IN THIS ISSUE

ASPE American Society of Plumbing Engineers™ BALTIMORE

MEETING FORMAT

6:00 - 6:30	Social
6:30 - 6:45	Announcements & Table Tops
6:45	Dinner Served
7:00 - 8:00	Presentation

DATE:	March 22, 2023
TIME:	6:00pm to 8:00pm
PLACE:	Olive Grove Restaurant
TOPIC:	Fire Pumps
SPEAKER:	STH

Register Today

Olive Grove Restaurant & Lounge
705 N. HAMMONDS FERRY ROAD, LINTHICUM, MD 21090
PHONE: 410-636-1385

ASPE CHAPTER AWARD OF MERIT Recipient 2021-2022

Local Chapters are not authorized to speak for the Society.
Newsletter questions? Please contact Nikita Patel

ASPE Baltimore Board of Directors

President
Charles J. Swope, PE, CPD, LEED AP B+C
Mueller Associates
president@baltimoreaspe.com

Vice President- Technical
Julian Chiveral, LEED AP BD+C
Mueller Associates
Julian.Chiveral@gmail.com

Vice President- Legislative
Christopher Imhof, PE, CPD
WSSC
Christopher.Imhof@wsscwater.com

Vice President- Affiliate, Scholarship
Jason J. Eagles
Bay Associates Group
Jason@bayassociates.com

Treasurer
Kathleen Dwyer-Stephens
EJ Dwyer Company, Inc.
KDwyer@ejdwyer.com

Vice President- Membership
Brian Crisp, CPD
Johnson, Mirmiran & Thompson
BCrisp@jmt.com

AYP Liaison | Education Chair
Nikita Patel, PE
Sherman Engineering Company
npatel@shermanengineering.com

Women of ASPE- Liaison
Karen Schulte, PE, CPD
Mueller Associates
KSchulte@muellerassoc.com

Corresponding Secretary
Matt Obenchain, PE
Min Engineering, Inc.
Matt.Obenchain@minengineering.com

Administrative Secretary
Jay Otto
Otto Sales
JayOtto@ottosales.com

Historian
Jeffrey Edwards, CPD, GPD
Retired
JWEdwards33049@gmail.com

Newsletter Advertising

- As a paid advertiser, you will have your advertisement in the newsletter for one full year (9 editions) and company logo displayed on the Chapter website.
- Ads for the year will begin in the September issue and run through the May issue.
- All ads must be paid in full prior to the advertisement being included in the newsletter.
- Advertiser must provide ads in high resolution PDF format. Logo must be provided in .jpeg format, 200px wide size
- Cost per advertisement is as follows:
  - Full Page $ 750.00
  - Half Page $ 500.00
- Please contact Nikita Patel or Chuck Swope
- Make checks payable to Baltimore Chapter of ASPE. Please contact the Chapter Treasurer with any questions.

ASPE
American Society of Plumbing Engineers™
BALTIMORE

Chuck Swope, PE, CPD, LEED AP BD+C
Chapter President

The President's Report

We have a lot of exciting presentations to pack into the last half of our season! I'd like to highlight our upcoming events, like our golf outing, Joint Event with the Local 486, Spring AYP Event, not to mention our regular meetings. Please check out Julian and Niki's articles for more information on our regular meeting and AYP events, respectively. As for our golf outing, Dave Goodell and our team are marching forward with a 4/28 event date, so please save the date. We're going to bring the glory back, complete with bragging rights! There will be trophies, swag, and potentially a whiskey tasting.

If you been to a recent meeting, you may have heard me talk about our Joint meeting with the Local 486 Plumbers and Steamfitter's Union. I am very proud of the work that we've put in and we've got a new spin to add to our previous program. In addition to our hands on event where we demonstrate cast iron piping joinery, Medlok fittings, and the transition from mechanical to digital plumbing controls, we are also introducing Case Study Discussions! That's a mouthful! The case studies will be presented by BJ Allen from Warfel Construction, Kathy Dwyer from E.J. Dwyer and Co., and Niki Patel from Sherman Engineering. They will be discussing the importance of communication, benefits of gas safety equipment, and value *added* specs.

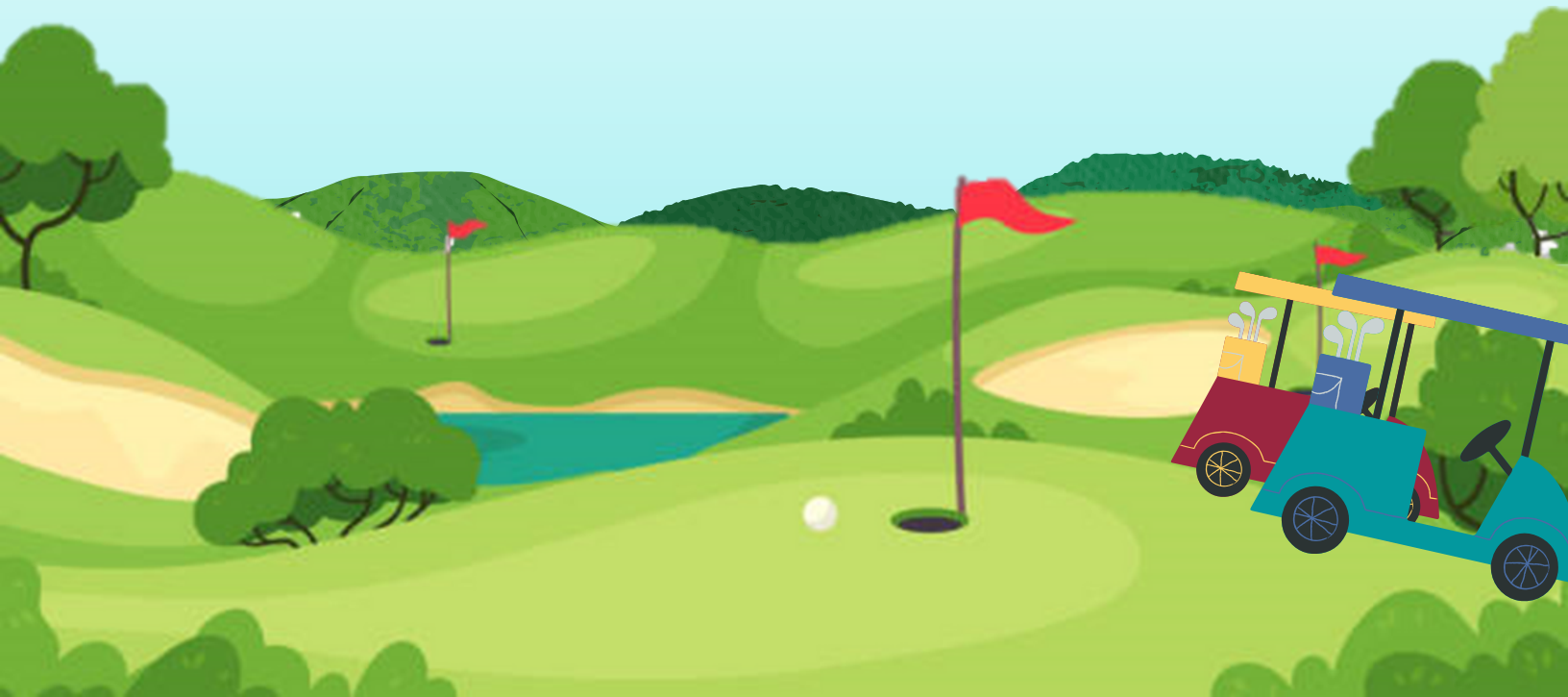
In legislative news, WSSC (Montgomery and Prince George County) has officially adopted the 2021 editions of the International Plumbing Code and International Fuel Gas Code (with amendments), effective April 1, 2023. An interesting choice of date for sure, but no less binding. Please refer to Chris Imhof's VP Legislature article for more information.

(continued on the next page)

Later this season in June, Julian and I will attend the ASPE Presidents Summit in Rosemont, IL, at the official Headquarters of ASPE. In lieu of having individual region meetings for our chapters, Presidents and VP Technicals from every chapter will gather to share the successes and tribulations with each other. As we all know, a rising tide lifts all ships, and Baltimore knows it's maritime traditions well.

Here's some interesting statistics that came up during our March Region 1 call:

ASPE total membership is over 6,850 and Region 1 has over 1668 people, the largest in the nation. Baltimore isn't the largest chapter, sitting at 129 Members, but we are one of the fastest growing. We are #1 in the nation for having the most members with both their PE and their CPD, so I can confidently say that we are a very well educated group. Baltimore also currently has 37 members with their CPD, putting us at #5 out of 68 chapters. This number is sure to grow, no small thanks goes to Dave Bailey for presenting his well attended CPD review classes and the EJ Dwyer Company for hosting them.



ASPE
BALTIMORE CHAPTER
GOLF OUTING and COOKOUT

Friday, April 28, 2023
The Timbers at Troy
Columbia, Maryland
$125 / Golfer

- Prizes for Team Play
- Door Prizes
- Longest Drive Prizes
- Closest to the Pin Prizes

SCHEDULE

7:30 AM	Registration/Check-In/Breakfast
8:30 AM	Shotgun Start Scramble Format "Captain's Choice" Mulligans Available
1:30 PM	Cookout (Hamburgers, Hot Dogs, etc.)
2:00 PM	Awards & Prizes

Sponsors and Participants, please contact/return registrations to:

David K. Goodell
dgoodell@jamesposey.com
James Posey Associates
Suite 310
11155 Red Run Boulevard
Baltimore, MD 21117
Phone: (410) 265-6100

You can register and donate directly through our website this year!

You can still register via the website and pay by check, just register electronically and choose "Bypass Payment". Then, send a check and a note to Dave at the address to the left.

Make checks payable to ASPE Baltimore Chapter.
Reservations will be confirmed when check and participant information is received.

PLEASE RETURN COMPLETED FORMS BY APRIL 14, 2023

Company _____

Name _____ Phone No. _____

No. of Golfers: _____@ $125 each

Sponsorship Level: _____

Total for Golfers: $ _____

Total Sponsorship: $ _____

Total Amount: $ _____

2023 ASPE Baltimore Chapter Golf Outing Sponsorship Levels

- **Tee Marker (with Foursome)** **$125.00**
- **Tee Marker (without Foursome)** **$150.00**
- **Drink Cart Sponsorship** **$600.00**
  (Includes tee marker and drink cart sign)
- **Cookout Sponsorship** **$600.00**
  (Includes tee marker and cookout sign)
- **Cart Sponsorship** **$600.00**
  (Includes tee marker and cart signs for each cart)

All proceeds from the Golf Outing will benefit future Chapter events and activities.

Please make checks payable to: **ASPE Baltimore Chapter**

Mail registration and payment to:

James Posey Associates

Attn: David K. Goodell

11155 Red Run Boulevard

Baltimore Maryland, 21117

ASPE YOUNG PROFESSIONALS

ASPE American Society of Plumbing Engineers™

BALTIMORE

Nikita Patel, PE
(Region 1) AYP Liaison | Education Chair

Education Report

Engineers' Week

Last month, a few of our chapter members had the opportunity to serve as panelists to answer career questions for close to 60 students from three different high schools. Our panel included a variety of roles in the Plumbing profession, including Sales, Product Engineering, Design Engineering, Trades, etc. Thanks to Jason Eagles, Chris Imhof, Kathy Dwyer, Julian Chiveral, BJ Shrader, Matt Morris, Vince Burrall (UA486), Chuck Swope and Jay Otto.

Something I really enjoyed seeing was how excited these students were to share what they were learning with us. They are learning Revit, Civil Engineering, Electrical Engineering, and so much more.

Joint ASPE/UA486 Event

I am also excited to share we have officially opened our joint event up for registration. Please tell anyone you know who might be interested in learning more about Plumbing Engineering and Trades. As Chuck mentioned in his report, we are adding a second track to our annual hands-on training. This year, we will have hands on training, including cast iron pipe joining methods; copper brazing, soldering and pressing; medical gas fittings and pipe, and demonstrations on digital mixing valves. Let's take a moment to thank our event sponsors: Tyler Pipe, McWane Plumbing, Copper Alliance, Sherman Engineering and Otto Sales with Leonard.

In addition to these sponsors, we will have three speakers covering the following topics:

1. Communication between key players during stages of a project by BJ Allen with Warfel Construction.
2. Specifying gas safety equipment for various applications by Kathy Dwyer of E.J. Dwyer Co.
3. Pitching Value Added specs, not just cost effective specs by yours truly.

Come on, come all, and bring an Engineering friend with you! Dinner will be provided, but we won't start opening adult beverages until all flames have been turned off and all tools have been put away.

Although we have plenty of activities planned, we only have two hours, so you will be asked to select only one of the two tracks to attend. Choose carefully, but don't worry about FOMO. We plan on holding this event for many years!

ASPE Tech Symposium

The ASPE Tech Symposium Committee has begun planning what is sure to be a great few days for Engineers in WA later this year. The call for presentations ended last week, and I'm sure attendees will have a wide array of topics to learn from.

Who is this event for?

Anyone working in various professions related to plumbing system design:

- Plumbing Engineers/Designers
- Mechanical Engineers/Designers
- Sales Engineer
- Estimator
- Sales Reps.
- Applications Engineer
- Technicians
- Master Plumbers
- Specifiers
- Consultant

Technical Sessions

Friday, September 29 // time
Saturday, September 30 // time
Sunday, October 1 // time

ASPE's Tech Symposium features professional development sessions designed to help plumbing industry professionals at all career levels learn new skills or refresh their design repertoire. Each session is taught by an expert in the field and offers 0.15 CEUs that can be used for license and certification continuing education requirements.

The complete technical education session schedule will be released in early summer.

2-Day Product Show

Thursday, September 28 // 4:00 p.m. – 8:00 p.m.
Friday, September 29 // 9:45 a.m. – 1:15 p.m.

The 2023 ASPE Tech Symposium Product Show is a unique chance for you to have one-on-one face time with the manufacturers who make the products you specify. It's an excellent chance to get your product questions answered by the experts and possibly even influence future product designs. Join your peers, grab a drink, and enjoy a bite to eat at this engaging two-day event.

All 2023 ASPE Tech Symposium sponsors will be exhibiting at the Product Show.

You're Invited!

JOINT EVENT

ASPE American Society of Plumbing Engineers BALTIMORE

PLUMBERS & STEAMFITTERS Local 486 BALTIMORE, MD

THIRD ANNUAL

JOIN OUR SPEAKERS AS THEY LEAD THREE CASE STUDY DISCUSSIONS

BJ Allen
Warfel Construction

With his years of experience in MEP consulting and healthcare construction, join BJ as he discusses the importance of communication throughout the various stages of a project.

Kathy Dwyer
E.J. Dwyer and Co

It doesn't matter what type of building you're working in, health and safety is always important! Join Kathy while she discusses various types of gas safety equipment and the benefits of each one.

Nikita Patel
Sherman Engineering

Writing specs for Engineers is a daily task for Nikita, but one thing never changes. The customer usually wants the lowest cost options. Join her for a discussion on value ADDED specs and how to implement them.

JOIN US
THURSDAY
APRIL 6
5-7 PM

Join Laura Loziuk, Northeast Regional Sales Manager at Tyler Pipe and Coupling, and BJ Shrader, Regional Manager Technical Services at McWane Plumbing Group as they provide a hands-on training experience for joining cast iron pipe. This is a great demonstration for new, and seasoned industry professionals.

Join Harold Moret, Project Manager at Copper Alliance (left) for a demonstration on copper joining methods, including soldering, brazing, and press-to-connect. Then, go to Jesse Myers, Service Director at Sherman Engineering (right), for a demo on NFPA 99 approved MedLok fittings and Meditrac tubing.

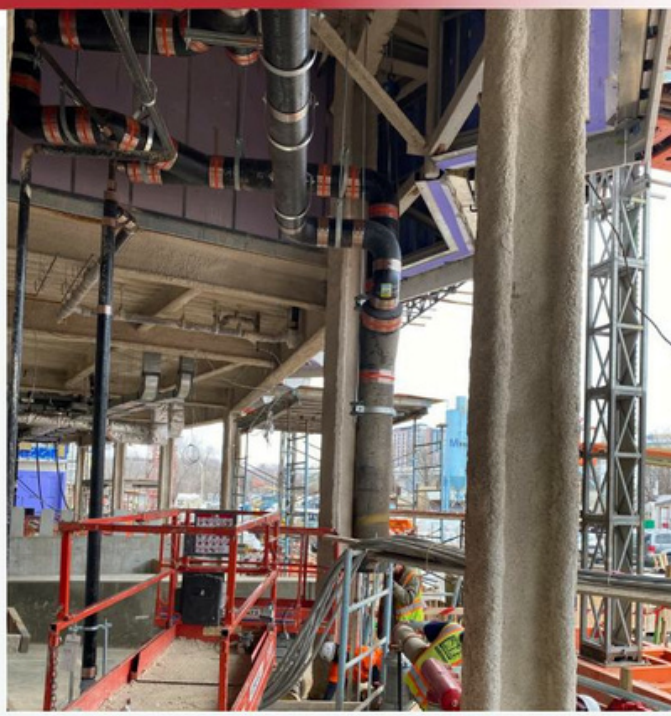
Owen Murphy. Technical Sales Engineer at Meditrac (left), and Don Levengood, Business Development Manager at MedLok (right) will be assisting Jesse for these demonstrations and will be available to provide credentialing exams to any ASSE 6010 Installers during the demonstration.

Jacob Otto, left, and Joey Adams (right), both handle outside sales for Otto Sales and will be joined by Leonard Water for a demonstration on digital mixing valve installations, piping, and operation. They will also share cleaning and disinfection tips.

JOIN OUR TRAINERS AS THEY PROVIDE HANDS ON PRODUCT DEMOS

JOIN US
THURSDAY
APRIL 6
5-7 PM

SUPPORT FOR ASPE BALTIMORE

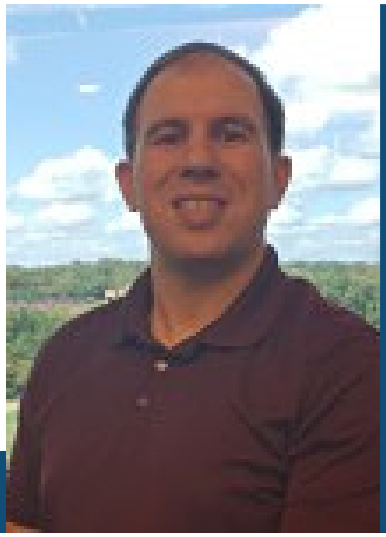


Mueller Associates practices and promotes the link between good quality plumbing, health, environmental sustainability, and economic prosperity.

Mueller

Mueller Associates
1306 Concourse Drive, Suite 100
Linthicum, MD 21090
www.muellerassoc.com
410.646.4500

ENGINEERING GREAT EXPERIENCES



WSSC WATER
DELIVERING THE ESSENTIAL

CHRISTOPHER IMHOF, PE, CPD
Technical Standards
Engineering Manager
Regulatory Services Division

Office: 301.206.8514
Cell: 540.230.4664
christopher.imhof@wsscwater.com

14501 Sweitzer Lane
Laurel, MD 20707
wsscwater.com

ASPE
American Society of Plumbing Engineers™
BALTIMORE

Chris Imhof, PE, CPD
Vice President- Legislative

Legislative Report

WSSC Water to Amend WSSC Plumbing and Fuel Gas Code

WSSC Water has approved a resolution to amend and update Chapter 14.25.010 of the WSSC Code of Regulations, the WSSC Plumbing and Fuel Gas Code (Code). The Code, which relates to regulations for plumbing, gasfitting, sewer and drain cleaning, site utility work, cross-connection control, and industrial and special waste, has various proposed changes or amendments. This edition of the Code shall be known as the 2021 WSSC Plumbing and Fuel Gas Code. The Code adopts, with amendments, the 2021 editions of the International Plumbing Code and International Fuel Gas Code.

The 2021 WSSC Plumbing and Fuel Code will become effective April 1 and may be viewed on the WSSC Water website at: wsscwater.com/codebooks

For additional code-related information, contact Technical Standards Engineering Manager Chris Imhof at christopher.imhof@wsscwater.com or 301-206-8514.

I will also be presenting at the May 24, 2023 Baltimore ASPE Meeting.

Chris Imhof, PE, CPD
Vice President – Legislative

HUSKY
HEAVY DUTY COUPLINGS
Est. 1982

The Best-Selling Heavy-Duty Coupling in America is Now

EVEN BETTER

- .028" thick bands for higher torque
- Wider straps for more band load coverage
- Wider shield for better clamping force
- Made in the USA

The Highest & Most Efficient Design on the Market

Learn more at Anaco-Husky.com.

ASPE
American Society of Plumbing Engineers™
BALTIMORE

Julian Chiveral, LEED AP BD+C
Vice President- Technical

Technical Report

Greetings fellow members of the American Society of Plumbing Engineers,

March has arrived, and with it comes a change in season and an opportunity for new beginnings. As we prepare for warmer weather and longer days, let's take a moment to reflect on the unique qualities that make March in Baltimore so special. From the annual St. Patrick's Day Parade to the blooming cherry blossoms in Patterson Park, there's always something exciting happening in our vibrant city. My favorite part of March in the city has always been our ASPE meetings.

On a more serious note, I would like to extend a heartfelt thank you to all those who attended our previous monthly meeting. I would also like to express my gratitude to Ken Isman, Professor of Fire Protection Engineering at UMD, for his engaging and informative presentation on preliminary sprinkler design. It was an excellent opportunity for all of us to learn more about this critical aspect of Plumbing Engineering, and we are grateful for Ken's expertise.

Looking forward to our next monthly meeting, I am excited to announce that the topic will be Fire Protection Part II: Fire Pumps. We will be joined by folks from STH Inc, who will share their knowledge and experience on this important subject. Fire pumps are essential in ensuring the safety of buildings and their occupants, and I look forward to learning more about their design, installation, and maintenance.

As always, our meetings are a valuable opportunity for members to network, learn, and share ideas. I strongly encourage all members to attend and participate in the discussion, and bring a friend from work! Your input is invaluable in shaping the direction and focus of our organization, and I look forward to seeing everyone on the 22nd.

In closing, I wish you all a happy and productive month of March. Let's continue to work together to advance the field of Plumbing Engineering and ensure the safety and comfort of those we serve.

Julian Chiveral, LEED AP BD+C
Vice President - Technical

Where Does the Fire Protection Water Go?

A potential exists for liabilities associated with its discharge, so make sure to develop a plan for containment, drainage, and possibly treatment.

December 5, 2022; By: Dwight Havens

I believe it is proper to start with a disclosure: I am not an environmental engineer. I am a retired fire code official, fire protection engineer and firefighter who has had to deal with some of these issues. Over the years, I have become more aware of what is or may be in fire protection water. These opinions are my own and are not associated with any of the organizations I am involved with.

It is safe to say that the era of discharging fire protection water without considering the other "stuff" that may be in it is changing. Even the discharge of potable water back to the environment may be regulated and require testing and possibly treatment.

This is not a surprise to the people who work in the water treatment and wastewater industries. The discharge of water to the environment may be regulated by federal, state or local governing regulations; a National Pollutant Discharge Elimination System permit; waste discharge requirements established by the jurisdictional water quality control board; sewer pretreatment requirements for publicly or privately owned treatment works; and possibly others.

From a fire protection standpoint, the most public and concerning example of this is the findings of perfluorooctanoic acid and perfluorooctyl sulfonate in local drinking water wells.

These chemicals have been widely used by industry, but specific to fire protection and fire safety, they have been used to manufacture aqueous film-forming foam concentrates used in firefighting and in the process of producing fire retardant materials (see August 2020 Plumbing Engineer (https://bit.ly/3suGCit) and Fall 2022 NFPA Journal (https://bit.ly/3DBU4Y2)).

Other chemicals having a long history of use in fire protection systems include anti-freeze solutions. These are provided to prevent freezing in sprinkler system piping located in areas of buildings, or external to buildings, where the piping is subject to temperatures less than

40 F. Other chemicals routinely used in water treatment, such as chlorine, may have long-term effects on sprinkler piping, particularly increasing internal corrosion and, thus, changing the character of the water in the system.

These chemicals typically cannot or should not be discharged into the environment without a review by the governing environmental regulators, who may require some method of treatment to mitigate their presence. It is not always chemical substances in the water or in the piping that may be cause for treatment. For example, in New York, a site's State Pollutant Discharge Elimination System permit may regulate many issues, including the temperature and turbidity at the point of discharge into a body of water.

More recently, questions about the environmental impact of all the substances entrained in fire protection water during and after a fire have been raised (LinkedIn article, https://bit.ly/3sQDtK2). Of course, some fire protection standards — such as NFPA 30, Flammable and Combustible Liquids, and NFPA 400, Hazardous Materials — have had requirements for the containment of fire water from fires in storage occupancies for quite a while.

What Do We Need To Know?

This is the start of a process to understand what regulations apply to the various ways that fire protection water gets discharged to the environment. These concerns and possible actions to address them will vary depending on the location of the facility.

Knowing and understanding the requirements can be challenging, as the discharge of water with anything in it but water may be regulated by federal, state and local requirements either generally or specifically due to the nature of individual facilities. The purpose of the following questions is to help work through the process of knowing and understanding the requirements:

- Who is responsible for answering these questions? As facility owners, operators, engineers, designers and regulators, we have an obligation to know the requirements applying to the discharge of water (or water solutions), and ensure that the design, construction, operation and maintenance of the fire protection systems for which we are responsible complies with those requirements.

- What is the water supply providing fire protection? Water for fire protection can be taken from many different sources. It can be raw water from open sources (streams, rivers, ponds, lakes or oceans), it can be raw water from closed sources (wells), and it can be treated water (potable or greywater) from public or private sources. Where the fire protection water is coming from and what is in it coming into a facility may influence when, where and how it may be discharged back into the environment.

- How will it be modified prior to use? Required modifications may depend on the source or its intended use. Modifications may include filtering or treatment before storage. They could include the need to provide primary backflow prevention between a potable water source and the nonpotable water found in fire protection systems after it has entered a nonflowing portion of the system.

This could also include the installation of secondary backflow prevention between the nonpotable water in the fire protection system and other portions of the system containing chemical treatments, such as an anti-freeze solution.

- How will it be modified during use? This question is intended to capture changes such as education or injection of firewater modifiers. For example, the addition of foam concentrate used in expansion foam systems (see NFPA 11, Standard for Low-, Medium- and High-Expansion Foam).

- When and how will it be discharged? This question relates to the system's purpose and design. The answer will determine many of the design aspects for handling the fire water, including what, if any, infrastructure needs to be added to the facility to ensure environmental compliance is maintained.

Examples of these would be consideration of the discharges due to flushing of supply piping during installation, and system discharges required when performing inspection, testing and maintenance (ITM). It may also include discharges due to system operation during a fire and the use of hose streams during manual firefighting operations.

How will the firewater be modified during or after it is discharged?
This question would include how the water would be changed once discharged. For example, during installation, flushing of the mains would be expected to pick up dirt, small rocks and debris that the flushing is intended to move out of the pipe, as noted in NFPA 24, Standard for the Installation of Private Fire Service Mains and Their Appurtenances. (See May 2022 Plumbing Engineer (https://bit.ly/3f3OLHC); and September 2022 Plumbing Engineer (https://bit.ly/3fabKk8).)

Where will it be discharged to?
This question takes us back to the governing regulations, which ultimately determine what you can do based on what is in the water that is being discharged. How much is being discharged? Where can it be discharged to? Does it need to be collected? Does it need to be treated before final discharge?

Will the fire water be discharged to the ground, pavement, drainage system, sanitary sewer, a holding area or a body of water? Once there, where will it go? Find out what the regulations say about discharging on the ground, to the pavement and so forth. Planning needs to incorporate these requirements.

Who is the regulating authority?
It has already been mentioned that the discharge of water to the environment may be regulated by federal, state or local governing regulations; a National Pollutant Discharge Elimination System permit; waste discharge requirements established by the jurisdictional water quality control board; sewer pretreatment requirements for publicly or privately owned treatment works; and possibly others.

Some of those others may be the jurisdictional code officials. Jurisdictions using either the NFPA building and fire codes or the ICC codes adopt requirements that include containment and drainage restrictions on fire water in certain circumstances. These code authorities (authorities having jurisdiction) need to be engaged early in the design process for new facilities or modifications to existing facilities to ensure the requirements for managing fire water are included

The Devil Is In the Details
The preceding paragraphs provide a big-picture view of what needs to be known and understood to ensure that environmental considerations for the discharge of fire water are included in the planning. Developing a plan requires concentrating on the details. These details would be expected to influence the type of fire protection systems installed and the means for dealing with the discharge.

Knowing how much fire water will be discharged in each scenario and where the discharge will be directed are the biggest details to be considered. This provides the scale of the need. Knowing what is in, or might be in, the fire water also is important. This knowledge will determine the need for treatment or other options to allow the fire water to be discharged and where the discharge will occur.

Treatment options for fire water are facility- and process-specific and are beyond the scope of this column. However, providing an idea of how much fire water may be involved under what circumstances should be useful to the reader. Quantities will still vary based on the specifics of the facility and need to be validated as a part of the facility design, but the following discussion will provide approximate methodologies for determining discharge amounts.

So, how much water are we talking about? It depends on the situation. Since most fire protection systems never face the challenge of an actual fire, most of the water discharged during the lifetime of a fire protection system is discharged during installation and required ITM. For any particular facility, this will depend on the type of system or systems present.

Discharges from automatic fire sprinkler systems, standpipe systems, special hazard systems (such as foam), underground fire lines, fire pumps and any associated backflow prevention assemblies would be possible sources of water or water-based agent discharge (see January 2021 Plumbing Engineer, https://bit.ly/3THSNo3).

Installation
When water-based systems and the infrastructure necessary to support them are installed, the requirements for testing those systems or components will be found in the associated installation standards. The commonly used installation standards for water-based systems are likely to be familiar: NFPA 13, Standard for the Installation of Sprinkler Systems; NFPA 14, Standard for the Installation of Standpipe and Hose Systems; and NFPA 24.

Less commonly used installation standards involving water-based systems include NFPA 11; NFPA 15, Standard for Water Spray Fixed Systems for Fire Protection; NFPA 20, Standard for the Installation of Stationary Pumps for Fire Protection; and NFPA 22, Standard for Water Tanks for Private Fire Protection.

A wide variety of flows are required for the design and acceptance-testing of water-based fire protection systems, depending on the arrangement of the installation. In developing the design of a water-based system, flow testing to determine the adequacy of the available water supply (flow and pressure) will generate one of the larger flows to the environment.

Flushing of the underground fire lines associated with the project will also generate large flows. This will probably be the largest flow for a project as flushing must be conducted at a code-specified flow rate of long enough duration to ensure that all debris moving due to water flow has been removed from the piping (Plumbing Engineer May 2022, https://bit.ly/3f3OLHC).

The larger the piping diameter, the greater the quantity of water that needs to be used to meet the required flow rate and ensure the velocity of the water will scour out debris in the piping. Debris left in the piping that will move when the system operates up to the maximum design flow may clog sprinklers, preventing them from delivering enough water to control or extinguish the fire. The development of an underground flushing plan was discussed in Plumbing Engineer's September 2022 issue (https://bit.ly/3fabKk8).

If the project involves the installation of a fire pump, several flow tests need to be performed to validate that the pump can provide the flows for which it was designed and constructed. It should not be less than three and may be as many as seven. Higher flow rates are used for flushing the piping supplying fire pumps.

In this case, the purpose is to avoid clogging the fire pump impellor, which will reduce the available flow to the fire protection system (Plumbing Engineer March 2022, https://bit.ly/3faN4YQ). The largest of these fire pump flow tests is conducted at 150% of rated capacity. The larger the pump, the larger the quantity of discharged water, so the test must be designed with a plan for where this water can go, and what to do with it during and after testing is complete.

ITM

Regular maintenance of water-based fire protection systems is governed by NFPA 25. Maintenance of water-based fire protection systems generally does not require the flowing of water in the quantities required for flushing of fire lines unless the flows and pressures required to be available to supply the system(s) are noted to be deteriorating.

Unless the reason for the deterioration is easily or quickly identified, an investigation, including hydraulic analysis, may require flow tests. Again, the plan for that testing needs to include proper disposal of the water that is used.

The lowest flowing test for an automatic sprinkler system is periodic testing of the water flow alarm. This involves opening the inspector's test connection or the systems test and drain with the test orifice in place. This test simulates the operation of a single sprinkler on the system to ensure that the water flow alarm will sound and, if provided, send a signal to a monitoring station.

The purpose of this test is to alert someone to initiate a response to the flow. In this case, the amount of water that flows is a function of the sprinkler orifice size and the pressure available to the sprinkler.

$Q = k\sqrt{p}$

where Q is the flow, k is the orifice coefficient, p is the available water pressure.

For the common 1/2-inch orifice sprinkler, a 40- to 50-gallon/minute (gpm) flow could be typical, but it can go higher based on the available pressure. For storage occupancies, fire sprinklers with much larger orifices have been developed, some of which will flow between 300 and 400 gpm on initial (not design) discharge.

The most common flow test for water-based fire protection systems is the main drain test, which is required to be performed as part of regular maintenance testing of the system. More importantly, it is required to be performed after closed system control valves have been reopened. Main drains in the United States are either 1-1/4 inches or 2 inches in diameter and will typically flow between 100 and 450 gpm when fully opened, depending on the available supply pressure.

If the outlet of the main drain is not directed to a hard surface, it will dig a hole. The water will pick up whatever the ground contains and flow to wherever water usually does.

Where backflow prevention assemblies (BPA) are present on the supply to fire protection systems, annual forward-flow testing of water through the BPA is required. The flow required for this test should be greater than or equal to the design flow for the system, and planning for this discharge needs to account for that flow.

Fire Flows

The need to contain fire flows and any associated spillage of contents in the fire area is regulated by NFPA 30 and NFPA 400 if adopted as a part of the local code. Similarly, the applicable building and fire codes, such as the International Building Code and International Fire Code, may have provisions for containing hazardous material spills, including water discharged by fire suppression systems.

Should a fire occur that is of sufficient size to cause sprinklers to open or other fire protection systems to be used, the nature of the fire and the design of those systems will determine how much water is discharged. For sprinkler systems, expected flows would be less than or equal to the system design (gpm/ft2 over the design area in which the sprinklers are operating), plus any design hose stream flows assumed.

There is a caveat to this: The sprinkler system design and the water supply available to the sprinkler system must be adequate for the hazard presented to it. It is important to recognize that even if the design was appropriate when the facility was constructed, there are many things that can change over the lifetime of a building that might render the sprinkler system inadequate (Plumbing Engineer October 2020, https://bit.ly/3D3IovK).

In this case, the total amount of water discharged is based on how long the systems and hose lines are in operation during the event.

In the case where sprinklers are not present, the amount of water discharged would be solely based on the water discharged through hose streams (175 to 250 gpm each), other fire appliances such as ladder pipe (up to 1,500 gpm), and the amount of water needed for cleanup after the fire is controlled over the time that each hose or appliance was in operation (gpm will vary depending on the number of hoses and the size of the nozzles used).

The awareness of the need to evaluate the impact of fire flows on the environment in the design of facilities and existing facilities is increasing. These have been more recently brought to light by concerns related to fire retardant chemical additives used in foam-based fire protection systems.

Those of us in fire protection understand that the concern isn't just limited to foam concentrates. It would be prudent to know what is in the water that is discharged, even if it doesn't contain additives, so that we can ensure that the fire system and firefighting water will do no harm.

As facility owners, designers and regulators, we need to know and understand how these systems interact, what the regulations are, when mitigation of the consequences of fire water discharge is required, and how to accomplish those mitigations. This requires a plan for fire water containment, drainage and possibly treatment. We need to know and understand where the water goes because there is a potential for future liabilities associated with its discharge.

Dwight Havens is a retired fire protection engineer and fire code official. His fire safety career started in 1973 as a volunteer firefighter, and he has worked for Grinnell Fire Protection Systems, Cerberus-Pyrotronics, and the Phoenix Fire Marshal's Office. Havens continues to volunteer with the NFPA's Flammable and Combustible Liquids Code committees and with the Round Lake (N.Y.) Fire Department.

ASPE YOUNG PROFESSIONALS

ASPE American Society of Plumbing Engineers™

BALTIMORE

Nikita Patel, PE
(Region 1) AYP Liaison | Education Chair

AYP Report

I am happy to announce our Spring AYP Event will be at Top Golf in Baltimore in May. We plan to keep the fun rolling following our golf outing, so keep your eyes open for the registration form in a few weeks.

Our Region 1 Revit Workshop presentation was very well received by all who attended, and we are really excited for the next one, Fundamentals of Centrifugal Pumps.

- ~~February 15, 2023 Revit Workshop*~~
- March 15, 2023 Fundamentals of Centrifugal Pumps
- June 21, 2023 Valves 101: Materials and Applications
- September 20, 2023 Engineering, Sizing and Selection of Water Heating Solutions
- December 13, 2023 Rainwater Harvesting 101

Register for the March and June seminars with the links in the following flyers. Please note, this webinar is **OPEN TO ALL ASPE MEMBERS**, but the topics will remain focused on entry level topics. A fee will apply to non-ASPE members.

Where does that fee go? I'm glad you asked! This summer, Philadelphia AYP will be hosting a Regional AYP event, where we will have the opportunity to network with over 10 other Region 1 Chapters! Are you interested in attending? You must be 35 and under! Are you interesting in donating to the event? We would really appreciate your donation.

If you'd like to know more about it, I'm sure you all know how to get in touch with me, and you'll see me at our meeting later this month.

Since our Education Report was so full of words, I'm dropping some E-Week pictures below for your viewing pleasure.

Hey Young Professionals!

REGION 1 AYP PRESENTS:

Fundamentals of Centrifugal Pumps

presented by

RICHARD L. MEDAIROS, PE

WHO

THIS WEBINAR IS
OPEN TO ALL REGION 1
ASPE YOUNG PROFESSIONALS

WHAT

1. TYPES OF CENTRIFUGAL PUMPS
2. GENERATING PUMP CURVES
3. READING PUMP CURVES
4. SELECTING A CENTRIFUGAL PUMP

WHEN

WEDNESDAY
MARCH 15, 2023
12-1PM EST

REGISTER

THIS WEBINAR IS FREE TO ASPE MEMBERS.
A $5 FEE WILL APPLY TO NON-MEMBERS

Mr. Medairos is a Sr. Systems Engineer and Director of Commercial Training at Taco Comfort Solutions. He has over forty-five years of experience with demonstrated expertise in Engineering, Project Management, and planning.

Throughout his career, he has worked on projects with major clients such as NASA Kennedy Space Center, Disney World, Universal Studios Florida, Boston University, Rhode Island School of Design, First Data Corporation, Dartmouth College, and Taco's Innovation and Development Center.

Hey Young Professionals!

REGION 1 AYP PRESENTS:

Not All Alloys are Created Equal

presented by

LAUREN BERENATO

WHO

THIS WEBINAR IS
OPEN TO ALL REGION 1
ASPE YOUNG PROFESSIONALS

WHAT

1. VALVE MATERIALS
2. BRASS VS. BRONZE
3. DEZINCIFICATION
4. MATERIALS FOR APPLICATIONS

WHEN

WEDNESDAY
JUNE 21, 2023
12-1PM EST

REGISTER

THIS WEBINAR IS FREE TO ASPE MEMBERS.
A $5 FEE WILL APPLY TO NON-MEMBERS

Lauren Berenato is the National Specifications Manager for Jomar Valve. She joined Jomar in February of 2016. Within her role at Jomar, she educates Engineers, designers, contractors, and manufacturer's rep agencies on designing the most efficient systems.

Within ASPE, Lauren serves on the Region 1 Board as the Affiliate Liaison. She is also involved with the American Supply Association's Women in Industry Division where she is the founding member of the Women in Industry Leadership Book Club. Lauren has been published in *Plumbing and Mechanical* Magazine as well as MCAA's magazine.

Lauren has her Bachelor of Science from Lehigh University in Industrial Engineering, her Juris Doctor from DE Law School, and her Master's in Patent Law from the University of Notre Dame.

McWane PLUMBING TECHNICAL SERVICES

Cast Iron Soil Pipe & Fittings

For DWV plumbing systems are sustainable and environmentally safe products made from nearly 95% post-consumer scrap metal and recyclable at the end of its long service life.

AB&I FOUNDRY

TYLER PIPE & COUPLING

Learn more about McWane Plumbing Group and the benefits of using a cast iron DWV plumbing system.

Tried and true cast iron is a sustainable plumbing product. Reach out to schedule your ASPE approved CEU presentation on Environmental Sustainability.

McWanePlumbingTechServices.com

100 YEARS Bradley

CELEBRATING THE WAY THE WORLD WASHES

NEW! Digital Mixing Valve Recirculation Stations

Key features

- Pre-assembled and tested recirculation system
- Navigator digital mixing valve
- Shutoff valves on inlets and outlets
- Temperature/pressure gauges on inlets
- Outlet setup and air purge connections
- Return line with circulating pump and check valves
- Easy installation and serviceability
- Electrical outlet
- Mounted to enamel-coated strut
- See technical data for available configurations

CircuitSolver®

A ThermOmegaTech® brand

The Need: DHWR systems need to be balanced to ensure that hot water is available throughout a building on every floor, at every fixture, at all times.

The Problem: A building typically requires multiple branches off the hot water supply line, and water flows in the path of least resistance which constantly changes in dynamic, open systems. Manual balancing valves and fixed flow devices rely on flow and pressure calculations and cannot respond dynamically to changing needs.

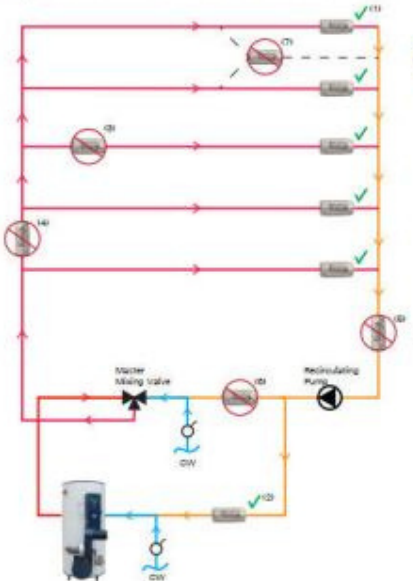
The Solution: Install a CircuitSolver® at the end of each branch, downstream of the last fixture, and the system balances itself.

How It Works: The thermal actuator at the heart of the CircuitSolver® modulates the valve between open and closed in response to changing water temperature. This continuous response to temperature variation enables each hot water branch to quickly and consistently direct hot water flow to where it is needed – No manual balancing required.

Note: The valve never fully closes, allowing a small amount of bypass flow to the return to avoid deadheading the recirculation pump.

CircuitSolver® Placement Do's and Don'ts

(1) ✓ at the end of each branch/riser
(2) ✓ in the return line back to the water heater
(3) ⊘ not in the middle of a branch/riser
(4) ⊘ not in a supply line
(5) ⊘ not in the return line
(6) ⊘ not after the recirculating pump
(7) ⊘ don't combine 2 branches/ risers



Valve Selection

Size: Select the size equivalent to the branch/riser feeding the return line.

Temperature: Select the set-point temperature equal to the desired return temperature.

Example: A standard CircuitSolver® installed on a 3/4" branch/riser with a 120°F return temperature would be CS-3/4-120.

E. J. Dwyer Co. Since 1970

CircuitSolver® (CS)

CircuitSolver® Union Assembly (CSUA)

CircuitSolver® Union Strainer Assembly (CSUAS)

And many more!

POWERS INNOVATIONS

DIGITAL MIXING SOLUTIONS ENABLE THE SAFE, EFFICIENT DELIVERY OF HOT WATER IN COMMERCIAL AND INSTITUTIONAL FACILITIES. BOTH PRODUCTS HAVE THE SAME FUNCTIONALITY BUT AT DIFFERENT FLOW CAPACITIES AND HELP TO PREVENT SCALDING WHILE SAVING ENERGY.

INTELLISTATION®

The IntelliStation®, with its large-capacity valves, is designed for use in hospitals, universities, and large hotels. The digital water mixing and recirculation solution can be integrated into a building automation system (BAS) to allow facilities managers to remotely monitor and control water temperatures. Help mitigate Legionella and other waterborne pathogens with the high-temperature sanitization mode. Key capabilities include a digital temperature regulation within +/-2°F to ASSE 1017, even during low and zero demand periods, and is field configurable without the need for a laptop or special software.

INTELLISTATION® JR

IntelliStation® Jr. provides safe hot water consistently and on-demand for smaller applications than IntelliStation. It is also ASSE 1017 compliant, available in 3/4" through 2" sizes, and has a programmable temperature set-back/scheduling program that lowers water temperature when the building is unoccupied. Register the Jr. with the Watts OnSite mobile or web app for remote temperature control, monitoring, and visibility across locations and sublocations.

Scan the QR Code below to access the Selexit Configuration Tool.

The 40 Joyce Agency Since 1982

MATT MORRIS: 410-903-9177

MMORRIS@THEJOYCEAGENCY.COM

WWW.THEJOYCEAGENCY.COM

POWERS™ A WATTS Brand

AMES, INC.
Manufacturers' Representative
Since 1957

COMMERCIAL INDUSTRIAL LINE CARD

Fiberglass Basins & Covers
AK Industries

Sump Pumps & Sewage Ejectors
Weil, Tsurumi, Stancor, Wilo

DIP – Direct In-line Pumping System

Control Panels
AMES/MESSCO Controls & Systems, Weil, Wilo

Domestic Water Systems
Tigerflow, Aurora, Wilo

Rainwater & Reuse
Tigerflow, ATS

Grease Interceptors
"Proceptor" Fiberglass Grease and Oil Separators

Stancor
Elevator Sump Pump with (Oil Minder) System
Stainless Steel Pumps

H20 Traffic Load Covers
USF Fabrication, AK Industries, Greenturtle

HVAC Pumps & Accessories
Tigerflow, Aurora, Wilo

WWW.AMESINC.COM
8918 Herrmann Drive, Columbia, MD 21045 301-621-8899 (DC) / 410-995-6971 (Balt.) / 410-381-5760 (Fax)

SHAFER, TROXELL & HOWE Inc.

97 C Monocacy Blvd
Frederick, MD 21701
STHinc.com

Representing:

Grundfos • Peerless • Yeomans • PACO • Myers
Hydromatic • SyncroFlo • Cougar Controls • Triple Clear
Water Systems • Topp Industries • Primex Controls

Sale and Service Specialization:

Sump/Sewage Pump Stations • Water Booster Systems
Fire Pump Systems • Rainwater Harvesting Systems • Dosing Pumps
Point of Entry Water Filtration

Contact Our Engineering Account Rep

800-233-7718 • Mark.Smullen@sthinc.com

Your Solutions Partner in MD, DC, VA, DE and WV

DURAGUARD® PRODUCT LINE

Public health and safety are a common concern. Targeted for commercial applications, Bemis has a comprehensive offering of seats with DuraGuard® Antimicrobial Built-In Seat Protection™ and STAY·TITE™.

WHAT IS DURAGUARD?

DuraGuard is an antimicrobial property built into the toilet seat to inhibit the growth of bacteria. The active ingredient in DuraGuard is zinc pyrithione, a non-VOC (volatile organic compound), broad-spectrum, highly effective antimicrobial agent used to control mold, mildew, yeasts, fungi, algae, gram positive and negative bacteria. DuraGuard does not protect users or others against bacteria, viruses, germs, or other disease-causing organisms.

WHAT IS STAY·TITE?

STAY·TITE Seat Fastening System™ anchors the toilet seat to the bowl by using a patented bolt design with a finned bushing and glass-filled nylon nut, eliminating the need to retighten the seat to the bowl after installation.

CONTACT YOUR REP FOR ADDITIONAL INFORMATION

Schedule of Events

DATE	TOPIC	PRESENTER
SEPTEMBER 9	Enhance Revit Design to Increase Design Efficiency	Microdesk - Boston Chapter
SEPTEMBER 15	Industry Night on the Terrace	MCA
SEPTEMBER 28	Lab Gas Design Using the NIH DRM	Sherman Engineering - Nikita Patel
OCTOBER 26	Commercial Water Softening & RO Systems	Canature Water Group
NOVEMBER 14	Valve Material Applications	Jomar - Lauren Berenato
DECEMBER 14	Natural Gas Design	OmegaFlex
JANUARY 25	VPMIA Code Review	Amtron
FEBRUARY 19-25	Engineer's Week	-
FEBRUARY 22	Sprinkler Design	UMD - Ken Isman
MARCH 22	Fire Pumps	STH
APRIL 6	Joint ASPE/UA486 Event	-
APRIL 26	Booster Pumps	QuantumFlo
APRIL 28	Annual Golf Outing	-
MAY 24	WSSC Code Update	WSSC - Chris Imhof
JULY 29	Summer Holiday Party	-

MONTHLY SPONSORSHIP OPPORTUNITIES

Tabletop Presentations: $100 to provide a tabletop presentation of equipment or material relative to the plumbing profession. The tabletops will be set up from the beginning to the end of the monthly meeting and provides the opportunity to provide a brief (under 5 minutes) presentation.

Please make checks payable to the Baltimore Chapter of ASPE. Contact Kathy Dwyer or Chuck Swope if interested