic at your drinking water system please give OAWU a call. ♦

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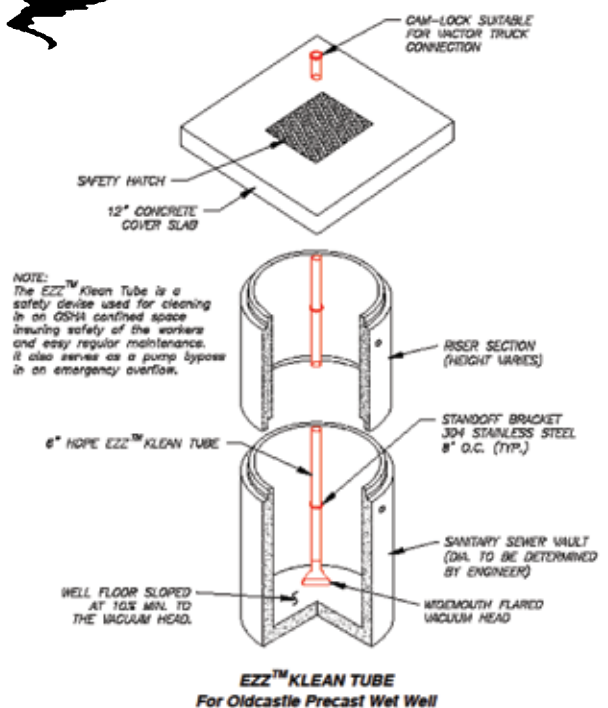
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333-061-0061

by Tim Tice, Projects Manager

333-061-0061 is not the telephone number to the location of El Dorado. It is the numerical designator for a public water system's "Capacity Requirements," which is defined in Oregon Administrative Rule (OAR) 333-061-0061 as the technical, managerial, and financial capability of the water system necessary to plan for, achieve, and maintain compliance with applicable drinking water standards.

Under the technical capacity requirements, the regulation begins by stating the Public Water System (PWS) must comply with the local land use requirements and provide evidence of approval by the local land use authority. I will venture to say that not many water operators are ever informed of such a rule. This is the first of six main points found in this requirement. With five additional points to consider, we have to ask ourselves just how much we can learn by taking a little time to regularly review the administrative rules for our PWS.

Under the managerial capacity requirements we find the minimum "S" level certification to the highest level for large municipal water systems that each PWS must employ a certified operator. We also find that depending where the source of water comes from for a PWS, the system may be required to have a water management conservation plan.

In the financial capacity requirements section we see that the water system must establish a water rate structure and billing procedure, or alternate financial plan, to assure that funds are collected and available to meet the anticipated operation, maintenance, and replacement costs of the water system.

It is not if, but rather a matter of when a water system will need money to make a repair. Since none of us live in or are neighbors of El Dorado, the bigger question is "How do we fund minor or major projects when they are required?"

When the time comes to upgrade a PWS and if a loan is necessary to complete such a project, the Drinking Water Program will require an assessment of the technical and managerial capacity necessary to properly operate the water system. Under the financial capacity requirement we see that they will review PWS documentation to determine if there are any inappropriate financial statements, if the system is lacking a capital financing program, or has an inadequate rate structure to cover system operation, debt service, and capital replacement.

The number of items for review is increasing. The days of simply looking at the water to determine flow as the extent of the responsibility are gone. So the

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bigger question is, “How do we manage such a mountain of responsibility?” Organize, organize and reorganize the task, the time for each task and the funds required to complete the task. Postponing the investment steepens the slope of the investment that must ultimately be met. A difficult task, we are all aware, but a task that evolves with each new day. If we stop for a moment to think about the goal, “to maintain compliance with applicable drinking water standards,” we achieve it quite easily on a daily basis. We are fortunate for the water sources, infrastructure design of days gone by and the passion of the people who work in the industry.

One way to continue the high level of success in providing clean drinking water is to review the regulations, maybe a portion a week, highlighting those rules that are relevant. Begin to increase the level of understanding and build a “to-do” list from the regulations that can be shared with the decision makers of the PWS. Then maybe when the time comes to look at a system upgrade, the process will go much easier. Education is a light load to carry and we must continually impress the task of learning not just to

ourselves, but to our boards and councils. Why not begin with the regulations?

An additional benefit to reading the regulations is that they are a great sleep aid.

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Utilities Helping Utilities

by Scott Berry, Circuit Rider/Program Manager

Over the past decade, the utilities located in Oregon have seen an increase in the number and severity of both natural and human caused disasters. These disasters have caused widespread outages and interruption of services. Weather events are the usual culprit, but there is a real need to address the threat of other natural occurrences such as earthquakes and wildfires. This article will focus not only on addressing those issues, but will also take a look at mitigating the more localized occurrences. "Utilities Helping Utilities" is a concept dedicated to enhancing water and wastewater resiliency in response to disasters in the response and recovery phases and is taking steps to encourage utilities and local/state governments to establish intrastate mutual aid and assistance networks. The purpose of these networks is to provide a method whereby water/wastewater utilities that have sustained damages from natural or man-made events could obtain emergency assistance in the form of personnel, equipment, materials, and other associated services, as necessary, from other water/wastewater utilities. The objective is to provide rapid, short term deployment of emergency services to restore the critical operations of the affected water/wastewater utility.

This peer-to-peer approach to incident response and recovery is the most effective way for a utility to quickly return to normal operations after an event has occurred. The reason for this is that no matter how good a contractor, or other outside party may be, there is no substitute for someone from within the industry. The individual components of your water/wastewater system may not be the same as the neighboring system, but the technical operations, the basic concepts, language, standards, regulations, personnel skills, and certification are relatively consistent. Another factor for managers to consider is the impact on their employees and their families. A mutual aid agreement would

allow a utility to access the technical experience and expertise of similar utilities in the area and give employees some much needed time to see to the needs of their families.

A signed mutual aid and assistance agreement does not obligate a utility to provide or receive aid, but provides a tool to use should events dictate a need. Having an agreement in place prior to an emergency can also enhance planning and prioritization by agencies responding to requests for help. Among many basic benefits of having or participating in a mutual aid and assistance network, key benefits include:

- Increased planning and coordination. Agreements facilitate and complement local and regional joint planning for incident response, and such agreements meet federal grant requirements. The networking prior to an emergency helps utilities identify the people involved.
- Enhanced access to specialized resources. The basic function of the agreement is to quickly bring specialized utility resources to bear when and where they are needed. Agreements ensure the timely arrival of vital water and wastewater equipment and personnel with the support of the appropriate authorities.
- Expedited arrival of aid. The federal and state government resources cannot address utility needs immediately. Mutual aid agreements streamline procedural steps so that resources can be easily requested and arrive in a timely manner.
- Reduced administrative conflict. Agreements clarify liability, reimbursement, and other administrative matters that could impede response in the absence of an agreement.
- Increased hope. As noted in past after-action reports from many disasters, after suffering loss of all critical

infrastructures, the restoration of water and wastewater service provides a sense of comfort and hope that a “return to normal” is not far away. Utilizing local resources will also help you keep control of your water system and minimize conflict during a crisis.

Some questions that I am frequently asked in my travels around the state

when visiting with water systems is: When is it appropriate to request assistance from the state? When is the National Guard available to provide items such as generators, trucks for hauling water, etc?

The answers: the state cannot become involved logistically until they are requested to do so by the county or other

local authority. That request can’t come until all local resources have been utilized.

There are many issues involved in a mutual aid agreement and they should be carefully considered and put on paper before an incident occurs.

For more information on Mutual Aid Agreements and ORWARN, refer to their website at www.orwarn.org. ♦

OREGON ASSOCIATION OF WATER UTILITIES 2013 TRAINING & EVENTS SCHEDULE

Date	Class Title	Location	CEU Information	ESAC#	Fee/Free
October 8-10	Water (WT/WD) Certification Review	Salem	1.8 Water/0.7 WW	2112	Fee
October 23-24	Wastewater (WWT/WWC) Certification Review	Salem	1.4 Wastewater/0.6 Water	2295	Fee
November 5-7	Small System Operator's Conference	Florence	2.0 Water/Wastewater	2648	Fee
November 20	Water Operators Review	Grants Pass	0.6 Water	2564	Fee
December 10-12	15 th Annual End of Year Operator's Conference	Hood River	2.0 Water/Wastewater	TBA	Fee
December 16	Developing Your O&M Manual	Fairview	0.6 Water/Wastewater	2113	Fee
December 17	Excavation Safety & Confined Space Entry	Fairview	0.6 Water/Wastewater	2356	Fee
March 3-7	36 th Annual Management & Technical Conference	Sunriver	2.4 Water/Wastewater	TBA	Fee
March 25-26	Wastewater (WWT/WWC) Certification Review	Salem	1.4 Wastewater/0.6 Water	2295	Fee
April 8-10	Water (WT/WD) Certification Review	Bend	1.8 Water/0.7 WW	2112	Fee
May 6-8	Water (WT/WD) Certification Review	Salem	1.8 Water/0.7 WW	2112	Fee
May 13-14	Utility Management Certification	Willamette Valley Area	1.4 Water/Wastewater	TBA	Fee
June 12	Water Operators Review	Springfield	0.6 Water	2564	Fee
August 18-21	Summer Classic XX Conference	Seaside	2.3 Water/Wastewater	2592	Fee
September 16-18	Water (WT/WD) Certification Review	Grants Pass	1.8 Water/0.7 WW	2112	Fee
October 7-9	Water (WT/WD) Certification Review	Salem	1.8 Water/0.7 WW	2112	Fee
October 22-23	Wastewater (WWT/WWC) Certification Review	Salem	1.4 Wastewater/0.6 Water	2295	Fee
November 3-6	Small System Operator's Conference	Cornelius	2.0 Water/Wastewater	TBA	Fee
December 9-12	16 th Annual End of Year Operator's Conference	Hood River	2.0 Water/Wastewater	TBA	Fee

2013 State Water exam dates **Application deadline** **Oregon ESAC/CEU accreditation**
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<http://public.health.oregon.gov/HealthyEnvironments/DrinkingWater/Operatorcertification/Levels1-4/pages/exams.aspx>

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All categories: <http://www.deq.state.or.us/wq/opcert/stpoperexamqry.asp>
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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.

OAWU's Summer Classic 2013

The weather for this year was fantastic and the activities were great. Monday's pre-conference provided a few extra CEUs to those who attended. Tuesday held the evening outdoor barbecue with a meet and greet social, exhibitor prize give-away, followed by a bonfire and horse-shoe games 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 from OAWU's Executive Director, Jason Green, and the highly anticipated raffle drawings and cash prizes.

Thank you to Owen Equipment, Engineering America, and Lakeside Industries for being this year's conference lunch sponsors.

Thank you to EJ, PumpTech Inc., and The Automation Group for being this year's barbecue dinner sponsors.

Bonfire beverages sponsored, again this year, by Ferguson Waterworks

Annual golf scramble at Gearhart Links which hosted 13 teams

Thursday, during closing session, OAWU gave away over \$600 in merchandise and \$200 in cash prizes.

This year's OAWU raffle for a 47" flat screen TV was won by Bill Van Ek from Chenoweth Water PUD.

This year's OAWU Water PAC raffle for a Remington 870, 12 gauge shotgun was won by Brett Limbeck from Cline Butte Water.

The Lollipop board prize for a full registration to the OAWU Sunriver Conference in March 2014 was won by Mark Laymon from the City of Lake Oswego.

We are proud to present two college scholarships this year through the Jeff Swanson Memorial Scholarship to Kyle Beam (Ice Fountain Water District; pictured at right, above) for \$1500 and to Miranda Frost (City of Sublimity; pictured at right, below) for \$750.

Mark your calendars for next year's Summer Classic in Seaside, Oregon August 18-21, 2014. See you there! ♠





in Seaside, Oregon

OAWU's Annual Golf Scramble

Seaside, Oregon – Gearhart Links Golf Course – August 21, 2013

The sun was out the entire day, there was a gentle breeze and the greens were fast; it was a perfect day to hit the links for this year's scramble. The staff at the Gearhart Links Golf Course was accommodating, friendly, and professional helping to make the day even more enjoyable.

Ten teams of four and three teams of three (with a ghost player) challenged the course this year, making a good solid 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 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, Ferguson Waterworks, Mueller Co., EJ, General Pacific, and HD Fowler for their support of the attendees and association.

The three winning teams were:

1st place – Scott Motsinger, Don Miller, and John Woods

2nd place – Ed Pettett, Bill Huntley, Rory Martin, and Brad Lyons

3rd place – Bryon Boyd, Rob Jackson, Dan Bradley, and Dave Seifert

The winners of the golfing competition games were:

Longest Putt #1 – Rory Martin KP #2 – Jim Brown

Men's Longest Drive – Simon Cartright Longest Drive #2 – Jon Koch

Women's Longest Drive – Kathy Koch Longest Putt #2 – Scott Motsinger

KP #1 – Don Van Veldhuizen

Special thanks go out to Mike Collier, one of our Training Specialists, and Jack Hills, our 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 18-21, 2014. It's a great location to enjoy while you earn CEUs and network with associate members and your peers.



The Jeff Swanson Memorial Scholarship

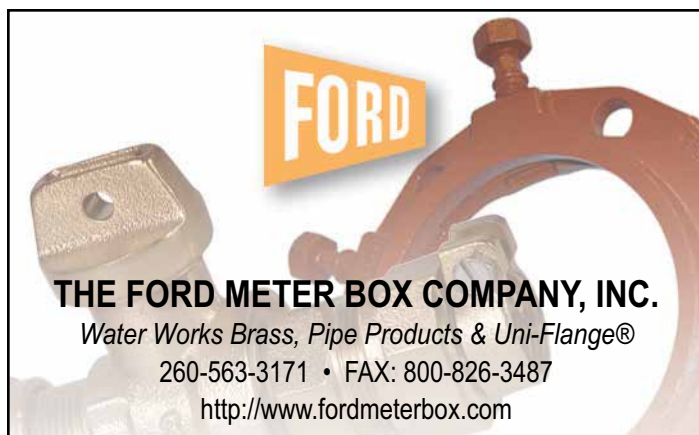


Jeff Swanson passed away on July 4, 2009, from esophageal cancer. Mr. Swanson was an accomplished and passionate Circuit Rider and Programs Manager for ten years at OAWU. He was a great water operator, manager, troubleshooter, treatment plant operator, instructor and a great friend. Jeff had a warm and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

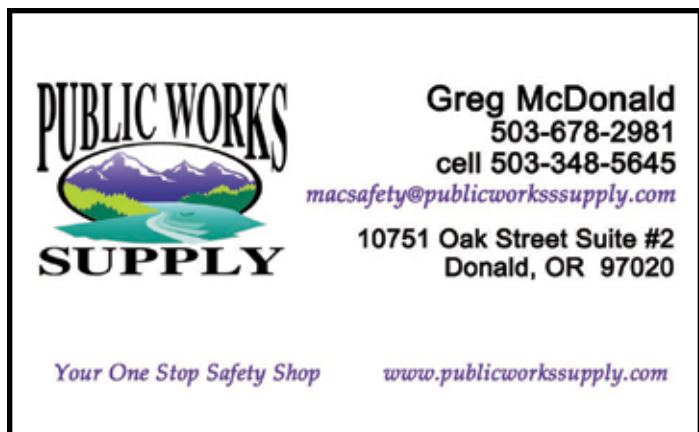
OAWU will award the scholarship at the Annual Management and Technical Conference in Sunriver 2014.

An application with additional details is available on the OAWU website at www.oawu.net. Please submit applications by **Friday, December 6, 2013** to:

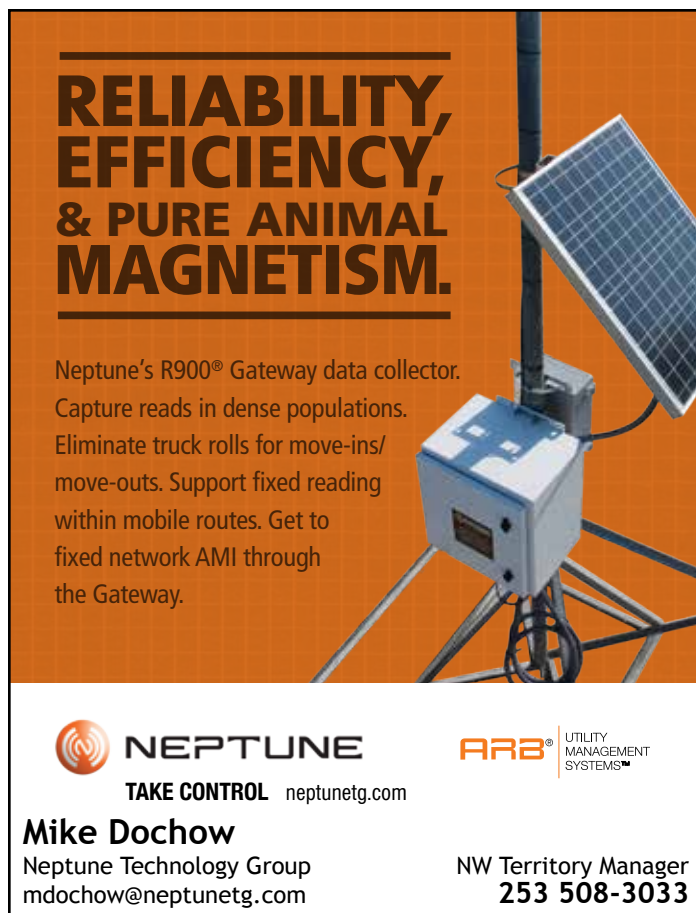
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Where Did It Go?

by Hans Schroeder, Circuit Rider



T I M E ... Occasionally, we all look back and ask, "Where did the time go?" We hear the phrase "time flies." It amazes me as I look at photos and it seems just yesterday our daughter was learning to ride a horse. I have many questions that pass through my mind. Did we teach and instill the "Golden Rule" in her? Is she prepared to go out into the "Big World" and survive with the tools we have provided? Did I give her enough of my time while she was growing up? A story comes to mind about the child that approaches his father and asks what he makes an hour. The father replies \$40 per hour. The child takes off excitedly to his room. The father wondered what that conversation was all about. The child returns with many

wadded up bills and change in an old sock that total \$40. The child then asks if he could pay for one hour of his fathers' time so they could go play together, that hit home to me. On our OAWU staff we have a few employees that have just started families the past few years. It won't be long before we hear about their children's stories and watch them grow up, then all of a sudden — GRADUATION.

You have read articles throughout the years about our daughter, Lexi. This year will be her senior year in high school. I realize that this year will definitely "fly by." Lexi is very busy with being on a rodeo court, working with her horses, will actively compete in High School rodeo, showing swine at several of our local fairs through her local FFA chapter and playing basketball. She travels almost every weekend to rodeos throughout the state. She is consumed with homework and grades too. She will have a huge senior project that will take her a whole semester to complete, it has to be something that she wants to do in her future and be approved by a board of teachers. If she doesn't pass her project, she doesn't graduate. How do kids do it in this day and age? I ask myself, did I do all I could to be there? What was more important, work or her activities? It takes many sacrifices and I am hoping, as I reflect back and in the future, more importantly, as Lexi reflects back, that the choices I made were the right ones.

Lexi is our last child at home. Tina and I will be "empty nesters" in less than a year. A new chapter in life for her begins as well as for us. I have made a vow to do all that I can to make sure and support her in her functions as her senior year comes to an end.

Remember when you are out there working hard for your employers, to think that in a blink of an eye your kids will be ready to graduate and you will reflect back on their lives and wonder the same question I am asking myself now: *did I do enough?* ♦





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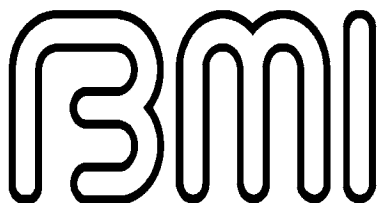


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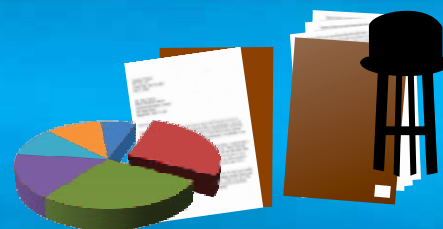
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Wastewater System Restart or Initial Start Up?

By Rick Allen, BioLynceus

In the world of Wastewater these days there are many challenges that will occur. Some you may have already seen and some may appear in the near future. One of these many challenges is how to get your plant activated if it is killed off by known or unknown environmental issues. The reasons can vary from a crystal meth hit to someone dumping diesel or some other caustic in your line. Sometimes these challenges are self-inflicted, by allowing septic or grease haulers to discharge to your system. And of course there is the issue of chemicals that your collection people may be using to clean lines or kill roots.

The other scenario could be that you have just finished building that brand new wastewater plant or addition. After spending millions of dollars to complete the new system, how do you get it started and working at optimal parameters as quickly as possible?

There are several options available to most wastewater systems, no matter what design you have. You can startup or reactivate Activated Sludge Plants, BNR, Anaerobic digesters, MBR and, yes, even lagoon systems.

There are many accepted methods for a startup or restart. These include just letting the plant biology develop naturally. If this is the method you decide to use, the industry estimates are that the plant will be at maximum efficiency somewhere between 90 to 180 days. If you have a lot of time, this method will work. If you need to meet discharge limits, this may not be the best method for you.

Another method is to inoculate the system with activated sludge from a neighboring community. This method will work and industry estimates are that this will take between 30 and 90 days to reach full efficiency. There are a few things to consider when using this method of startup or restart.

You will be hauling wastewater sludge into your community.

The biology in the neighboring community may or may not have all the bacteria that you will need.

Every wastewater system has different inflow, so therefore the biology will be different. And if you have Significant Industrial Users (SIU), the odds are your neighbor will not have what you need.

Bio-Augmentation is another method being used to restart your system or to complete an initial startup of a new plant or system. This process requires purchasing commercially available microbial cultures for your plant. If you purchase a high quality, Species Rich Diversity (SRD) product, experts estimate your system may be fully on line in 3 to 30 days. Most of the systems I have seen using this method take about 10 days to populate.

Now you should become aware of some of the differences in the available Bio-Augmentation products on the market, today. You want to look for products that have actual bacteria or microbial counts in them. You want to make sure that the product has large



counts of colony forming unit (CFU) and a high Species Richness Diversity (SRD). Some products will only have one, two or three types of bacteria, while others may have dozens. You want to look for products with high SRD's. Remember, your system has many different materials in the inflow that need to be bio-degraded, so you will need a variety of species to complete the work. You may also see products with millions of microbial per gallon or per milliliter. Make sure you do the math. Products with 100 million per milliliter actually have more bacteria than those that have 1 billion per gallon. I always recommend that you use products that are in liquid form. Many of the states' circuit riders and government agencies are now accepting Bio-Augmentation as a viable solution.

Products that do not have actual bacteria/microbes in them are considered Bio-Stimulants and will not inoculate your system with new bacteria.

One or more of the systems or programs listed above will work for you. You need to decide which will best meet your needs. If you want a speedy recovery, then Bio-Augmentation with quality products, that meet or exceed the above criteria, could be your best solution. If funding is the most critical issue, then natural recovery may be your best solution, as long as you are not out of compliance. If easy, re-inoculation of your system is important, then Bio-Augmentation could be the preferred method over hauling activated sludge. If you have easy access to activated sludge, that does not require extensive hauling, then this may be your choice.

In some cases, you may want to utilize a combination of methods.

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.

Announcing Our Expansion into the Northwest with the Acquisition of Aquastore® NW, Inc. of Donald, Oregon

On September 28, 2012, Engineering America announced that it has recently acquired the assets of Aquastore NW, Inc. of Donald, Oregon. Max Marcott, President and Principal owner of Aquastore NW, Inc., will continue to manage the construction field operations and Kendall Smith, National Sales Manager of Engineering America, will manage all sales activities for this newly acquired division of Engineering America.



Tony Belden and Max Marcott

Max Marcott commented, "This transaction with Engineering America allows continued successful long term service to our valued customers in Oregon, Washington, Idaho and Alaska, and meets both my personal and business visions for the future."

Engineering America is a 100% employee owned business, originally incorporated in 1980. The corporation is headquartered in Oakdale, Minnesota, and has regional offices in Colorado, Kansas, Arizona and now Oregon.

Together, Engineering America and Aquastore NW, Inc. look forward to providing excellence in service and products, while leveraging our combined strengths, talents and resources to better serve our clients.

"This merger of Engineering America and Aquastore NW, Inc. is an exciting opportunity for both companies. Several months of negotiations have resulted in a mutually acceptable agreement that allows strengthened overall sales, delivery, construction and service of CST brand tank and dome products to the customers of the Pacific Northwest region of the United States."

Tony Belden
President of Engineering America

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QUIZ CORNER

Due to a production error, the key printed with Quiz Corner in the Summer 2013 issue was incorrect. That Quiz Corner appears again here with a corrected key. We apologize for any inconvenience this error may have caused.

1. The threshold limit value concentration for chlorine vapor is _____.
A. 0.1 ppm C. 0.5 ppm
B. 0.3 ppm D. 1.0 ppm
2. Acids should never be added to chlorine solutions because they...
A. Cause chlorine gas to be released
B. Corrode or "eat away" the solution tank
C. Decrease the disinfecting properties of chlorine
D. Result in the formation of a chloride precipitate
3. Presently a Source Water Protection Plan through OAWU will cost a 250 connection system how much?
A. \$5.00 per connection or \$1250.00
B. \$0.50 per connection or \$125.00
C. No direct charges. It's a congressionally funded program through USDA – FSA
D. Flat fee of \$6500.00
4. In the world of Source Water Protection, what does BMP stand for?
A. Basic Metabolic Panel
B. File Image BitMaP
C. Best Management Practices
D. Bio Mechanical Process
5. What is the Drinking Water Standard for Nitrate?
A. "Blue Baby" disease C. Nitrite
B. 10 mg/L Nitrate – N D. Septic Tanks
6. Which is the largest zone in a conventional clarifier?
A. Inlet Zone C. Outlet Zone
B. Sludge Zone D. Settling Zone
7. What generally accounts for the greatest use of household water? (according to environment.nationalgeographic.com)
A. Washing machine C. Shower
B. Dishwasher D. Landscaping
8. How many gallons does the average washing machine use per load? (according to environment.nationalgeographic.com)
A. 8 C. 41
B. 25 D. 84
9. How many gallons of water are wasted in an average home each year due to leaky household pipes? (according to environment.nationalgeographic.com)
A. 3,000 C. 9,000
B. 5,000 D. 11,000
10. If 40 pounds of chemical are added to 120 gallons of water, what is the percent strength of the solution by weight?
A. 2.1% C. 5.2%
B. 3.8% D. 8.4%
11. What is the purpose of the Surface Water Treatment Rule?
A. Develop regulations for treating surface waters
B. Ensure that pathogenic organisms are removed and/or inactivated by the treatment processes
C. Identify appropriate locations for application of disinfectants
D. Remove turbidity from surface water
12. How many feet are in 1 mile?
A. 4260 feet C. 5280 feet
B. 4725 feet D. 6000 feet

ANSWERS

1-C, 2-A, 3-C, 4-C, 5-C, 6-D, 7-C, 8-D, 9-B, 10-D, 11-B, 12-C



Rex Lesueur,
Licensed Agent &
Consultant,
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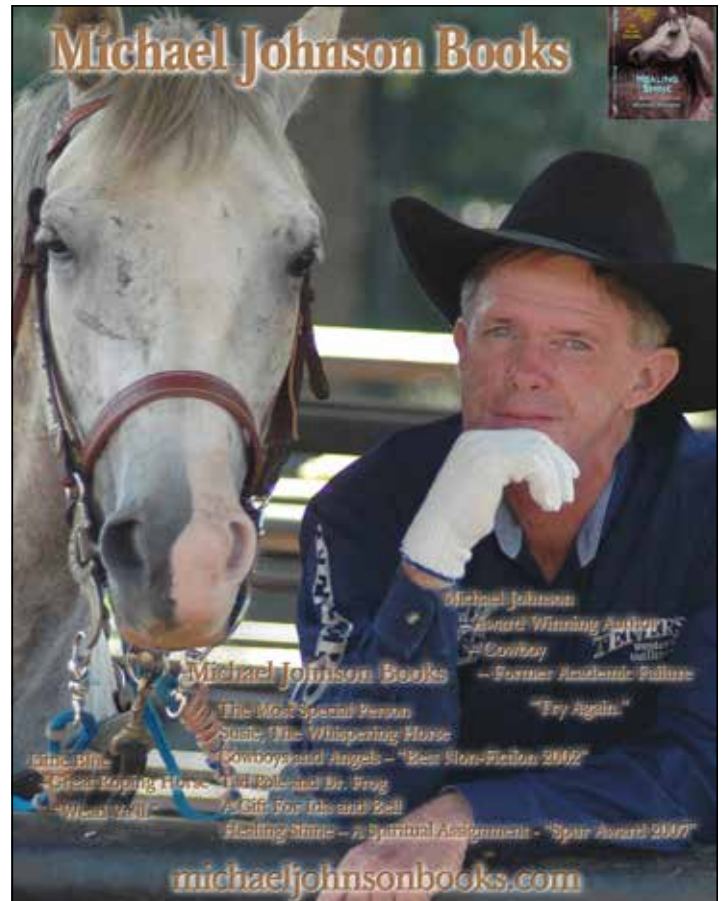
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Throwing My Loop by Michael Johnson



Need to Review Water or Sewer Rates? OAWU Can Help!

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OAWU has built a solid reputation for providing water and wastewater systems with factual, user-friendly, and defensible Rate Studies. Our rate studies, once implemented, have allowed many systems to obtain Capitol Improvement funding from various private and government lending agencies. An OAWU rate study can also provide a plan for systems to gain the capitol to "pay as you go" by outlining a strategy to maximize and streamline revenue and thereby allow water/wastewater system administrators to forecast projects that may be funded in-house. OAWU will provide you a professionally compiled rate study and supporting documentation that will allow you and your council or board to adopt new rates necessary to meet your system needs.

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System O&M Manuals Required

*Have you completed your
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Oregon Association of Water Utilities has prepared a full day class to assist operators in outlining an operations and maintenance manual per the Oregon Administrative Rule 333-061-0065 which requires each water system to develop an operations and maintenance manual.

This class will assist the water and wastewater system operator in outlining the specific points in developing the draft of the O&M manual. Step by step, each attendee will create their draft as it relates to their utility system during class. The e-file may then be completed back at the system office.

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

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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 + 28 cents per hookup
101 to 500	\$80 + 28 cents per hookup
501 to 1,000	\$90 + 28 cents per hookup
1,000 and up	\$100 + 28 cents per hookup
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MB13

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 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

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- On-site technical assistance
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- 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





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Alpine Water Company
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Amity, City of
Ananda Center at Laurelwood, Inc.
Arch Cape Service District
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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.
Big Spruce Mobil Home Park, LLC
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
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
Camp Tapawingo
Camp Yamhill
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
Cloverdale Sanitary District
Cloverdale Water District
Coburg, City of
Colton Water District
Columbia City, City of
Columbia Hills Homeowners Association
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 Co-Op
Crystal Springs Water District
Culver, City of
Dallas, City of
Dane Clark Water District
Dayton, City of
Dayville, City of
Deception Creek Mobile Park
Deer Creek Estates Water Assn.
Deerhorn Community Water Association
Depoe Bay, City of
Deschutes Valley Water District
Detroit, City of
Dexter Oaks Mobile Home Park
Dexter Sanitary Service
Diamond Peaks Tract 1355
Diamond Summit Association
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Gold Beach, City of
Gold Hill, City of
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Grants Pass, City of
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Heceta Water District
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Highland Water District
Hiland Water Corporation
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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
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John Day, City of
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Lark Meadows Water Association
Laurelwood Water User's Co-op
Lawrence Subdivision Water Association, Inc
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Lexington, Town of
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 Neskowin Regional Water District
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 Wasco, City of
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 Watseco-Barview Water District
 Wedderburn Sanitary District
 Weiss HOA, Inc.
 Welches Water Company
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 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
 Wickiup Water District
 Willamette Water Company
 Willamina, City of
 Wilson River Water District
 Wilsonville, City of
 Wi-Ne-Ma Christian Camp, Inc.
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 Wood Village, City of
 Woodburn, City of
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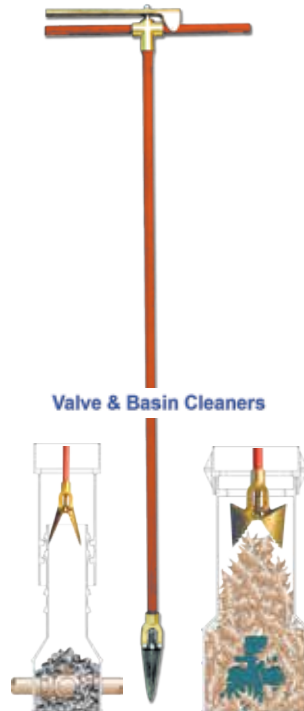


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