



2024 Annual Conference



March 18-21, 2024

WWW.PRWA.COM/CONFERENCE

Penn Stater Hotel & Conference Center | State College, PA

Thank You to our Event Sponsors



Don't forget to visit the outside vendors!

A&H Equipment

Heritage Environmental

Advanced Process Controls

LB Water

Advanced Rehabilitation Tech.

Tri State Environmental Services LLC

Exeter Supply Co., Inc.

U.S. Municipal Supply

Golden Equipment Co., Inc.



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BOARD & STAFF

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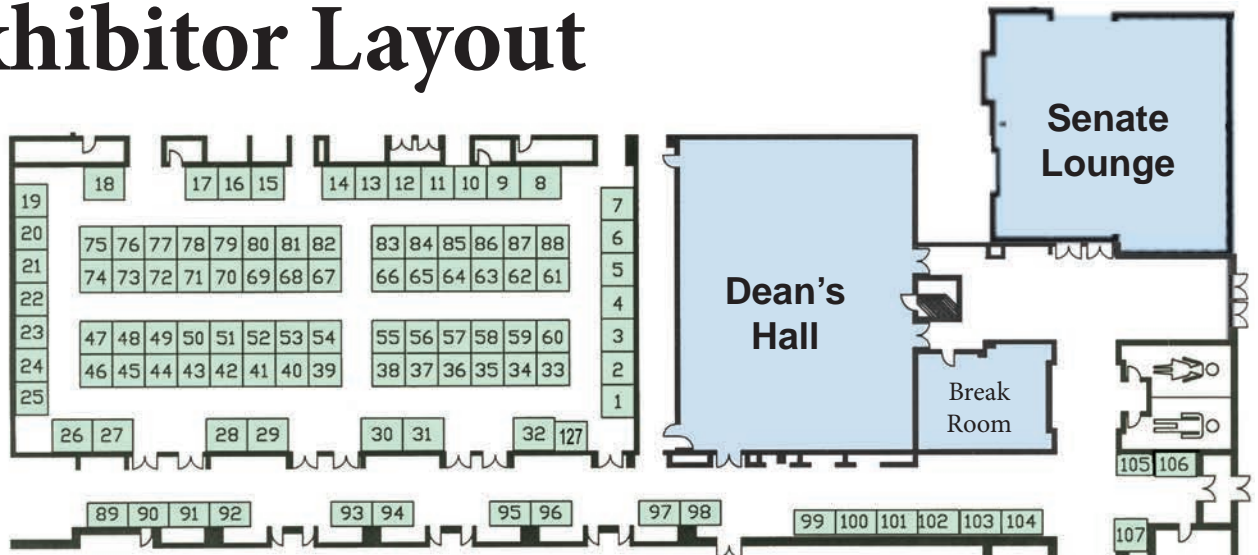
Mike Emery
GIS Specialist

Chad Heister
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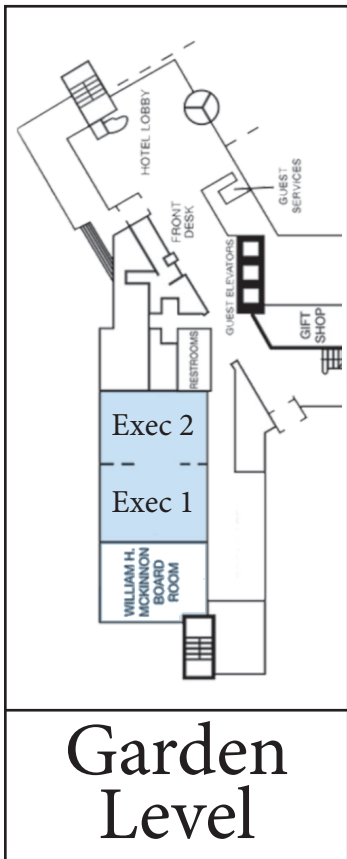
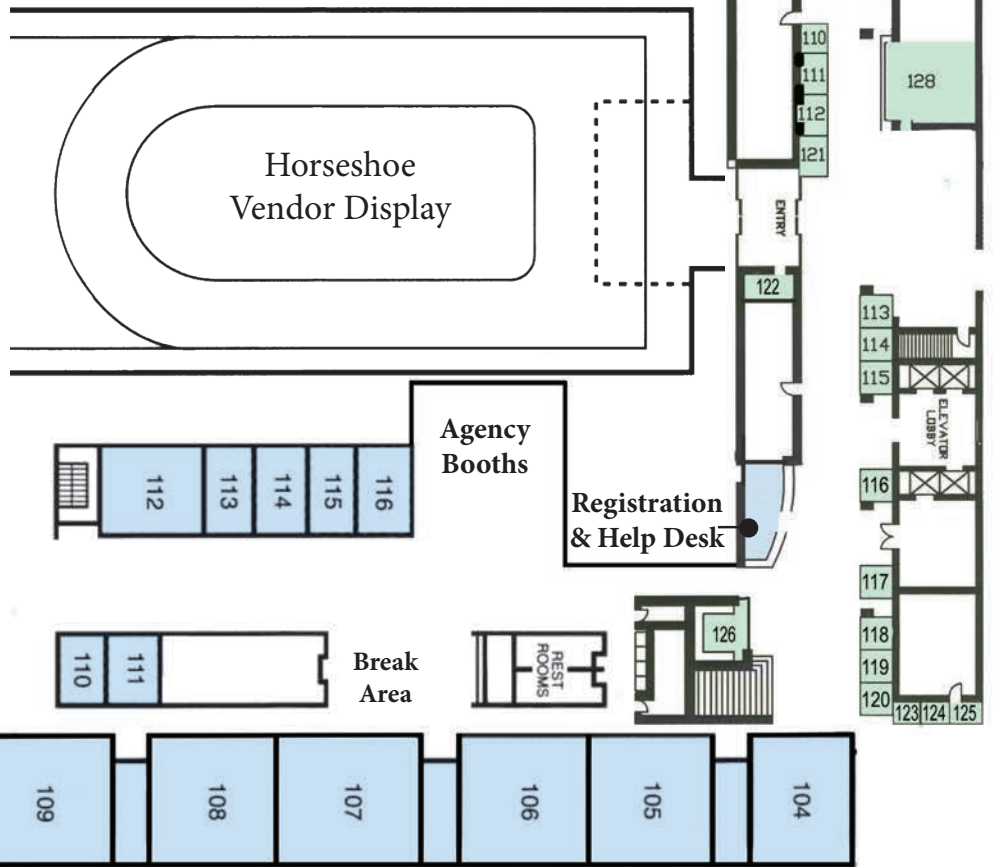
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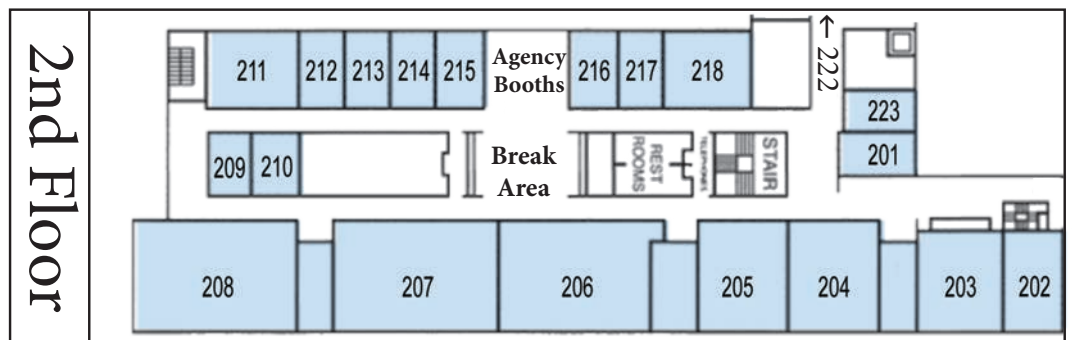
Penn Stater Floor Plan & Exhibitor Layout



Main Level



Garden Level



2nd Floor

Exhibitors

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Event Sponsors

Exhibit Hall Sponsors

AGENCY TABLES - BREAK AREA

1st Floor:

APPI Energy
ENetPay
NAWSC

PNC Bank
PENNVEST
USDA Rural Development

2nd Floor:

AWWA - Partnership for Safe Water
DEP Tech & Financial Assistance
PA Municipal Authority Association

PaWARN

Thanks to Exeter Supply for sponsoring the printing of the programs.

CONFERENCE SCHEDULE OVERVIEW

Monday, March 18, 2024

		Room #
4:00 pm - 5:30 pm	Registration Desk Open	
5:30 pm	Welcome Dinner with Tommy Wareham "The Piano Man" <i>Sponsored by: Core & Main</i>	Dean's Hall
8:00 pm	Bingo <i>Sponsored by: NAWSC</i>	Senate Lounge

Sponsored Hotels for Tuesday Meet N' Greet Shuttles



Penn Stater Hotel & Conference Center
215 Innovation Blvd., State College



SpringHill Suites
1935 Waddle Rd., State College



Hampton Inn
1101 E. College Ave., State College



Hampton Inn & Suites
1955 Waddle Rd., State College



Holiday Inn Express
1925 Waddle Rd., State College



Sleep Inn
111 Village Dr., State College

Thanks to our Exhibit Hall Sponsors!!!



Solar Renewable Energy LLC



CONFERENCE SCHEDULE OVERVIEW

Tuesday, March 19, 2024

		Course ID	Trainer	Room #	
7:00 am - 6:00 pm	Registration Desk Open				
7:00 am - 8:45 am	Continental Breakfast				
8:00 am	Annual Business Meeting			202	
9:00 am - 12:30 pm	1-01 Intro to Geographic Information Systems (GIS) (3 DW & WW)	6817	Mike Emery - PRWA	205	
	1-02 Chemical Feed Math Refresher (3 DW & WW)	7497	Jesse Weiss - Industry Specialist	211	
	1-03 Gas Chlorination and On-Site Hypochlorite Generation Technology (3 DW & WW)	9418	George Solymosi, Patrick Greer, Ray Kyle - Environ. Service & Equipment Co., Inc.	109	
	1-04 Common-Sense Practices of a Well Run W & WW System (3 DW & WW)	4056	C. Michael Harrington - Industry Specialist	206	
	1-05 Process Instrumentation and Verification for Water and Wastewater I - PART 1 of 2 (*Must attend both for CH) (6 DW & WW)	4125	Ryan Morasse - Hach Company	105	
	1-07 Subsurface Utility Engineering and Crossbore Safety (3 DW & WW)	8935	William D. Friedah, P.E. - USG, Inc.	112	
	1-09 Health and Safety Considerations for Water and Wastewater Operators (3 DW & WW)	4042	John Buskirk - Industry Specialist	207	
	1-10 Emerging Contaminants "PFAS" (3 DW & WW)	9404	Phil Giunta - PRWA	208	
	1-11 Biological Metabolic Processes and Nutrient Removal (3 WW)	8966	George Pearson; Howie Pearson - Quorum	204	
	1-12 Introduction to High Pressure Water Cleaning (Jetting) in Collection System Pipes (3 WW)	5808	Walter Jenness - Tri State Environ. Services LLC	218	
	1-13 Aerobic Digesters - An Operator's Guide from Design through Operation (3 WW)	7802	Chris Hannum, P.E. - Entech Engineering, Inc.	104	
	1-14 Activated Sludge-A View Beneath the Surface - Microbiology (3 WW)	8460	Steve Leach - Leach Microbial Consulting	106	
	1-15 Protecting Our Waters at the Source - Stormwater Issues (3 DW)	7503	Colin Gardner, Kurt Wagner - Stormwater Solution Source, LLC, PRWA	108	
	1-16 Full Circumferential Pipe Repair Methods: on 2" to 30" Watermain Breaks, Splits, Leaks, Bell Joint Repair (3 DW)	8830	Mark Langenhan - Dresser Utility Solutions	107	
	1-17 Asset Management & Asset Maintenance for Water Systems (3 DW)	9330	Nick Rapagnani, Dan Frum - USG Water	Exec 1&2	
	12:00 pm - 1:30 pm	Lunch - Sponsored by: LB Water, S3 & 540 Technologies			
	12:00 pm - 3:30 pm	Associate Member Registration and Exhibit Hall Setup			
1:30 pm - 5:00 pm	2-01 Medical Emergency Response and Care (3 DW & WW)	6805	Bob Stakem, M.Ed. - Penn State Health	107	
	2-02 Trenching and Safety Overview (3 DW & WW)	7816	William Kasper - Industry Specialist	112	
	2-03 PFAS Sample Collection, Preparation and Analysis (3 DW & WW)	9417	Richard Stump, Sara Stump - Suburban Testing Labs	109	
	2-04 Process Instrumentation and Verification for Water and Wastewater I - PART 2 of 2 (*Must attend both for CH) (6 DW & WW)	4125	Ryan Morasse - Hach Company	105	
	2-05 EPA Cybersecurity Assessment Training (3 DW & WW)	9398	Cole Dutton - USEPA	207	
	2-06 Roundtable - Legislative and Legal (1 DW & WW)	9444	Milliron & Goodman; Salzman & Hughes; Napoli & Shkolnik PLLC	203	
	2-07 Valve Workshop (3 DW & WW)	5348	Tim Trout, Chuck Krohg, Stephen Sharps - CPMR - Ferguson; Mueller; Rockacy & Assoc.	208	
	2-08 Circuit Rider Training: Regulatory Requirements (3 DW & WW)	9391	Sheryl Martin, Doug Macik - PADEP	106	
	2-09 ABCs of Variable Frequency Drives (VFDs) (3 DW & WW)	8472	Larry Stanley - US ABB, Miller Energy	108	
	2-10 Wastewater Pathogens (3 WW)	3564	Michael Gerardi - Water Pollution Biology	218	
	2-11 Let's Clarify, Clarifiers, in Wastewater Treatment (3 WW)	8090	Chris Hannum, P.E. - Entech Engineering, Inc.	206	
	2-12 Modern Trickling Filters (3 WW)	9413	Joshua Sablan & Scott Dunn - Brentwood Industries, Bethel Park WWTP	202	
	2-13 Collection System Inspections for Failing Infrastructure (3 WW)	3611	Michael Paladino, Tim Lester, P.E. - Utility Services Group, Inc., Entech Engineering, Inc.	205	
	2-14 Filter Inspections, Optimization and Compliance (3 DW)	8424	Matt Seeker - Water Service Professionals	204	
	2-16 Counting Every Drop...Finding and Understanding Water Loss (3 DW)	6812	Ben Reichley, Josh Dickert - LB Water	211	
	2-17 Pennsylvania Geology and Aquifer Characteristics (3 DW)	6814	Mark Stephens P.G. - Industry Specialist	Exec 1&2	
	2-18 Science of Water Main Breaks (3 DW)	9395	J. Scott Shipe - Scott Infrastructure Science	104	
5:00 pm - 6:30 pm	Exhibit Hall Open				
6:30 pm - 9:00 pm	Meet & Greet Party at Champ's			Sponsored by: Gwin Dobson & Foreman	
	Transportation provided to and from sponsored hotels (meet in front of hotel lobby) *See List of Hotels on opposite page.				

Thanks to Exeter Supply for sponsoring the printing of the programs.



Wednesday, March 20, 2024

		Course ID	Trainer	Room #
7:00 am - 8:45 am	Continental Breakfast - Sponsored by: LB Water, S3 & 540 Technologies			
7:00 am - 5:00 pm	Registration Desk Open			
8:00 am - 11:30 am	3-01 Basic Laboratory Skills Short Course - Hach (3 DW & WW)	6180	Terry Smith - <i>Hach Company</i>	105
	3-02 Medical Emergency Response and Care (3 DW & WW)	6805	Bob Stakem, M.Ed. - <i>Penn State Health</i>	107
	3-03 UV Disinfection from Basics to Advanced Oxidation Processes for Drinking Water and Wastewater (3 DW & WW)	8112	Bree Trembly, P.E.; Norman Ammerer - <i>Nuvonic UV</i>	109
	3-04 How to Prevent a Catastrophic Event at your DW/WW System (3 DW & WW)	8035	C. Michael Harrington - <i>Industry Specialist</i>	206
	3-05 Operation & Maintenance of Submersible Pumps (3 DW & WW)	6516	Sean Melrose, Chris Salstrom - <i>Xylem, Inc</i>	207
	3-06 NFPA 70E and You; Electrical Safety in the Workplace (3 DW & WW)	8432	Adam Menko P.E. - <i>Keystone Engineering</i>	208
	3-07 Chemistry 101 (3 DW & WW)	4077	Darrell Cates - <i>CITCO Water</i>	202
	3-08 Skills for Successful Communication (3 DW & WW)	9380	Heather Somers - <i>NC Rural Water Assoc.</i>	108
	3-09 Roundtable - Increasing Financial Stability (1 DW & WW)	9445	<i>HECorp - eNetPay, NAWSC, Diamond Maps, PNC Bank, Benecon</i>	203
	3-10 Online Process Instrumentation for Monitoring & Control of BNR (3 WW)	6804	Adrienne Stenz - <i>YSI, a Xylem Brand</i>	211
	3-11 Biological Metabolic Processes and Nutrient Removal (3 WW)	8966	George Pearson; Howie Pearson - <i>Quorum</i>	218
	3-12 Wastewater System Math Refresher (3 WW)	7499	John Buskirk - <i>Industry Specialist</i>	112
	3-13 Holistic Approach to Inflow and Infiltration (3 WW)	9409	Chris Hamilton - <i>DLVEWS, Inc.</i>	205
	3-14 Tracking Non-Revenue Water with Audit Software (3 DW)	7422	George Kunkel, P.E. - <i>Kunkel Water Cons.</i>	204
	3-15 Service Valve Renewal, and Service or Mainline Tapping (3 DW)	9155	Mark Langenhan - <i>Dresser Utility Solutions</i>	106
	Exam Review 8:00 am - 11:30 am	3-16 Groundwater Supply Development in Pennsylvania (3 DW)	8466	Chris Finton, P.G. - <i>ARM Group LLC</i>
3-17 DW Exam Review - Part 1 of 4: General Exam (1 DW & WW)		9445	Wendy Malehorn - <i>PRWA</i>	Exec 1
	3-18 WW Exam Review - Part 1 of 4: Activated Sludge (1 DW & WW)	9445	Tom Goehring - <i>PRWA</i>	Exec 2
11:30 am - 1:30 pm	Lunch - Sponsored by: LB Water, S3 & 540 Technologies Exhibit Hall Open			
1:30 pm - 5:00 pm	4-01 Dealing with Angry People, Stress and Worker Safety (3 DW & WW)	7420	Joe Zinobile, CSP - <i>PA L&I</i>	109
	4-02 CPR and First Aid Overview (3 DW & WW)	9402	Mark Stephens P.G. - <i>Industry Specialist</i>	106
	4-03 Public Comm. in the Instant Info. Age - Lead & PFAS (3 DW & WW)	9205	Mike McGill - <i>WaterPIO</i>	108
	4-04 Basics of Centrifugal Pumps and Hydraulics (3 DW & WW)	9131	Brian Sekula, P.E. - <i>Industry Specialist</i>	218
	4-05 Pressure Gauges and Audits at Water and Wastewater Plants (3 DW & WW)	8465	Ravi Jethra - <i>WIKA USA</i>	205
	4-06 Not All It's Cracked Up to Be - Our Failing Pipe Infrastructure (3 DW & WW)	7194	William Friedah, P.E., Matthew Quinn - <i>Utility Services Group, Inc., Entech Engin., Inc.</i>	206
	4-07 Tanks - All Mixed Up? - Mixing, Rehab & Inspection for W & WW (3 DW & WW)	8420	Christine Gunsaulus - <i>Industry Specialist</i>	107
	4-08 Energy Planning for Your Plant (3 DW & WW)	9392	Amanda Eyer, Heather Cowley - <i>PADEP</i>	207
	4-09 Emergency and Bypass Pumping - Sizing and Specifications (3 DW & WW)	9414	Jared Carothers, EIT - <i>Xylem Dewatering</i>	208
	4-10 Roundtable - Combating Inflation with Energy Savings (1 DW & WW)	9446	<i>APPI Energy: Solar Renewable Energy; New England Hydropower Co; PA PUC</i>	203
	4-11 Wastewater Pump Station Design Considerations for Operators (3 WW)	8977	Charles A. Hoffman III, P.E., PSAP - <i>Erniep/TLC</i>	211
	4-12 Science of Pipe Cleaning: Levels Leading to Tier III (3 WW)	8968	Dan Story - <i>KEG / A&H Equipment Co. Inc.</i>	112
	4-13 Science of Manhole Inspections (3 WW)	8471	J. Scott Shipe - <i>Scott Infrastructure Science</i>	104
	4-14 Water Loss Management (3 DW)	3621	Ian Moore, Brendan Line - <i>Exeter Supply</i>	105
	4-15 Understanding the ISO Fire Suppression Rating Schedule (3 DW)	7754	Tyler Olsen, MA CFPS FO IV - <i>ISO Verisk</i>	204
	4-16 Source Water Protection - Timber Management (3 DW)	5846	<i>The Nature Conservancy, Appalachian Forest Consultants, LLC, Generations Forestry</i>	202
Exam Review 1:30 pm - 5:00 pm	4-17 DW Exam Review - Part 2 of 4: Math Concepts (1 DW & WW)	9446	Wendy Malehorn - <i>PRWA</i>	Exec 1
	4-18 WW Exam Review - Part 2 of 4: Activated Sludge (1 DW & WW)	9446	Tom Goehring - <i>PRWA</i>	Exec 2
1:30 pm - 5:00 pm	4-19 Roundtable - Finished Water Depleted Emergency - Now What? (1 DW & WW)	9446	Mike Snyder - <i>PaWARN</i>	222
5:00 pm - 8:00 pm	Exhibit Hall Extravaganza & Dinner Sponsored by: Exeter Supply, Master Meter, CCI Piping Systems, PowerSeal, Rockacy & Associates, Apollo Conbraco Backflow & Mueller Co.		Dean's Hall	
7:00 pm	Disney Dream Vacation Give-Away Sponsored by: Exeter Supply and Star Pipe		Booth 21 & 22	
7:30 pm	Golf Simulator Sponsored by: Sensus Meters & LB Water		Outside Senate Lounge	
8:30 pm	Cornhole Tournament with music by <i>Biscuit Jam</i> Sponsored by: A&H Equipment		Dean's Hall	



Thursday, March 21, 2024

		Course ID	Trainer	Room #	
7:00 am - 8:45 am	Continental Breakfast - Sponsored by: LB Water, S3 & 540 Technologies				
7:00 am - 5:00 pm	Registration Desk Open				
8:00 am - 11:30 am	5-01 Trenching and Safety Overview (3 DW & WW)	7816	John Buskirk - <i>Industry Specialist</i>	106	
	5-02 Flagger Training (3 DW & WW)	6527	Mike Emery - <i>PRWA</i>	109	
	5-03 Emerging Contaminants "PFAS" (3 DW & WW)	9404	Brian Little - <i>PRWA</i>	208	
	5-07 Aging Infrastructure - Repairs (3 DW & WW)	8713	Dave Rockacy; Stephen Sharps - <i>Rockacy and Associates</i>	107	
	5-08 Roundtable - Funding and Financing (1 DW & WW)	9447	USDA, PennVest, DCED, PNC Capital Markets LLC	203	
	5-09 Basic Math Refresher (3 DW & WW)	5757	Brian Sekula, P.E. - <i>Industry Specialist</i>	108	
	5-10 Collection System Troubleshooting (3 WW)	1334	Phil Giunta - <i>PRWA</i>	218	
	5-11 Introduction to Ultraviolet Disinfection for Wastewater Systems (3 WW)	9379	Pete Weaver - <i>PRWA</i>	207	
	5-12 Rare Earth Technology in Wastewater Treatment (3 WW)	8106	Mason Haneline - <i>Neo Water Treatment</i>	104	
	5-13 Application and Operation of Automatic Control Valves For Water Distribution Systems (3 DW)	5742	Jim Graber, Andrew Furman - <i>Cla-Val</i>	205	
	5-14 Phosphorus - A Holistic Approach to Corrosion Control and Water Quality (3 DW)	9190	Matt Tyrrell, Dave Linville, Colin Barrett - <i>AquaSmart, Inc.</i>	204	
	5-15 Reduction of Non-Revenue and Unaccounted-for Water thru Leak Detection and Metering (3 DW)	5800	Andrew Opalewski, Tim Trout - <i>Ferguson Waterworks, LLC</i>	206	
	8:00 am - 12:00 pm	5-16 Electrical Hazards: Metallic Water Service Lines and Mains (3.5 DW)	7418	Dale Skinner - <i>Industry Specialist</i>	105
	Exam Review 8:00 am - 11:30 am	5-17 DW Exam Review - Part 3 of 4: Distribution Exam (1 DW & WW)	9447	Wendy Malehorn - <i>PRWA</i>	Exec 1
		5-18 WW Exam Review - Part 3 of 4: General and Collection (1 DW & WW)	9447	Tom Goehring - <i>PRWA</i>	Exec 2
11:30 am - 1:30 pm	Lunch - Sponsored by: LB Water, S3 & 540 Technologies Exhibit Hall Open				
12:00 pm	AWOP Awards			Dean's Hall	
1:30 pm - 3:45 pm	6-03 PFAS Management: What to do BEFORE you do it (2 DW & WW)	9224	Phil Farina, Mike Rizzo - <i>Clear Creek Systems, Inc.</i>	206	
	6-04 High Precision Global Navigation Satellite Systems (GNSS) Data Collection - Key Ingredients for Mapping Success (2 DW & WW)	8717	Jake Holbert - <i>Land Logics Group</i>	112	
	6-05 Fundamentals of Ductile Iron Fittings (2 DW & WW)	9068	Bill Coon; Jack Lewis - <i>Tyler Union</i>	109	
	6-06 PVC Pipe and Fittings (2 DW & WW)	9135	Richard St-Aubin, P.E. - <i>IPEX USA</i>	107	
	6-08 Food/Microorganism Ratio (F/M) And Mean Cell Residence Time (MCRT) (2 WW)	8549	Chad Heister - <i>PRWA</i>	205	
	6-10 Living Through a Service Line Inventory (SLI) - Get the Lead Out! (2 DW)	9424	Tori Morgan, LO, Stacey Silva, David "DJ" Teter, LO - <i>Entech Engineering, Inc., Borough of Orwigsburg</i>	207	
	6-11 Hydrants Installation, Maintenance and Repair short course (2 DW)	5948	Ryan Caron, Bryan Elford - <i>Kennedy Valve and M&H Valve</i>	105	
	6-12 Introduction to Smart Meters & Meter Reading Systems (2 DW)	9415	Sharon DelSignore - <i>EAP Industries, Inc.</i>	104	
1:30 pm - 5:00 pm	6-13 Basics of Centrifugal Pumps and Hydraulics (3 DW & WW)	9131	Brian Sekula, P.E. - <i>Industry Specialist</i>	208	
	6-14 Disinfection Math Review (3 DW & WW)	8403	Deb Rotz - <i>Industry Specialist</i>	204	
	6-15 Wastewater Treatment Biological Processes (3 WW)	9356	Manuel de los Santos: Thea Davis - <i>Aqua-Aerobic Systems, Inc.</i>	106	
	6-16 Toxic and Combustible Gas Detection Practices (3 DW & WW)	8967	Steve Slavutsky - <i>Draeger, Inc / Neal Systems Inc.</i>	108	
Exam Review 1:30 pm - 5:00 pm	6-17 DW Exam Review - Part 4 of 4: Practice Questions (1 DW & WW)	9448	Wendy Malehorn - <i>PRWA</i>	Exec 1	
	6-18 WW Exam Review - Part 4 of 4: General and Collection (1 DW & WW)	9448	Tom Goehring - <i>PRWA</i>	Exec 2	
3:30 pm	Ice Cream Social	Sponsored by: Century Engineering		1st Floor Registration Area	

Many of these courses have been offered at conference or in the field within the last 3 years. Be sure you have not taken a class within your current cycle. Repeats receive NO contact hours. If you are unsure, we can assist you at the help desk or check your Earthwise Transcript.

Thanks to Daman Superior for being our Conference Classrooms Sponsor for the Annual Conference.



Thanks to Exeter Supply for sponsoring the printing of the programs.



Tuesday Morning 3 Hour Classes: 9:00 am – 12:30 pm

- 1-01 Intro to Geographic Information Systems (GIS):** This course covers the basics of Geographic Information Systems (GIS) for mapping your water/wastewater system. Includes GIS hardware, software, background, data types and collection, and a field demonstration. *Trainer: Mike Emery - PRWA Earn 3 DW & WW CH*
- 1-02 Chemical Feed Math Refresher:** Operators are required to complete various math calculations to assist in operations within a treatment facility. This course will review basic chemical feed calculations. *Trainer: Jesse Weiss - Industry Specialist Earn 3 DW & WW CH*
- 1-03 Gas Chlorination and On-Site Hypochlorite Generation Technology:** This course provides an overview two chlorine disinfection processes commonly used in water and wastewater treatment. The primary focus is gas chlorination. The course shows how all-vacuum gas feed systems can be used for effective chlorination or chlorination/dechlorination. Also covered is a short section on the basics of on-site hypochlorite generating systems for water or wastewater disinfection including equipment demonstration. Outside demo - dress appropriately. *Trainer: George Solymosi, Patrick Greer, Ray Kyle - Environmental Service & Equipment Company, Inc. Earn 3 DW & WW CH*
- 1-04 Common-Sense Practices of a Well Run Water & Wastewater System:** This program looks at commonly misunderstood key elements to achieving a well-run operation. The first 2 key elements relate to measurement parameters, while the other 3 key elements are operational practices. *Trainer: C. Michael Harrington - Industry Specialist Earn 3 DW & WW CH*
- 1-05 Process Instrumentation and Verification for Water and Wastewater I - PART 1 of 2 (*Must attend both for CH):** Full day course. Must attend both Part 1 and Part 2 for CH. Max 40 seats. The focus of this seminar is for water quality measurements in water and wastewater plants. Topics covered in the class include colorimetric analysis, chlorine analysis, pH, and dissolved oxygen in water and wastewater. Parameters measured by the attendee will be free and total chlorine, pH, and dissolved oxygen. Time will be spent on the proper use of standards and verification of accuracy. *Trainer: Ryan Morasse - Hach Company Earn 6* DW & WW CH*
- 1-07 Subsurface Utility Engineering and Crossbore Safety:** Trenchless technology has brought utility damage and cross bores to the forefront. This course covers Subsurface Utility Engineering (SUE) tools, advantages and disadvantages, and when to use them. An appropriate use of SUE disciplines can avoid many utility conflicts, cost over-runs, schedule impacts, and safety concerns. *Trainer: William D. Friedah, P.E. - USG, Inc. Earn 3 DW & WW CH*
- 1-09 Health and Safety Considerations for Water and Wastewater Operators:** Safety is one of the most overlooked aspects of being a water/wastewater operator. This class is a general overview of the safety issues including: an overview to OSHA, scaffolding, fall protection, hazard communication, excavation safety, confined space entry rules, electrical safety and lock out/tag out requirements. *Trainer: John Buskirk - Industry Specialist Earn 3 DW & WW CH*

- 1-10 Emerging Contaminants "PFAS":** Both water and wastewater systems are facing new regulations, sampling, and treatment for emerging contaminants such as PFAS. The course will focus on PFAS treatment technologies, sampling, and the origin of PFAS chemicals. *Trainer: Phil Giunta - PRWA Earn 3 DW & WW CH This class is offered again on Thursday morning, class #5-03.*
- 1-11 Biological Metabolic Processes and Nutrient Removal:** Biological nutrient removal is vital to protecting our waterways. To accomplish it, knowledge of how the process works, the organisms involved, and the requirements to keep those organisms healthy and working properly is needed. *Trainer: George Pearson; Howie Pearson - Quorum Earn 3 WW CH This class is offered again on Wednesday morning, class #3-11.*
- 1-12 Introduction to High Pressure Water Cleaning (Jetting) in Collection System Pipes:** This class covers equipment and various techniques for jetting collection system lines of all types. Equipment covered will be pumps, nozzles, and hoses as well as the use of pressure and flow in the lines. Includes information on cleaning 6 inch to 48 inch pipe. Outdoor Demo - dress appropriately. *Trainer: Walter Jenness - Tri State Environmental Services LLC Earn 3 WW CH*
- 1-13 Aerobic Digesters - An Operator's Guide from Design through Operation:** This class covers the terminology, options, and basic design considerations of aerobic digesters so operators can achieve better results during the construction or rehab of digesters in the future. *Trainer: Chris Hannum, P.E. - Entech Engineering, Inc. Earn 3 WW CH*
- 1-14 Activated Sludge-A View Beneath the Surface - Microbiology:** We will explore the interaction between bacteria, enzymes, and higher life forms found in wastewater plants. The focus will be on the four key factors of any biomass; floc, filaments, higher life forms, and the bulk water. *Trainer: Steve Leach - Leach Microbial Consulting Earn 3 WW CH*
- 1-15 Protecting Our Waters at the Source - Stormwater Issues:** Understanding the inter-relationship between stormwater controls, source water area management and drinking treatment are critical for your community. This course covers Best Management Practices (BMPs) common to SWP and stormwater management. *Trainer: Colin Gardner, Kurt Wagner - Stormwater Solution Source, LLC, PRWA Earn 3 DW CH*
- 1-16 Full Circumferential Pipe Repair Methods: on 2" to 30" Watermain Breaks, Splits, Leaks, Bell Joint Repair:** The process to repair various types of pipe involves assessing the damage, selecting the best repair method, and limiting interruption of service. This course covers types of products used, sizing, installation, and problems during the repair process. *Trainer: Mark Langenhan - Dresser Utility Solutions Earn 3 DW CH*
- 1-17 Asset Management & Asset Maintenance for Water Systems:** Keep high-dollar, large, aging assets in service and maintained for as long as possible. What happens when they fail? Maybe we don't want to take so many risks? Risks can be passive or active. Doing nothing is a type of action. *Trainer: Nick Rapagnani, Dan Frum - USG Water Earn 3 DW CH*

Tuesday Afternoon 3 Hour Classes: 1:30 pm – 5:00 pm

- 2-01 Medical Emergency Response and Care:** This session provides an introduction to medical and traumatic events that may occur. Operators will be exposed to different medical and traumatic events in addition to being presented with information on how to appropriately respond to these emergencies. There will be limited opportunity for hands-on practice of CPR methods. *Trainer: Bob Stakem, M.Ed. - Penn State Health Earn 3 DW & WW CH This class is offered again on Wednesday morning, class #3-02.*



Please be courteous to speakers and colleagues by silencing your cell phones during training sessions, meetings, and events. We ask that all phone calls be made outside of the training rooms & event rooms if a call must be made.



- 2-02 Trenching and Safety Overview:** This course covers the basics of trench safety, including regulations and standards that every trench worker should know. *Trainer: William Kasper - Industry Specialist Earn 3 DW & WW CH* This class is offered again on Thursday morning, class #5-01.
- 2-03 PFAS Sample Collection, Preparation and Analysis:** PFAS and PFOS chemicals are present in many locations, including drinking water and wastewater. As new health standards and regulations are established, systems must be aware of what sampling procedures must take place. This course will review current methods for analysis and sampling procedures for water, wastewater and solids. *Trainer: Richard Stump; Sara Stump - Suburban Testing Labs Earn 3 DW & WW CH*
- 2-04 Process Instrumentation and Verification for Water and Wastewater I - PART 2 of 2 (*Must attend both for CH):** Full day course. Must attend both Part 1 and Part 2 for CH. See Description for Session 1-05 - Tuesday morning. *Trainer: Ryan Morasse - Hach Company Earn 6* DW & WW CH*
- 2-05 EPA Cybersecurity Assessment Training:** This course provides operators, managers and technical assistance providers training on the USEPA Water Cybersecurity Assessment Tool (WCAT). It walks users through the WCAT and provides expert guidance and advice on its use. WCAT is useful for cybersecurity self-assessments by water and wastewater systems. *Trainer: Cole Dutton - USEPA Earn 3 DW & WW CH*
- 2-06 Roundtable - Legislative and Legal:** Open to all attendees. Presentations and discussion on current legislative and legal issues in the drinking water and wastewater industry including PFAS and Lead Service Line issues. Great opportunity for discussion. *Trainer: Erik Ross, E. Lee Stinnett II; Steven J. Acquario - Milliron & Goodman; Salzmann & Hughes; Napoli & Shkolnik PLLC Earn 1 DW & WW CH*
- 2-07 Valve Workshop:** The purpose of the course is to educate the importance of proper valve function, maintenance and repair for water and wastewater operators. We will discuss the proper applications, performance and technical specifications for gate, butterfly and check valves. *Trainer: Tim Trout, Chuck Krohg, Stephen Sharps - CPMR - Ferguson; Mueller; Rockacy and Associates Earn 3 DW & WW CH*
- 2-08 Circuit Rider Training: Regulatory Requirements:** This course reviews the regulatory requirements of chapter 302 regarding circuit rider operators, those who operate more than one water or wastewater system with different ownership. This regulation requires each circuit rider to develop a General Work Plan and maintain a System Specific Management Plan for all they operate. This course will review templates for these plans and how to write Standard Operating Procedures. *Trainer: Sheryl Martin, Doug Macik - PADEP Earn 3 DW & WW CH*
- 2-09 ABCs of Variable Frequency Drives (VFDs):** This course will demystify VFDs, providing understanding of where and why to use them. Course covers: (1) awareness of safety considerations, (2) identification of applications of VFDs (3) the inherent value they provide, (4) appropriate size and selection of VFDs, and (5) proper installation considerations for a successful solution. *Trainer: Larry Stanley - US ABB, Miller Energy Earn 3 DW & WW CH*
- 2-10 Wastewater Pathogens:** This course reviews the disease agents associated with wastewaters, sludges, compost, aerosols and contaminated materials. Disease agents present include viruses, bacteria, fungi, protozoa and helminths (roundworms and tapeworms). Disease transmission, body defenses and hygiene measures are presented. *Trainer: Michael Gerardi - Water Pollution Biology Earn 3 WW CH*
- 2-11 Let's Clarify, Clarifiers, in Wastewater Treatment:** This course will help operators understand the various types of clarifiers and how they operate as an integral part of the wastewater treatment system. Hydraulic Design Principles and Solids Loading Principles should be explained, and how to stay within those principles. The course will focus on understanding the day to day adjustments of running a Clarifier. *Trainer: Chris Hannum, P.E. - Entech Engineering, Inc. Earn 3 WW CH*
- 2-12 Modern Trickling Filters:** This course covers strategies/best practices of optimizing trickling filter operation, which include operation of upstream and downstream processes, use of SCADA and instrumentation, lab sampling and data analysis, and dealing with real life issues. Includes how to retrofit an existing trickling filter to increase treatment capacity and/or improve treatment level. In addition, practices and concepts of integrating trickling filters into a biological nutrient removal (BNR) process will also be introduced. *Trainer: Joshua Sablan, Scott Dunn - Brentwood Industries, Bethel Park WWTP, SKG Containment Earn 3 WW CH*
- 2-13 Collection System Inspections for Failing Infrastructure:** How do you fix what you can't see? This course will help systems find and address the pressing problem of failing infrastructure. *Trainer: Michael Paladino, Tim Lester, P.E. - Utility Services Group, Inc., Entech Engineering, Inc. Earn 3 WW CH*
- 2-14 Filter Inspections, Optimization and Compliance:** This course covers the background on filter technology, backwashing principles, inspection methods and what is needed to comply with the new PA requirements on filter evaluations by water systems. *Trainer: Matt Seeker - Water Service Professionals Earn 3 DW CH*
- 2-16 Counting Every Drop...Finding and Understanding Water Loss:** This course will cover methods to help operators locate and understand water loss in the distribution system by: 1. Determining proper type & size meters 2. Conducting meter testing & maintenance 3. Using meter readings to identify & understand customer consumption 4. Implementing Distribution System Sub-metering 5. Learning basic leak detection techniques 6. Understanding how pressure relates to flow. *Trainer: Ben Reichley, Josh Dickert - LB Water Earn 3 DW CH*
- 2-17 Pennsylvania Geology and Aquifer Characteristics:** This course will provide a basic understanding of the relation between geological and hydrological processes in the environment. It provides the fundamental concepts of water cycle, by explaining the movement, quality, and quantity of groundwater & its relations to contaminate fate and transport. *Trainer: Mark Stephens P.G. - Industry Specialist Earn 3 DW CH*
- 2-18 Science of Water Main Breaks:** Drinking Water providers maintain miles of water mains. These mains are under threat from age, soils, corrosion, and other factors. Breaks will occur, and systems need to be prepared to handle them before they happen. This course will focus on the steps to repairing and tracing the causes of water main breaks. *Trainer: J. Scott Shippe - Scott Infrastructure Science Earn 3 DW CH*

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Wednesday Morning 3 Hour Classes: 8:00 am – 11:30 am

- 3-01 Basic Laboratory Skills Short Course - Hach:** Max 40 seats. This hands-on course is a refresher on lab skills, glassware, and basic math for analysis of samples. Topics include accuracy/precision, difference between glassware, how to use glassware for measurements, pipetting techniques, dilutions, distillations, digestions, titrations, how to make verification/ check standards from primary standards. *Trainer: Terry Smith - Hach Company Earn 3 DW & WW CH*
- 3-02 Medical Emergency Response and Care:** See class #2-01, Tuesday afternoon, for description. *Trainer: Bob Stakem, M.Ed. - Penn State Health Earn 3 DW & WW CH*
- 3-03 UV Disinfection from Basics to Advanced Oxidation Processes for Drinking Water and Wastewater:** This course will provide Ultra-Violet (UV) system considerations for WTPs & WWTFs. This will cover common components, lamp technology and reactor styles. Bioassays, target organisms and validation by third parties, the chemistry of organic and inorganic foulants and cleaning techniques to optimize UV effectiveness will be covered. *Trainer: Bree Trembly, P.E.; Norman Ammerer - Nuvonic UV Earn 3 DW & WW CH*
- 3-04 How to Prevent a Catastrophic Event at your Drinking Water/Wastewater System:** Operators and superintendents must understand that many of the common “Standard Practices” used at water and wastewater systems can lead to potential catastrophic issues if done improperly. This course covers routine good operational practices that can minimize the risk of a major event at your system. *Trainer: C. Michael Harrington - Industry Specialist Earn 3 DW & WW CH*
- 3-05 Operation & Maintenance of Submersible Pumps:** This course will cover the operation and maintenance of submersible pumps. The course will provide knowledge of principles of operation of a submersible pump. *Trainer: Sean Melrose, Chris Salstrom, Kenneth Kisamore, Bob Hoffman - Xylem, Inc Earn 3 DW & WW CH*
- 3-06 NFPA 70E and You; Electrical Safety in the Workplace:** The majority of water and wastewater operators engage in electrical work daily and electrical safety must be a top priority. Participants will learn to identify common electrical hazards in treatment plants, create an electrically safe working condition, and determine the proper arc flash PPE. *Trainer: Adam Menko P.E. - Keystone Engineering Group, Inc. Earn 3 DW & WW CH*
- 3-07 Chemistry 101:** This course covers the chemistry basics that water/wastewater operators should know to perform daily operations. *Trainer: Darrell Cates - CITCO Water Earn 3 DW & WW CH*
- 3-08 Skills for Successful Communication:** Communication is important to ensure effective work is done. Water and Wastewater utilities must communicate with customers and outside entities. Successful use of communication skills will assist all staff to function. *Trainer: Heather Somers - North Carolina Rural Water Association Earn 3 DW & WW CH*
- 3-09 Increasing Financial Stability:** Open to all attendees. Presentations and discussion on revenue generating and cost saving options for water and wastewater systems. Includes group health insurance, cost-effective mapping, workplace banking, warranty and customer support programs and online payments. Great opportunity for discussion. *Trainer: Tony Worley, Brian Preski, Ben Hill, David Payne, Brenna Robb, John Rodgers, Timothy Care, Connor Whitacre - HECorp - eNetPay, NAWSC, Diamond Maps; PNC, Benecon Earn 1 DW & WW CH*

- 3-10 Online Process Instrumentation for Monitoring and Control of Biological Nutrient Removal (BNR):** This workshop provides participants essential information on the selection & care of online instrumentation for monitoring & control of biological nutrient removal (BNR) activated sludge. *Trainer: Adrienne Stenz - YSI, a Xylem Brand Earn 3 WW CH*
- 3-11 Biological Metabolic Processes and Nutrient Removal:** This course also offered Tuesday Morning - session 1-11. See 1-11 for description. *Trainer: George Pearson, Howie Pearson - Quorum Earn 3 WW CH*
- 3-12 Wastewater System Math Refresher:** Wastewater operators are required to complete math calculation to assist in operations. This course will review some of the math required to operate a wastewater system. *Trainer: John Buskirk - Industry Specialist Earn 3 WW CH*
- 3-13 Holistic Approach to Inflow and Infiltration:** This course covers common Inflow and Infiltration (I&I) issues in wastewater collection systems. Topics include manhole rehabilitation including rings, composite covers, sealing, grouting and lining. Includes in-class demonstrations. *Trainer: Chris Hamilton, Lucas Robinson, Keith Sisson - DLVEWS, Inc., Cretex Seals, Avanti Group Earn 3 WW CH*
- 3-14 Tracking Non-Revenue Water with Audit Software:** This class will give attendees an understanding of non-revenue water (NRW), and the basic AWWA Free Water Audit Software. Utilities are better armed to control their NRW once they have conducted the water audit and know the cost impacts of losses. *Trainer: George Kunkel, P.E. - Kunkel Water Efficiency Consulting Earn 3 DW CH*
- 3-15 Service Valve Renewal, and Service or Mainline Tapping:** When replacing or renewing a service the proper products and methodologies must be used. Having a working knowledge of the common issues that may occur is critical toward maintaining a safe and sanitary tap of a water main. *Trainer: Mark Langenhan - Dresser Utility Solutions Earn 3 DW CH*
- 3-16 Groundwater Supply Development in Pennsylvania:** A review of the regulatory requirements pertaining to the construction and permitting of a public groundwater supply well. Includes wells for Community and Non-Community water supplies and the difference in the testing and permitting required. *Trainer: Chris Finton, P.G. - ARM Group LLC Earn 3 DW CH*
- 3-17 DW Exam Review - Part 1 of 4: General Exam:** Review for those taking the drinking water certification exams in 2024. During this session review will focus on the general exam. *NOTE: No Tuesday Review sessions - use Tuesday for self-study. Trainer: Wendy Malehorn - PRWA Earn 1 DW & WW CH*
- 3-18 WW Exam Review - Part 1 of 4: Activated Sludge:** Review for those taking the wastewater certification exams in 2024. During this session review will focus on Activated Sludge. *NOTE: No Tuesday Review sessions - use Tuesday for self-study. Trainer: Tom Goehring - PRWA Earn 1 DW & WW CH*

Don't forget to check out the exhibit hall!

Tuesday

5:00 pm - 6:30 pm

Wednesday

11:30 am - 1:30 pm & 5:00 pm - 8:00 pm

Thursday

11:30 am - 1:30 pm

Wednesday Afternoon 3 Hour Classes: 1:30 pm – 5:00 pm

- 4-01 Dealing with Angry People and Stress and Worker Safety:** This class provides awareness of those things which may cause anger to people you deal with and methods to defuse situations and achieve good results. This class will provide understanding of the types of stressors in a worker's life and the means to address them to reduce injury and illness. *Trainer: Joe Zinobile, CSP - PA L&I Earn 3 DW & WW CH*
- 4-02 CPR and First Aid Overview:** Rural water and wastewater systems are often located far from medical facilities. The nature of the work makes accidents and injuries possible. Staff may need to provide basic first aid or CPR until medical professionals arrive. This course provides an overview of these skills. No certification is offered. *Trainer: Mark Stephens P.G. - Industry Specialist Earn 3 DW & WW CH*
- 4-03 Public Communication in the Instant Information Age - Lead, Copper (LCR) and PFAS:** Participants will learn how to create and implement a variety of crisis communications plans. The course will cover communications processes throughout the initial and ongoing stages of the crisis. Updated with the latest federal Lead/Copper Rule and PFAS communication concerns. *Trainer: Mike McGill - WaterPIO Earn 3 DW & WW CH*
- 4-04 Basics of Centrifugal Pumps and Hydraulics:** Centrifugal pumps are used in both the water and wastewater industry. This course will review the basics of hydraulics, how to size and select a pump, reading impeller curves, and how to maintain pumps. *Trainer: Brian Sekula, P.E. - Industry Specialist Earn 3 DW & WW CH* This class is offered again on Thursday afternoon, class #6-13.
- 4-05 Pressure Gauges and Audits at Water and Wastewater Plants:** This course covers pressure gauge design, function, failures, and audits (field surveys) at water/wastewater facilities. With the data gathered, guidelines that optimize reliability, minimize failure and reduce stock inventory can be developed. *Trainer: Ravi Jethra - WIKA USA Earn 3 DW & WW CH*
- 4-06 Not All It's Cracked Up to Be - Our Failing Pipe Infrastructure:** A combination of old pipes and earlier than expected failure of newer pipes has led to a "perfect storm" in our pipe infrastructures. Estimates of pipeline replacement nationwide exceed \$1 trillion in the next decade. This course covers the history of pipes, expected lifespans and considerations for line replacement. *Trainer: William Friedah, P.E., Matthew Quinn - Utility Services Group, Inc., Entech Engineering, Inc. Earn 3 DW & WW CH*
- 4-07 Tanks - All Mixed Up? - Mixing, Rehab and Inspection for Water and Wastewater:** Tank owners often struggle; they want to take care of their tanks, but they are "out of sight, out of mind," until there's a problem! Regular inspections keep small problems from becoming big, costly repairs. Tips on rehabilitation, mixers, and drone use will be reviewed. *Trainer: Christine Gunsaulus - Industry Specialist Earn 3 DW & WW CH*
- 4-08 Energy Planning for Your Plant:** This session will assist both water (<500,000 gal per day) and wastewater utilities (<0.6 MGD) with tracking their energy utility usage. Other topics include how they can create or update their energy security plan, tools available to assist in examining renewables, energy storage and other microgrid opportunities to prepare for energy cost increases and energy disasters *Trainer: Amanda Eyer, Heather Cowley - PADEP Earn 3 DW & WW CH*
- 4-09 Emergency and Bypass Pumping - Sizing and Specifications:** This course covers many of the important topics when performing emergency and bypass pumping. The course will cover general safety aspects of diesel and electric driven pumps. Includes self priming diesel pump outdoor demonstration. Dress Appropriately. *Trainer: Jared Carothers, EIT - Xylem Dewatering Solutions Earn 3 DW & WW CH*
- 4-10 Combating Inflation with Energy Savings:** Open to all attendees. Presentations and discussions on issues relating to energy management and alternate energy generation programs for water and wastewater systems. *Trainer: Noel Temple, Scott Wyland, Doug Berry, Michael Kerr, Chris Conover, Shaun Sparks, Krystle Sacavage - APPI Energy: Solar Renewable Energy; New England Hydropower; PA PUC Earn 1 DW & WW CH*
- 4-11 Wastewater Pump Station Design Considerations for Operators:** This course covers the design of wastewater pumping stations. It includes information on working with an engineer on design or upgrade. Some basic hydraulics is included, along with discussions of design issues and how to avoid operational and maintenance problems. *Trainer: Charles A. Hoffman III, PE., PSAP - Envirep/TLC Earn 3 WW CH*
- 4-12 Science of Pipe Cleaning: Levels Leading to Tier III:** This course will cover proper pipe-cleaning routines and the correct tools in underground infrastructure maintenance. Understanding of fluid mechanics and jetting equipment will help with efficient, safe, and correct cleaning. Weather permitting, the program will include an outside demo. Dress appropriately. *Trainer: Dan Story - KEG / A&H Equipment Co. Inc. Earn 3 WW CH*
- 4-13 Science of Manhole Inspections:** This course covers inspection of manholes. How to design inspection maps, develop a maintenance program as well as understanding flood plain elevations and soil types is reviewed. This course includes outdoor demos – Dress Appropriately. *Trainer: J. Scott Shipe - Scott Infrastructure Science Earn 3 WW CH*
- 4-14 Water Loss Management:** Unaccounted-for water is a big issue in Pennsylvania. Not only does it waste system revenue, but it can cause serious damage. This course will provide systems with some simple ways to reduce unaccounted-for water. *Trainer: Ian Moore, Brendan Line - Exeter Supply Earn 3 DW CH*
- 4-15 Understanding the ISO Fire Suppression Rating Schedule-Water Supply Evaluation:** This course is designed to help the student understand the impact that a water service provider has on the communities it serves as it pertains to commercial and residential property insurance. *Trainer: William Bekanich, CFPS; Tyler Olsen, MA CFPS FO IV - ISO Verisk Earn 3 DW CH*
- 4-16 Source Water Protection - Timber Management:** More systems are looking at their wellhead and watershed protection areas as alternative sources of revenue. This course will review timbering in source water protection areas. Topics covered include procuring a consulting forester, developing timber management plans, and climate smart and sustainable forestry. *Trainer: Kevin Yoder, Mike Wolf, Kenny Kane - The Nature Conservancy, Appalachian Forest Consultants, LLC, Generations Forestry Earn 3 DW CH*
- 4-17 DW Exam Review - Part 2 of 4: Math Concepts:** Review for those taking the drinking water certification exams in 2024. During this session review will focus on basic math concepts. *Trainer: Wendy Malehorn - PRWA Earn 1 DW & WW CH*
- 4-18 WW Exam Review - Part 2 of 4: Activated Sludge:** Review for those taking the wastewater certification exams in 2024. During this session review will focus on Activated Sludge (note this is a continuation of the morning AM session) *Trainer: Tom Goehring - PRWA Earn 1 DW & WW CH*

Many of these courses have been offered at conference or in the field within the last 3 years. Be sure you have not taken a class within your current cycle. Repeats receive NO contact hours. If you are unsure, we can assist you at the help desk or check your Earthwise Transcript.

Thanks to Exeter Supply for sponsoring the printing of the programs.



4-19 Roundtable – Finished Water Depleted Emergency – Now What?: Join PaWARN for an interactive roundtable workshop discussing the challenges of locating potable bulk water haulers, complying with DEP regulations for obtaining emergency permits, and other complications that arise when your finished water supply is depleted. A recent water authority emergency will be discussed. Share your experiences with similar incidents so we can all learn from your response efforts. *Trainer: Mike Snyder - PaWARN Earn 1 DW & WW CH*

Thursday Morning 3 Hour Classes: 8:00 am – 11:30 am

5-01 Trenching and Safety Overview: See class #2-02, Tuesday afternoon, for description. *Trainer: John Buskirk - Industry Specialist Earn 3 DW & WW CH*

5-02 Flagger Training: This class is to instruct water and wastewater operators on proper procedures and equipment for flagging, as outlined by PennDOT Publication 213. Those who successfully complete this course will receive a PennDOT 3-year Wallet Card. *Trainer: Mike Emery - PRWA Earn 3 DW & WW CH*

5-03 Emerging Contaminants "PFAS": See class #1-10, Tuesday morning, for description. *Trainer: Brian Little - PRWA Earn 3 DW & WW CH*

5-07 Aging Infrastructure - Repairs: This course will cover current infrastructure issues in both water & wastewater systems. It will focus on the decision of either repairing through linings or coatings or replacements. If replacement will be made, can they be made by the municipal staff? Also, what are the key issues to be aware of? *Trainer: Dave Rockacy; Stephen Sharps - Rockacy and Associates Earn 3 DW & WW CH*

5-08 Roundtable - Funding and Financing: Open to all attendees. Presentations and discussions on potential funding. Representatives from PennVest, USDA, DCED and others will cover available state and federal funding resources and requirements to pursue these funding sources. Also includes a presentation on private financing options from PNC. *Trainer: Linda Thomas, Tom Wellington, Dave Henning, Stephen Schelander, Tim Care, David Payne - USDA, PennVest, DCED, PNC Capital Markets LLC Earn 1 DW & WW CH*

5-09 Basic Math Refresher: This course provides an overview of the basic mathematical principles required to operate a water treatment plant or a wastewater treatment plant or review for an operator certification exam. *Trainer: Brian Sekula, P.E. - Industry Specialist Earn 3 DW & WW CH*

5-10 Collection System Troubleshooting: A collection system operator needs to know how to identify problem areas, detect I & I and repair those problems once found. This course is designed to help collection system operators establish maintenance and troubleshooting practices and repair collection system problems, so that the system can remain in compliance and not exceed permit levels. *Trainer: Phil Giunta - PRWA Earn 3 WW CH*

5-11 Introduction to Ultraviolet Disinfection for Wastewater Systems: The purpose of this course is to introduce wastewater operators to UV disinfection. This course covers disinfection basics, things to consider when choosing UV disinfection, pros and cons of UV, UV operational theory, UV system components, and basic installation, operation, and maintenance of a UV disinfection system. *Trainer: Pete Weaver - PRWA Earn 3 WW CH*

5-12 Rare Earth Technology in Wastewater Treatment: This course is designed to provide operators with an introduction to the application of Rare Earth Technology in wastewater treatment. This is an alternative phosphorus removal technology without the need for capital expenditures decreasing sludge generation and increasing flocculation. *Trainer: Mason Haneline - Neo Water Treatment Earn 3 WW CH*

5-13 Application and Operation of Automatic Control Valves For Water Distribution Systems: This course covers how a control valve works and proper start-up procedures. Includes live training lab with a full working variety of control valves for hands on experience. This course will instruct students on pressure reducing, pressure sustaining, relief and altitude control valves. *Trainer: Jim Graber, Andrew Furman - Cla-Val Earn 3 DW CH*

5-14 Phosphorus - A Holistic Approach to Corrosion Control and Water Quality: This course explores the relationship between corrosion control and other water quality treatment processes and the use of phosphorus-based chemical additives to address these issues holistically with an end goal of using less phosphorus. *Trainer: Matt Tyrrell, Dave Linville, Colin Barrett - AquaSmart, Inc. Earn 3 DW CH*

5-15 Reduction of Non-Revenue and Unaccounted-for Water thru Leak Detection and Metering: This course will provide a student with the ability to identify and reduce both unaccounted-for and non-revenue water in their system. The course will show how this is achieved through the implementation of system-wide leak detection and metering programs. *Trainer: Andrew Opalewski, Tim Trout - Ferguson Waterworks, LLC Earn 3 DW CH*

5-16 Electrical Hazards: Metallic Water Service Lines and Mains: Operations employees have experienced electrical shocks while working on metallic service lines, mains and flow meters. This course focuses on the causes of electrical hazards and the dangers of electrical shock. The course reviews protective procedures and equipment to prevent electrical shock, and the dangers of thawing metallic water pipes with high DC or AC current. *(This class ends at 12 pm) Trainer: Dale Skinner - Industry Specialist Earn 3.5 DW CH*

5-17 DW Exam Review - Part 3 of 4: Distribution Exam: Review for those taking the drinking water certification exams in 2024. During this session review will focus on the distribution exam. *Trainer: Wendy Malehorn - PRWA Earn 1 DW & WW CH*

5-18 WW Exam Review - Part 3 of 4: General and Collection: Review for those taking the wastewater certification exams in 2024. This session will focus on the General and Collection exams. *Trainer: Tom Goehring - PRWA Earn 1 DW & WW CH*

Thursday Afternoon 2 Hour Classes: 1:30 pm – 3:45 pm

6-03 PFAS Management: What to do BEFORE you do it: PFAS/PFOA and similar "forever" chemicals are a significant concern for drinking water and wastewater treatment facilities. Concerns range from removal during treatment to concerns over proper disposal of contaminated media and solids. This course covers current technology to address these concerns. *Trainer: Phil Farina, Mike Rizzo - Clear Creek Systems, Inc. Earn 2 DW & WW CH*

6-04 High Precision Global Navigation Satellite Systems (GNSS) Data Collection - Key Ingredients for Mapping Success: This workshop covers GPS, GNSS and RTK networks that can easily be leveraged by water systems to map new assets or boost the location accuracy of existing mapped data. Hands-on opportunities to explore field data collection workflows. Outside demo – bring appropriate clothing. *Trainer: Jake Holbert - Land Logics Group Earn 2 DW & WW CH*

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6-05 Fundamentals of Ductile Iron Fittings: Operators, managers, and engineers need to have an understanding of the proper use of ductile iron fittings in the collection and distribution system. This course will review AWWA standards, regulations, installation, and troubleshooting of ductile iron fittings. *Trainer: Bill Coon, Jack Lewis - Tyler Union Earn 2 DW & WW CH*

6-06 PVC Pipe and Fittings: PVC pipe products have been used in collections and distribution systems since the 1960s. Understanding which product to choose and how to install them is needed. Additionally, PVC has evolved, offering new and more versatile products. This course will review these topics and participants choose the best product for their systems. *Trainer: Richard St-Aubin, P.E. - IPEX USA Earn 2 DW & WW CH*

6-08 Food/Microorganism Ratio (F/M) And Mean Cell Residence Time (MCRT): An activated sludge treatment system is a living ecosystem and requires special care to ensure that the organisms are healthy. Two calculations that are often used to ensure this are F/M Ratio and MCRT which will be covered in this class. *Trainer: Chad Heister - PRWA Earn 2 WW CH*

6-10 Living Through a Service Line Inventory (SLI) - Get the Lead Out!: This course covers the following: regulatory review and requirements of the Lead and Copper Rule Revision (LCRR) as it relates to the Service Line Inventory (SLI) requirement; guidance on initiating inventory efforts; database management; methods of gathering service line material information and analysis; engaging with stakeholders; future requirements; and sources of technical and funding assistance. The course will provide case studies to share real-time tips and tricks, as well as lessons learned through the SL Inventory process. *Trainer: Tori Morgan, LO, Stacy Silva, David "DJ" Teter, LO - Entech Engineering, Inc., Borough of Orwigsburg Earn 2 DW CH*

6-11 Hydrants Installation, Maintenance and Repair short course: This course will briefly cover the evolution of fire hydrant design from the early years to present day, explaining the benefits of today's designs. The primary focus of the course will be to train students in the proper operation, maintenance, and repair of fire hydrants. *Trainer: Ryan Caron, Bryan Elford - Kennedy Valve and M&H Valve Earn 2 DW CH*

6-12 Introduction to Smart Meters and Meter Reading Systems: Ultrasonic meters can provide a valuable metering solution for utilities. This course will provide technical information, and review when and where to use ultrasonic meters. The advantages, disadvantages, and maintenance needs of ultrasonic meters will be discussed. *Trainer: Sharon DelSignore - EAP Industries, Inc. Earn 2 DW CH*

Thursday Afternoon 3 Hour Classes: 1:30 pm – 5:00 pm

6-13 Basics of Centrifugal Pumps and Hydraulics: See class #4-04, Wednesday afternoon, for description. *Trainer: Brian Sekula, P.E. - Industry Specialist Earn 3 DW & WW CH*

6-14 Disinfection Math Review - 3 hr: This course covers math calculations operators need to perform when using gas chlorination and hypochlorite disinfection. Participants will be doing the following types of calculations: dosage/feed rate, chlorine demand or dose, CT, changing % concentrations and detention time. Good math review for disinfection exams. *Trainer: Deb Rotz - Industry Specialist Earn 3 DW & WW CH*

6-15 Wastewater Treatment Biological Processes: The purpose of this course is to define the treatment processes required for removal of the main influent constituents, highlighting the nutrients present in wastewater and how these are removed by emerging treatment technologies including variations of activated sludge systems, as well as granular sludge technology. *Trainer: Manuel de los Santos: Thea Davis - Aqua-Aerobic Systems, Inc. Earn 3 WW CH*

6-16 Toxic and Combustible Gas Detection Practices: Operators must be aware of the hazards faced on a daily basis. This course will cover atmospheric hazards, identification of those hazards, choosing the proper equipment for identification, and maintenance of that equipment. *Trainer: Steve Slavutsky - Draeger, Inc / Neal Systems Inc. Earn 3 DW & WW CH*

6-17 DW Exam Review - Part 4 of 4: Practice Questions: Review for those taking the drinking water certification exams in 2024. During this session, test taking tips will be reviewed in addition to practicing multiple questions. (NOTE: if you need help with Disinfection Math, see session 6-14) *Trainer: Wendy Malehorn - PRWA Earn 1 DW & WW CH*

6-18 WW Exam Review - Part 4 of 4: General and Collection: Review for those taking the Wastewater Exams in 2024. This session will focus on the General and Collection Exams (note this is continuation of the Thursday morning session) *Trainer: Tom Goehring - PRWA Earn 1 DW & WW CH*

Beginning in January 2024, certificates of completion are no longer being mailed out to attendees. Attendees will be able to access their course completions on our website at www.prwa.com/certificates.

The website will require your PA DEP Client ID Number and zipcode. In most cases, the zipcode will be the operator's home address zipcode. Otherwise, it will be the employer's zip code.

If you are not currently licensed with PA DEP, please email our office at training@prwa.com. We will provide you with a PRWA ID number to view and print your training certificates.

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