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61st Annual KWWOA Conference New Location—New Experiences!

KWWOA had held their Annual Conference in Louisville since 2010. While we love all that Louisville has to offer, we felt it was time to make a change. While change is nice, KWWOA is somewhat limited on where we can hold the Conference, due to the space we require for our exhibit hall and training rooms. Also, to keep the bids as competitive as possible, we do not have a fixed City rotation and always bid at least two years at a time. Many times our members make suggestions or ask why we don't go to a particular location, such as Lexington or Bowling Green. It isn't because these cities are being overlooked. There is always a "method behind our madness" for every location we select. For example, Bowling Green does not have a facility that will accommodate our current meeting room needs. Also, when we used to go to Bowling Green, we had to use multiple hotels, requiring attendees to drive in, which is somewhat inconvenient and requires extra parking spaces. While we always send a bid to Lexington, we have been told recently that as long as we have our Conference in March or April (which is before construction season for vendors and attendees), they will not bid on our event. These are two examples, but please know the KWWOA Conference Committee has countless items that must be factored in when selecting a Conference site, but ultimately it comes down to what venue offers the best value for our attendees, vendors and KWWOA.

This past April, our Conference was located at the Northern Kentucky Convention Center, Covington, Kentucky. While Convention

Centers are not normally our first choice of locations, Northern Kentucky has a unique advantage as multiple hotels are located across a street, that is smaller than most subdivision streets. In addition, there are four restaurants right across from the Convention Center and many are within walking distance, all of which offer delicious food and reasonable prices. If you don't like walking or want a little more variety, each attendee was given a two day Trolley Pass which runs a set route through Covington, Newport and Cincinnati and allows you to hop on & off, granting access to multiple restaurants and entertainment venues from bowling to concerts. While new to the area, it is evident that Northern Kentucky has much to offer visitors.

KWWOA will be back the Northern Kentucky Convention Center in 2019 too. Even though we will be back in the same location next year, attendees should not expect everything to be the same. The Conference Committee is already hard at work on Conference planning, as we want our attendees and vendors to get the most out of their time and money. We have already started planning technical sessions and social events, which will all be centered around the Exhibit Hall. One change for 2019 is that during the Sunday afternoon registration, a reception will be held in the exhibit hall which will provide attendees and vendors a little more time to talk & socialize, outside of the action packed training days. We hope as well to have other events that will bring all the conference attendees together as a whole, with activities that everyone can participate in and enjoy! No matter the location, you can always count on KWWOA to keep the focus on training and the needs of all our attendees.

Article Continued on Page 2



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Article Continued from Page 1

Darran Rankin, Conference Committee Chair, would like to personally thank everyone that made the 61st Conference a successful event. He also invites you to mark your calendar for April 14–18, 2019, so that you do not miss the 62nd KWWOA Conference!



Registration Lull after the Monday Morning Rush!

Keynote Speaker:
Former Commissioner
of the Dept. for Environmental
Protection, Aaron
Keatley



Looks like Wascon
has picked up some
new employees to
help Josh out!



Anthony Blevins with
Mt. Sterling says,
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61st Annual KWWOA Conference Picts



Kevin Stewart, KY DOW, shares information with the State's Lab Analyst.



Northern KY Water District Operators use their free time to talk with Exhibitors



Never pass up the opportunity for a good meal!!!!

Rest in Peace Jamie!

American Development and KWWOA recently lost a very dear friend and co-worker. Jamie Waid lost her battle with cancer on May 30, 2018. Jamie joined ADC in 2001 and played a crucial role in their success over the past 17 years. She had a beautiful smile that would light up any room. She was kind, gentle and unselfish. It was said that during her fight with cancer she walked with the world on her shoulders and made it look like a pair of wings. While she only graced this earth for 37 years, we are all better for knowing and loving her.

KWWOA sends our condolences to ADC and her family. Jamie was certainly one of a kind and will be missed by all!



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Amanda LeFevre

Director, Division of Compliance Assistance

In February of 2018, Amanda LeFevre took over the Director role at the Kentucky Division of Compliance Assistance which houses operator certification. Amanda has been with the division and the Department for Environmental Protection since 2006. She served in the Environmental Assistance Branch and as Assistant Director before moving into her current position.



Amanda, while not part of the certification program, has worked alongside the operator certification team for over 12 years and knows much about the community, its challenges and its needs. She wants bring positive attention to the profession and support operators by helping people understand their importance to our health and communities. Amanda also wants to work with stakeholders to better support the educational needs of the operator community.

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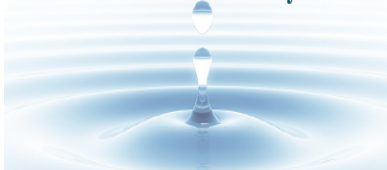
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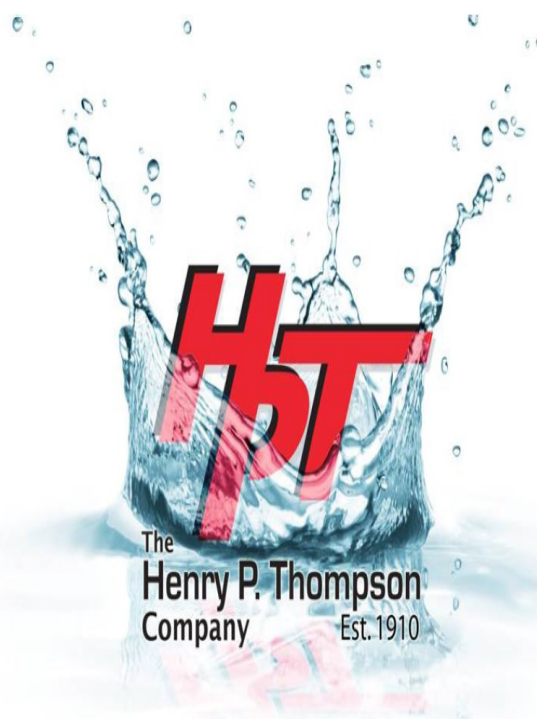
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Congratulations to the 2018 KWWOA State Award Winners!

J. C. Chambers Award James Poindexter Award Recipient London Wastewater Plant



James is a 25 year employee of the London Utilities Commission and has spent time in various positions within the company. Hired in 1993 to the maintenance crew, he worked in the WTP from 1998 till 2003 as an operator. He moved to the WWTP in 2003 and shortly thereafter he was named plant manager (chief plant operator). James currently has the following certification: Class IV-A DW Treatment, Class III-A WW Treatment, Class II-A Dist., Class III WW Collection and Land Farm Licenses.

He has worked with KSU the past 7 years with their Aquaculture Research program to reclaim decommissioned basins at the WWTP to be used as a fish culture facility.

He works part time for the City of Livingston assisting with their WTP and WWTP needs. He also runs package treatment plants at Levi Jackson State Park & Cornerstone Christian Academy.

James is an active member of the KWWOA and is doing double duty within the Eastern Chapter, as both the Vice-President & Wastewater representative.

Earl T. Mitchell Award Recipient Jeremy Woosley Grayson County Water District



Jeremy is in charge of Water Quality & Metering for Grayson County Water District. He oversees all water quality tasks of the Distribution System such as flushing and sampling. He supervises all meter reading, delinquent account collection, service order completions that refer to meters and the management of two employees.

Jeremy also is the GPS/GIS mapping coordinator and he fills in at the WTP when needed. He is an active member with KWWOA and serves as the Central Chapter's drinking water representative.

Jeremy holds the following certifications: Class IV-A Water Treatment & Class IV Distribution.

Eugene Nicholas Award Recipient Darran Rankin Paducah Water



Darran has been employed by Paducah Water for 26 years, where he currently serves as an Engineering Tech. Darran is a Class IIID operator and takes call within the Distribution System as needed.

Darran has been actively involved in KWWOA for over 20 years and has served at both the chapter and state levels. He is currently serving as the chairperson for the Conference Committee and the Secretary/Treasurer of the Western Chapter. By serving in these capacities, Darran has coordinated the development of many training sessions, including those of the KWWOA Annual Conference. As training is a major part of KWWOA's mission with operator's needing multiple CEU's, Darran has played a huge role in seeing that operators have access to quality training for certification renewal purposes.

2018 KWWOA State Award Winners Continued

Earl T. Mitchell Recipient - Awarded Posthumously Marvin Dossett Central City Water Treatment Plant



The KWWOA awards committee, while making its tour to interview award nominees, found out that Marvin Dossett, a nominee for the Mitchell award had recently passed away. Marvin was an operator at the Central City WTP. As a result, the committee made the decision to posthumously award the Earl T. Mitchell award to Mr. Marvin Dossett. Mr. Ron Mobley accepted in the award for his close friend and co-worker.

The committee and entire KWWOA family pass along our condolences to Mr. Dossett's family and friends.

2018 Drinking Water Plant Award Central City Water Treatment Plant Received by Ron Mobley



Ron Mobley accepted the award for Central City as KWWOA's Drinking Water Treatment Plant of the year. The Central City Water Treatment Plant is unique in that a major water purchaser was going to locate within their service area, so the plant needed to add capacity to allow for that growth. After all upgrades were in place, the new industry closed leaving the plant and system with too much treated water, therefore, allowing it to age and DBP levels to increase. Ron and his staff worked with KY Division of Water officials and consultants to determine and resolve the problems facing the system. With the assistance of the officials and some creative thinking, the plant and system were able to lower their water age and meet the strict requirements of the Stage 2 Disinfection Byproduct's Rule.

Central City has started its own operator apprenticeship program with their local schools to hopefully supply their future operator needs.

2018 Wastewater Plant Award Glasgow Wastewater Treatment Plant Received by Jacob Billingsley & David Huffman



Jacob Billingsley accepts the KWWOA Wastewater Treatment Plant of the year for Glasgow WWTP. The plant was originally built in 1962, with upgrades in 1977, 1993, 2012 and then another major overhaul that ended in 2015. The plant is rated for 4MGD biologically, with the capability to pump 10MGD with Clarifiers that will handle 7MGD a piece. The plant is an extended aeration facility consisting of 7 aeration basins and swing arm diffusion. An interesting addition to the plant was a 7MG EQ basin (which we were happy that it was empty when we visited). The in-house lab section of the plant also received an upgrade in 2016.

The plant is staffed by three Class IV, one Class II & two Class IV part-time operators. The Glasgow WWTP's in-house lab is certified and handles their weekly & monthly KPDES samples as well as surcharge samples for local industries. With the landfill being next door, the facility is afforded a short haul for sludge disposal.

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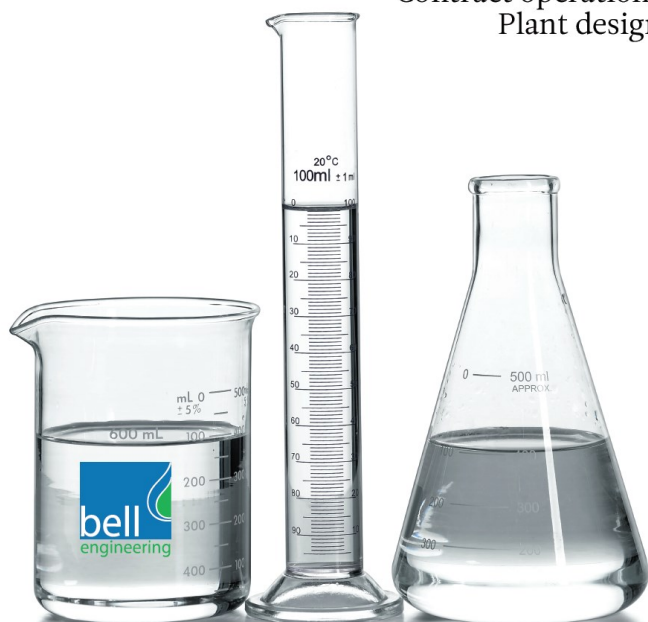
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WESTERN CHAPTER TRAINING & VENDOR SHOW

The Western Chapter's 19th Annual Training and Exhibit Show, May 8 & 9th, at the Kentucky Dam State Resort Park's Convention Center was another successful event, offering twelve (12) hours of continuing education to water and wastewater operators throughout the western part of Kentucky. I am very proud to say that this event has more than tripled in attendance since the very first training held in Paducah at the Robert Cherry Civic Center in June of 1999. This year's event kicked off with our Annual Monday Night Social & Vendor Appreciation Cookout at the KWWOA Cabin, where nearly 80 folks enjoyed a great night of fun, food, and fellowship. The exhibit hall was packed on Tuesday, with 31 vendors showing off their products and services to over 160 water & wastewater operators. In addition to the training and exhibit show on Tuesday, attendees networked during our Whole Hog BBQ Cookout at the KY Dam Pavilion during the lunch on Tuesday.



Some of the 31 vendors that Exhibited at KY



Dan Miklos with Hazen and Sawyer, provides a wastewater training class at KY Dam.

He looks a little scary, but he tasted GREAT!!!



Time for lunch!!!

During the Tuesday Luncheon, recipients were honored and received the following Western Chapter awards:

- Wastewater Plant Award - Hopkinsville Water Environment Authority's Oak Grove WWTP
- Water Treatment Plant Award - Central City WTP
- Wastewater Operator Award—Richard Baker
- Water Operator Award —Marvin Dossett (Posthumously)
- Educator Award—Darran Rankin



Leroy Adams accepts the Western Chapter's WW Plant Award



Ron Mobley accepts the Western Chapter's DW Plant Award



Richard Baker accepts the Western Chapter's JC Chambers Award.

The Western Chapter would like to thank each vendor that participated in this year's event, because without your support and sponsorship, the training would not be free to the membership and just wouldn't be as successful.

Mark your calendar now for next year's 20th Annual Training and Exhibit Show so you don't miss out. The dates are set for May 7 & 8th at

Back to Basics: Air Valves

By: John V. Ballun, P. E

Liquid piping systems are prone to the collection of air from the incoming fluid, pumps, and various connections, which can cause inefficiencies and serious operating problems. The purpose of this article is to explain how the various types of air valves operate in liquid piping systems. Everyone is familiar with an air release valve, which expels trapped air in a pipeline, but there are many other types of air valves with special functions, unique construction for wastewater, and sizes up to NPS 20. The proper selection and installation of air valves will safeguard your piping system from air-related problems.

GENERAL TYPES OF AIR VALVES

There are three basic types of air valves as defined in American Water Works Association (AWWA) Standard C512 for use in water and wastewater: Air-Release, Air/Vacuum, and Combination.

AWWA air valves are constructed of iron or stainless steel bodies with corrosion-resistant trim for water and wastewater service. It is important to note that these air valves have a different function than pressure and vacuum relief valves, which are installed on the top of gas or steam pressure vessels and liquid storage tanks to provide pressure relief and safety protection. Relief valves have set points designed to provide pressure protection and are beyond the scope of this discussion. The air valves presented in this article automatically control the flow of air or gases in and out of liquid piping systems at all operating conditions.

AIR RELEASE VALVES

Air release valves are probably the most widely used type of air valve and are characterized by their small orifices, weighted floats, and leverage mechanisms. The combination of these three features allow air release valves to expel air or gas at full operating pressure. But since air release valves have orifices that range in diameter from 1/16 to 1 inch, they have a limited capacity for admitting and exhausting air. You cannot expect to fill or drain a typical piping system using just an air release valve; it would take weeks. Air release valves automatically vent small pockets of accumulated air or gases as they accumulate in a liquid piping system. The air release valve mounted on the top of the pipe in Figure 1 automatically releases trapped air that accumulates in the top of the piping system.

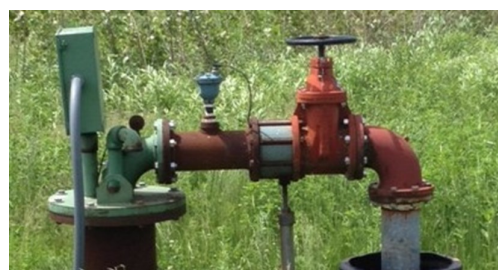


Figure 1: Air release valve on a golf course.

When installed, air release valves are “normally open” and expel air, see Figure 2. It is only when liquid enters the valve, that the float rises due to its buoyancy and seals off the valve’s orifice. Conversely, as air accumulates in the valve body, the float will drop due to its weight and reopen the valve. To reopen an air release valve under operating pressure, a mechanical linkage is needed to magnify the weight of the float and break the pressurized seal on the orifice. Even a 1/4 inch orifice will require 3.9 pounds of force to break the seal when operating at 80 psig and a typical 3 inch diameter air release valve float only displaces about 0.5 pounds of water. Hence, mechanical linkage is needed to multiply the weight of the float and the orifice diameter on air release valves are limited in size to reduce the breaking force needed.

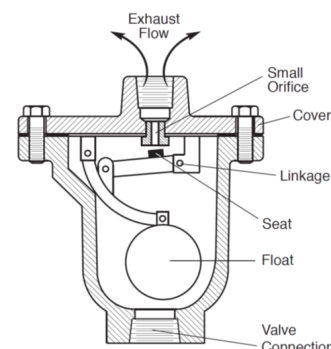


Figure 2: Construction of an Air Release Valve

AIR/VACUUM VALVES

The second type of air valve is the air/vacuum valve, which has a full-size orifice ranging from 1/2 to 20 inch and as a result, can exhaust large volumes of air. The valve also will admit large volumes of air to prevent a vacuum condition from occurring in the pipeline and to allow for draining. As shown in Figure 3, air/vacuum valves are normally open and a float in the valve rises with the water level to seal the large orifice after the air has been exhausted. Conversely, upon the loss of system pressure due to draining, line break, or column separation, the float will drop and allow air to re-enter the pipeline. It is important to note that under normal operation, the float is held closed by the line pressure and will not relieve accumulated air. These valves do not have mechanical linkage and because of the large diameter orifice, have no ability to open while the system is pressurized. Therefore, an air release valve is also needed to relieve air and gas during system operation.

One common application for air/vacuum valves is on the discharge of vertical turbine pumps because after shutdown, the piping between the pump and the check valve fill with air. When the vertical turbine pump is started, it rapidly lifts the column of water and the trapped air must be expelled before the water opens the check valve. An air/vacuum valve is perfect for this application because it can rapidly expel large volumes of air and close when fluid fills the air valve.

In Figure 4, an air/vacuum valve is piped to the top of the pump column so that when the pump is started, the air trapped in the pump column is expelled through the air/vacuum valve. The valve in the figure is equipped with a throttling device, which is an adjustable device mounted on the outlet of an air valve to control the exhaust flow rate. Since the pump can reach full speed in a few seconds, the throttling device is used to slow down the exhaust of air to prevent the water from rising too fast and slamming into the downstream check valve and causing a water hammer in the pump column.

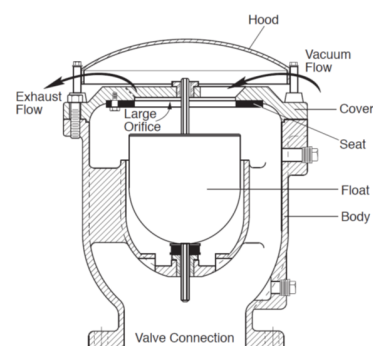


Figure 3: Construction of an Air/Vacuum Valve

Continued on page 15

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Article Continued from Page 13

Another common optional device for an air/vacuum valve is a slow closing device, especially for pipeline applications where column separation may occur. The purpose of the slow closing device is to close when high exhaust rates may occur and regulate the exhaust rate of the air valve so that the water column does not slam into the air valve and cause a water hammer or damage to the air valve. The slow closing device can be mounted on the inlet of clean water valves and on the outlet of wastewater air valves when column separation or vacuum conditions may occur.

As shown in Figure 5, the slow closing device has a disc that closes automatically when high air exhaust rates occur. The disc contains reduced ports that are typically 5-10% of the full orifice size. This is important when the valve is subjected to column separation or vacuum conditions in a pipeline. If the air valve location is subjected to a sudden vacuum pressure after a power outage and pump stoppage, the air valve will admit a large volume of air into the pipeline to prevent a vacuum. When the pipeline pressure returns or a pump is started, the slow closing device controls the exhaust rate of the air so that the water column slowly enters the air valve to prevent air valve damage and water hammer in the pipeline.

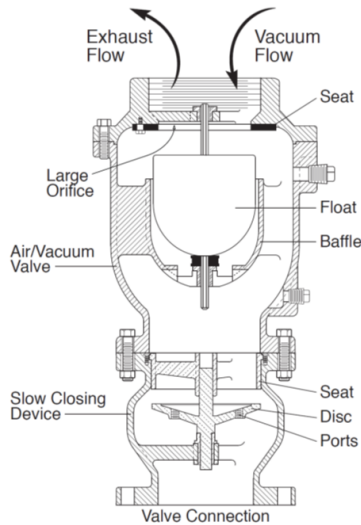


Figure 5. Air/Vacuum Valve with Slow Closing Device

COMBINATION AIR VALVES

The third type of air valve is the combination air valve, which combines the functions of both the air/vacuum and air release valves. A combination air valve can be furnished either as a single body design where a single body contains both air release and air/vacuum components or as a dual-body design, see Figure 6, where an air release valve is piped to the side of an air/vacuum valve. Both configurations perform the same functions, but the single body design can be more economical while the dual body design can provide design flexibility when sizing the orifices.

Article continued on page 16



Figure 4. Vertical Turbine Pump with Air/Vacuum Valve



Figure 6. Dual Body, Stainless Steel Combination Air Valve

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Article Continued from Page 15

Some piping designers use only combination air valves on a pipeline because all air valve functions are included and a mistake in field installation will not leave the pipeline unprotected. Other applications for combination air valves include pump discharge headers and upstream of flow measurement devices, see Figure 7. The combination air valve will automatically release air to improve the accuracy of the flow measurement device.

AIR VALVE LOCATIONS ALONG A PIPELINE

In general, air valves are installed on liquid piping systems to exhaust air or gases and admit air to prevent vacuum conditions and air-related surges. The AWWA Air Valve Manual recommends air valves at various locations including high points, long runs, adjacent to main line valves, downstream of pumps, and changes in pipe slope. Valve manufacturers provide online computer software to assist in locating and sizing air valves.

INSTALLATION

The installation of air valves is important to ensure their proper function (AWWA, 2016). The best results are achieved when the air valve is mounted directly on the top of the pipe. Unfortunately, some pipelines are located under roadways requiring the air valve to be mounted in a separate vault. In these cases, it is important that the connecting pipe be sized for the flow conditions and slope upward to the air valve. Further, extended air valve piping can have a multiplying effect on surges, so a transient analysis may be needed to evaluate this piping.

For maintenance purposes, all installations should include a shutoff valve under the air valve. Also, to help in collecting the air that travels along a pipeline, a riser pipe larger than the air valve inlet is recommended, see Figure 8. Also, a drain valve can be used to check the function of the air valve on an annual basis. If the drain valve expels air, then the air release portion of the air valve may require maintenance or repair. Otherwise, the air valve should be observed during a pump operation to verify that it is exhausting air and closing without excessive leakage.

Caution is required when inspecting or performing maintenance on an air valve. If the system is functioning, an air valve can release large quantities of air under vacuum conditions, which can cause bodily harm. Any maintenance on an air valve requires that the shutoff valve under the air valve be closed. But even with the shutoff valve closed, pressurized air can be trapped in the air valve. Use caution to vent the air through a drain valve or pipe plug before removing the air valve cover.

Wastewater air valves can be subject to clogging due to the collection of greases, grit, and solids in the valve. These valves should be equipped with elongated bodies, sloped bottoms, a minimum of a 2 inch inlet, and smooth coatings for best performance. Depending on the service, a backwash kit can be added to the valve to facilitate maintenance. As shown in the example in Figure 9, a backwash operation can be performed by 1) closing the isolation valve, 2) connecting the blow off valve to a drain and open and 3) supplying water for several minutes using the water hose to flush out the valve. Some air valves may have a 2 inch cleanout for large debris or multiple ports on the top of the valve to flush.

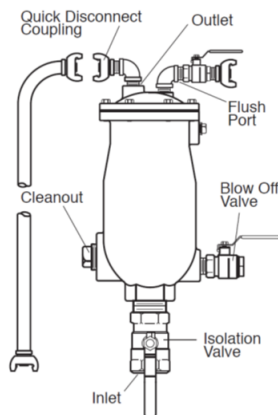


Figure 9. Wastewater Air Valve Backwash Kit

SUMMARY

When air is allowed to accumulate in pressurized pipelines, efficiency is sacrificed and serious system damage can occur. By having an understanding of the various types of air valves, system designers can better select and install air valves for the protection of liquid piping systems.



Figure 7. Single Body Combination Air Valve upstream of a Flow Meter

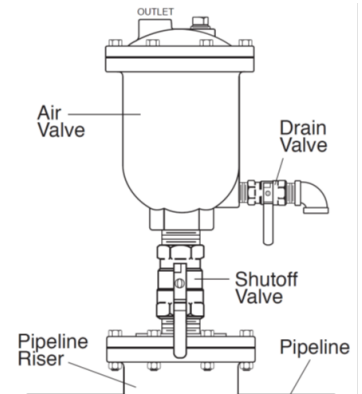


Figure 8. Air Valve Installation on a Pipeline



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References: 1. AWWA, VALVE Magazine, "Why Air Valves are Needed in Water Applications", Spring, 2017, pp. 32-34.

2. AWWA, C512-2015, "Air Release, Air/Vacuum, and Combination Air Valves for Water and Wastewater Service".

3. AWWA M51, 2nd ed., "Air Valves: "Air Valves: Air Release, Air/Vacuum, and Combination", 2016.

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KWWOA 2018 TRAINING & EVENT SCHEDULE

Chapter	Date	Training Cost	Location of Training	Type of Training*	Hours*
Central	Sept. 24-25	Free—KWWOA Members \$100.00—Non-Members	Rough River State Resort Park Falls of the Rough, KY	Water and Wastewater	12
Central	Sept. 24	\$60 per golfer	Lafayette Golf Club Falls of the Rough, KY	Central KWWOA Golf Scramble	N/A
Western	October 18	Free—KWWOA Members \$75.00—Non-Members	Murray Sate Uni. Reg. Campus Hopkinsville, KY	Water & Wastewater	6
Central	October 25	\$100—KWWOA Members \$150—Non-Members	Brooks Electric Brownsville, KY	Motor Controls Workshop (Multi-meter given to all attendees)	6 DW & WW
Eastern & North Central	Oct. 23—25	\$40—KWWOA Members \$125—Non-Members	4 Points by Sheraton Lexington, KY	Water and Wastewater	18
Eastern & North Central	Oct. 24	\$150 per booth	4 Points by Sheraton Lexington, KY	Exhibit Show	N/A
Eastern	Nov. 15	Free—KWWOA Members \$75.00—Non-Members	Mayesville Comm. Tech. College Morehead, KY	Water and Wastewater	6
Central	December 6	Free—KWWOA Members & a Guest	Mammoth Cave Natl. Park Mammoth Cave, Kentucky	Holiday Dinner & Awards	N/A

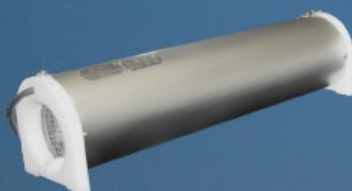
*It is the intent of the KWWOA to solicit the KY Division of Compliance Assistance and Boards of Certification for approval of the hours and training type referenced above prior to the class. If these hours are needed for renewal, you should inquire ahead of time as to whether approval has been received.



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—Please check the appropriate boxes and print clearly—

Refer to the list of counties on our website at www.kwwoa.org, to determine which Chapter serves your area.

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☐ - Central

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Where would you prefer to receive KWWOA information/training announcements ? ☐ - Home ☐ - Business

If a valid email is provided, it will be utilized to ensure that you receive KWWOA information more quickly.

NOTE: Associate Members should not use this form. Associate Membership Applications may be found at www.kwwoa.org.

Active Operator Membership ☐ **Postmarked March 1, 2018 & after** **60.00**

Active membership is designed for those who actually hold a valid water or wastewater license and/or who are employed in a water or wastewater utility. This includes administrative staff, pretreatment and/or lab technicians as well.

☐ **Honorary Membership**.....**Free**

Honorary membership is designed for those who are retired from the water or wastewater field and held an active membership in the KWWOA during the previous calendar year. There is no fee for Honorary membership.

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This fee is in addition of the Active Membership fee above.

TOTAL _____

Please forward this application and a check or money order, payable to **KWWOA**, to the address below. You may also elect to renew online, paying through PayPal at www.kwwoa.org.

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