



77TH ANNUAL SHORT COURSES FOR WATER & WASTEWATER OPERATORS

May 31 – June 5th, 2026

HELD
AT

MOUNT ST. MARY'S UNIVERSITY
16300 Old Emmitsburg Rd.
Emmitsburg, MD 21727

*Sponsored
By*

Chesapeake Section, American Water Works Association (CSAWWA)

Chesapeake Water Environment Association (CWEA)

*Water and Waste Operators Association of
Maryland, Delaware and the District of Columbia (WWOA)*

77th SHORT COURSE PROGRAM & SCHEDULE

***Important note to all overnight attendees: Mount St. Mary's University no longer furnishes: linens, pillows, or towels therefore attendees are responsible for bringing their own. Repeat: it is your responsibility to provide your own pillow, sheets, blanket, towels, and wash cloths.** Note: The beds are Twin-XL (XL = extra-long) however Full or Queen size will work.

Important Reminder: A refundable \$10.00 key cash deposit will be collected at the time of registration. Students will be billed \$75.00 for lost keys.

Sunday, May 31st, 2026

3:00 p.m. to 6:00 p.m. Check-in and Room Assignments

6:00 p.m. to 11:00 p.m. The Short Course will begin with a Buffet Dinner at 6 p.m. in the Main Dining Room located in Patriot Hall followed by a Meet & Greet beginning at 7:30 p.m. in the PAC.

Monday, June 1st through Thursday, June 4th, 2026

7:00 to 8:00 a.m. Breakfast for non-commuters

8:00 a.m. to Noon Training Sessions

Noon to 1:00 p.m. Lunch for all Attendees and Trainers

1:00 to 5:00 p.m. Training Sessions

5:00 to 6:00 p.m. Dinner for Non-commuters (Mon, Tues, & Thurs);
5:00 to 8:00 p.m. Picnic dinner in PAC for Non-commuters (Wed)

Friday, June 5th, 2026

7:00 to 8:00 a.m. Check-out, Key Return, Breakfast for Non-commuters

8:00 to 11:00 a.m. Final Short Course Exams

OR

8:30 a.m. to Noon Maryland Board of Water and Waste Systems Operators Certification Exams for those scheduled*

Purpose

The Short Course for Water and Wastewater Operators offers training, information, and insights that will enable the water and wastewater systems personnel to operate their facilities in a more effective, safe, and economical manner. The courses offer help for those preparing to become certified professionals and new ideas/topics for existing operators.

Non-Discrimination Statement

The WWO Short Course Committee does not discriminate in its educational programs or activities on the basis of race, color, national or ethnic origin, ancestry, age religion or religious creed, disability or handicap, sex or gender. The Short Course will comply with state and federal laws such as M.G.L.c.151B, Title IX, Title VI and Title VII of the Civil Rights Acts, the Americans with Disabilities Act, Section 504 of the Rehabilitation Act of 1973, the Age Discrimination in Employment Act, and other similar laws that prohibit discrimination.

Unlawful discrimination has no place at the Short Course and offends the organization's core values which include a commitment to equal opportunity and inclusion. All Short Course Committee members, instructors, students, and staff members are expected to join with and uphold this commitment.

Questions/Problems

If there are any questions not answered in this brochure or problems encountered prior to registration, you can contact Ivy Swann at pwswan23@aacounty.org or Lauren Thompson at help@wwoshortcourse.com.

Mount St. Mary's University should Not be contacted regarding registration or arrangements! The University's only function is to provide facilities for the courses. All questions must be directed at the above-named individuals or Short Committee members.

Directions to Mount St. Mary's University

Mount St. Mary's University is located at 16300 Old Emmitsburg Rd, Emmitsburg, MD 21727 which is located north of Frederick just off U.S. Route 15. The University facility is on the west side of the highway and is well marked. Directional signs to the Short Course will be provided.

***Maryland State Operator Certification Exam**

This year the Maryland Board of Water and Waste Systems Operators will hold State operator certification exams for all classes at the conclusion of the Short Course on Friday June 5th, 2026, from 8:30 a.m. - Noon in Patriot Hall. This exam is not part of the actual Short Courses and is separate from the TRE credit exam given by each session of the Short Course.

Payment to attend the Short Course does not include the cost, nor entitle you to take the Maryland Certification Exam! *You must apply separately to the Maryland Board of Waterworks and Waste Systems Operators to sit for the Maryland Certification Exam.

MDE must receive the application for those wishing to take a Certification Exam at Mount St. Mary's University by May 5th, 2026.

No more than 200 applications will be accepted for this exam. It is suggested that you register early for the State exam. The exam application form can be found at:

<https://mde.maryland.gov/programs/Permits/EnvironmentalBoards/Pages/BWW.aspx>

Mail completed applications to:

Board of Waterworks & Waste Systems Operators
P.O. Box 2057
Baltimore, MD 21230-1708

Any questions regarding the Certification Exams may be referred directly to Board staff at [1\(800\) 633-6101](tel:18006336101), ext. 3167 or [\(410\) 537-3167](tel:4105373167) or martin.fuhr@maryland.gov.

Sponsorship/Scholarships

The Annual Water and Wastewater Operators Short Course is operated by the Short Course Committee, a group made up of representatives from the Water and Wastewater Operators of Maryland, Delaware, and the District of Columbia (WWOA), the Chesapeake Section, American Water Works Association (CSAWWA), and the Chesapeake Water Environment Association (CWEA). Scholarships may be offered through each organization to attend the Short Course. Members of each organization are eligible per the selection process of the organization.

In addition, the Short Courses Committee will be offering sixteen scholarships based on need, including one named in honor of Don Sprinkle, a longtime Short Courses committee member and instructor, which was generously donated by Prostart. See the Short Courses website (wwshortcourse.com) for additional information. Small system operators are encouraged to apply!

This training effort is sponsored by the professional membership organizations and the employers of the water and wastewater operating professionals. It is a volunteer organization. Should you wish to become a member please contact a member of the Short Course Committee.

Conduct of Participants

Throughout the history of the Short Course most participants have conducted themselves in a most reasonable manner and a credit to our profession. This is a reminder that all participants will act responsibly. Undesirable conduct will not be tolerated and will result in your removal from the site by campus police without a refund. Notification to your employer and the cause for removal will follow.

In addition, anyone found unduly under the influence of alcohol and or drugs, anyone found buying, selling, consuming, or possessing illegal narcotics and drugs will be required to leave this year's Short Course immediately and will be banned from all future Short Courses. Unduly under the influence will be in the judgment of any Short Course Committee member or university official.

Attendance and Training Credit Hours Earned

The policy of the Short Course Committee is that a student must attend at least 80% of the training (Short Course examination being included in the total time – the State examination does not count as class attendance) to receive credit for full attendance. All courses are subject to approval by the Maryland Board of Waterworks and Waste System Operators. Also, 80% or better attendance along with a passing grade on the course final examination, results in 1.5 times the full attendance credit. Attendees with less than 80% attendance or single-day attendees will receive a certificate of attendance for the actual hours attended. The Short Course Committee does not submit individual classes for TRE credits except for the Superintendent course. Attendees have the option to submit the hours for approval.

If you are planning to take a State Certification exam on Friday, June 5th, and you are also interested in taking the Short Course final exam, you may do so on Thursday evening. Only individuals taking the State Certification exam will be eligible for this option. You must make arrangements

with your course coordinator by Tuesday, June 2nd. **All participants must sign their own name on attendance sheets during the class to receive credit. NO EXCEPTIONS.**

Delaware Operator License Holders

Certified Delaware Operators are welcome to submit MDE approved courses for credit with the State of Delaware.

Short Course registration is now PAPERLESS! Mail-in registration will NOT be accepted.

How to Register:

1. Gather all required information for each attendee being registered:
 - a. Membership status (CSAWWA, CWEA, WWOA, none)
 - b. Membership # (if applicable)
 - c. Scholarship Winner (yes/no)
 - d. If a scholarship winner, which scholarship
 - e. Type of registration (Full week or single day)
 - f. Attending Sunday buffet (yes/no)
 - g. Attendee information: First Name, Last Name, Email Address, Phone #, Emergency contact name and phone #, Organization/Company name, Address, Gender
 - h. Which Course the attendee plans to attend:
(Introduction to Water, Water 3&4, Advanced Water, Water Distribution, Introduction to Wastewater, W5A Exam Preparatory, Advanced Wastewater, Industrial Wastewater, Wastewater Collection, or Superintendent)
 - i. Include any requests for accommodation. The Short Course Committee will do its best to provide any reasonable accommodation.

Connect to our online registration system by visiting <https://wwoshortcourses.regfox.com/77th-annual-short-courses> or go through the Short Course website at www.wwoshortcourse.com

2. Complete individual or group registration(s)
3. Pay – see prices below
4. Print your invoice – **No invoice will be mailed to you!**

Course Registration

Registration Packages	Members	Non-Members	Members	Non-Members
	Apr. 1 – May 2, 2026	Apr. 1 – May 2, 2026	May 3 - 17, 2026	May 3 - 17, 2026
Full Week – Complete Pkg. (classes, meals, lodging)	\$600	\$625	\$650	\$675
Full Week – Classes & lunch only	\$325	\$350	\$375	\$400
Single Day (includes lunch)	\$85	\$95	\$95	\$105
Breakfast & Dinner only	\$120/week \$30/day	\$120/week, \$30/day	\$120/week \$30/day	\$120/week \$30/day
Lodging only	\$50/night	\$50/night	\$50/night	\$50/night

No registrations will be accepted after 11:59 p.m. on May 17, 2026

Payment

- Pay online using credit card or EFT - you can register a group of attendees using one credit card.

Cancellations will be charged a fee of \$25.00. No refunds will be issued after May 25th, 2026.

Emergencies

If there is an **emergency** at home or work while you are staying at the College and you must be reached, the 24-hour Public Safety number is (301) 447-5357. A message will be taken, and every attempt will be made to contact you.

On-Site Help

If you are a single day attendee or an instructor, or should you have any questions/problems during the week, you can find help in the Short Courses Headquarters in Room 127 of the Knott Academic Center from 7 a.m. to 5 p.m. Please call Short Course Chairperson Ivy Swann at (410) 474-9167 should you need help.

Overnight Room Accommodations

Overnight accommodation will be available at a cost of \$50.00 per person per night. This fee includes an air-conditioned room. Rooms will be available from 4:00 p.m. Sunday, May 31st and must be vacated by 8 a.m. on Friday, June 5th. **A refundable \$10.00 cash key deposit will be collected at the time of registration. However, students will be billed \$75.00 for lost keys.** Room and board costs include the standard cafeteria meals (breakfast and dinner) served in Patriot Hall. Lunch is included in the registration cost for all attendees.

NO LINENS WILL BE PROVIDED.

Meals for on-site accommodation begin with the buffet dinner on Sunday evening, May 31st, and end with breakfast on Friday morning, June 5th. The serving times are:

Breakfast – 7:00 a.m. to 8:00 a.m.

Lunch – Noon to 1:00 p.m.

Dinner – 5:00 – 6:00 p.m. (Wednesday 5:00 - 8:00 p.m.)

All bedrooms are private however you will be sharing an apartment with other attendees. We will make every effort to help you stay with someone you know, but there are no guarantees. If you would like to share an apartment with another attendee(s), you can pay their key deposit when paying yours, and he/she will receive the key upon his/her checking in. Please coordinate with them so they are aware that you have already signed up and paid for his/her room. If you choose not to reserve someone else' room(s), you will be paired up with other attendees on a first-come, first-served basis.

Should you prefer to stay off campus, there are several motels nearby. Reservations must be made by you at your own expense. If you wish to eat breakfast and/or dinner on campus, you must purchase a meal plan.

Parking

Please observe all parking restrictions at the college. All vehicles improperly parked on grass or prohibited areas will be given a ticket and/or towed. Short Course participants are only authorized to park in lots 7, 8, and 10.

Smoking

Smoking and/or vaping is prohibited in all college buildings including residential halls, and outdoors within 15 feet of all college buildings. **Violations may result in fines which will be the responsibility of the person smoking.** Repeat violations may result in the loss of campus housing.

Sunday Evening Meet & Greet

On Sunday, May 31, 2026, the Short Course will begin with a Buffet Dinner and Meet and Greet. The buffet will be served from 6:00 - 7:30 p.m. in Patriot Hall, and the Meet & Greet to follow until 11:00 p.m. in the PAC.

Evening Recreational Activities

Monday 7:00 - 11 p.m. Pizza Night, Trivia Contest and Televised Sports

Tuesday 7:00 - 11 p.m. Wings Night, Meter Madness/Pipe Cutting Contests & Televised Sports

Wednesday 5:00 - 11 p.m. Picnic Night, Corn Hole Contest, Live Music, and Televised Sports

Thursday - Study Night - No Activities Scheduled

SESSION LISTINGS

Disclaimer

Numerous Short Course classes are designed for those people just entering the field and/or holding temporary operator licenses. Attendance at this course in no way implies a guarantee that those participating in the sessions are assured of passing the State Certification exam. However, the information covered in the sessions should be helpful with some parts of the certification exam. Fully certified operators are encouraged to take more advanced sessions for re-certification credit. All sessions are submitted for Maryland TRE credits.

Introductory Water Course

Course Coordinator: Robert Nally

The curriculum involves applied mathematics; basic concepts in water production and treatment, as well as maintenance and safety aspects associated with water treatment systems. This course has been submitted for Maryland TRE credits.

MONDAY

8:00 – 8:30 a.m. **Overview** – Course Coordinator, Robert Nally Jr. – WSSC Water
An overview of the Introductory Water program will be presented and course objectives discussed. TRE requirements will be outlined. This course will cover material which will be helpful to students new to the water industry as well as those who will be taking the State Certification Exam for Water Treatment.

8:30 a.m. – Noon **Source Water Protection** – Instructor, Justin Akers – Anne Arundel County DPW
This course is intended for public water systems that utilize groundwater wells and surface water as a source of supply. Topics to be covered include groundwater hydrogeology; types of surface water, types of wells and drilling techniques; well pumps, motors, and control systems; pump station design; operational strategies; maintenance and rehabilitation alternatives; water quality monitoring; performance monitoring and troubleshooting; and sanitary risks and source water protection.

Noon – 1:00 p.m. **Lunch**

1:00 – 5:00 p.m. **Coagulation, Flocculation & Sedimentation** – Instructor, Scott Harmon
– Rural Community Assistance Corporation (RCAC)
Session will cover the first three steps of conventional water treatment process; including rapid mixing, types of flocculation, and sedimentation will be discussed.

5:00 – 6:00 p.m. **Dinner**

TUESDAY

8:00 a.m. – Noon **Filtration and Disinfection** – Instructor, Christopher Bruno Sr, U. S. Army Corp of Engineers
This course will cover various types of Filtration and Disinfection processes used in water treatment. Commonly used filters and filter media will be discussed. Commonly used disinfection chemicals and feed equipment will also be discussed.

Noon – 1:00 p.m. **Lunch**

1:00 – 5:00 p.m. **Pump Maintenance** – Instructor, Steve Justice - Geiger Pumps
An overview of mechanical maintenance on motors and pumps in the workplace is provided. Packing pumps, motor replacements and other topics will be discussed thoroughly.

5:00 – 6:00 p.m. **Dinner**

WEDNESDAY

8:00 a.m. – Noon **Distribution System Processes** – Instructor, Billy Dove - Hazen & Sawyer
This course will discuss water distribution systems. Among the topics discussed will be various types of water storage, hydraulic concepts of pressure and force, pressure reducing valves, booster pumps, the importance of tank turnover, chlorination, and disinfection byproducts, and routine maintenance.

Noon – 1:00 p.m. **Lunch**

1:00 – 5:00 p.m. **PLC Systems for Water Operators** – Instructor, Monica Cortez - WSSC Water
This course will focus on Programmable Logic Controller (PLC) systems in the water treatment industry. Among the topics discussed will be the history of PLC systems, basic electrical and PLC terminology, the components of a PLC, Basic Ladder Logic, PLC communications, Discrete and Analog devices, and troubleshooting techniques. Attendees should leave this course with a more thorough understanding of how PLCs function in their plant.

5:00 – 8:00 p.m. **Dinner**

THURSDAY

- 8:00 a.m. – Noon **Applied Mathematics** – Instructor, Dinesh Bahadursingh – WSSC Water
This session will focus on basic mathematics and applications fundamental to water treatment. Upon completion of this course, personnel should be able to perform calculations needed to verify various plant processes. Examples include chemical dosing, detention time, pressure calculations, backwash flow rates, and temperature conversions.
- Noon – 1:00 p.m. **Lunch**
- 1:00 – 3:00 p.m. **Fluoridation in Drinking Water** – Robert Nally – WSSC Water
Fluoridation is an important process in drinking water that helps communities prevent tooth decay. This course will focus on the history of Fluoridation, how Fluoride is used and monitored in drinking water, and the benefits as well as the potential.
- 3:00– 5:00 p.m. **pH Control in Drinking Water** – Robert Nally – WSSC Water
Maintaining an optimum pH in a plant’s finished water is vital for preventing scaling or corrosion in the distribution system. This course will discuss various chemicals and methods used to control pH, the regulations regarding pH such as the LCCR, and the ramifications if a system’s pH is out of range.
- 5:00 – 6:00 p.m. **Dinner**

FRIDAY

- 8:00 – 11:00 a.m. **Final Course Exam** - Introductory Water
-

Water 3&4 Course

The Water 3&4 course is designed for those who operate water treatment plants. Among the treatment processes to be covered are: disinfection, pH control, coagulation, flocculation, sedimentation, filtration, iron removal utilizing ion exchange, contact oxidation processes, fluoridation, aeration, and complex iron removal. This course has been submitted for Maryland TRE credits and is pending Board approval.

MONDAY

- 8:00 – 8:30 a.m. **Overview** - Course Coordinator, Dinesh Bahadursingh – WSSC Water
An overview of the Water 3 & 4 course will be presented; course objectives and TRE requirements will be discussed.
- 8:30 a.m. – Noon **Chlorination Technology** – Instructor, Rob Harvey – Hazen & Sawyer
This session will cover the use and safe handling of chlorine. Included in this discussion will be waterborne diseases, water-chlorine chemistry, disinfection methods, and operational factors that affect the disinfection process. Also included will be inspection of equipment, personal safety, health precautions, and emergency procedures.
- Noon – 1:00 p.m. **Lunch**

1:00 – 5:00 p.m. **Coagulation, Flocculation & Sedimentation** – Instructor, Scott Harmon – Rural Community Assistance Partnership (RCAP)
This session will cover the first three steps of conventional water treatment process; including rapid mixing, types of flocculation, and sedimentation will be discussed.

5:00 – 6:00 p.m. **Dinner**

TUESDAY

8 a.m. – Noon **Water Treatment Processes** – Instructor, Eddie Cope – Hazen & Sawyer
This session will cover various water treatment processes including coagulation, sedimentation, disinfection, fluoridation, iron and manganese removal, softening, taste and odor control, and corrosion control. Water sources, chemicals used in water treatment and plant operations will also be discussed.

Noon – 1:00 p.m. **Lunch**

1:00 – 5:00 p.m. **Water Examination Review** – Instructors, Dinesh Bahadursingh & Robert Nally – WSSC Water, Jay Price – Hazen & Sawyer. This session is designed to review topics that may help those taking the State examinations.

or

Pump Maintenance – Instructor, Steve Justice - Geiger Pumps
An overview of mechanical maintenance on motors and pumps in the workplace is provided. Packing pumps, motor replacements and other topics will be discussed thoroughly.

5:00 – 6:00 p.m. **Dinner**

WEDNESDAY

8:00 a.m. – Noon **Distribution System Processes** – Instructor, Billy Dove – Hazen & Sawyer
This course will discuss water distribution systems. Among the topics discussed will be various types of water storage, hydraulic concepts of pressure and force, pressure reducing valves, booster pumps, the importance of tank turnover, chlorination, and disinfection byproducts, and routine maintenance.

Noon – 1:00 p.m. **Lunch**

1:00 – 5:00 p.m. **Water Examination Review** – Instructors, Dinesh Bahadursingh & Robert Nally – WSSC Water, Jay Price & Eddie Cope – Hazen & Sawyer. This session is designed to review topics that may help those taking the State examinations.

or

PLC Systems for Water Operators – Instructor, Monica Cortez, WSSC Water
This course will focus on Programmable Logic Controller (PLC) systems in the water treatment industry. Among the topics discussed will be the history of PLC systems, basic electrical and PLC terminology, the components of a PLC, Basic Ladder Logic, PLC communications,

Discrete and Analog devices, and troubleshooting techniques. Attendees should leave this course with a more thorough understanding of how PLCs function in their plant.

5:00 – 8:00 p.m. **Dinner**

THURSDAY

8:00 a.m. – Noon **Applied Mathematics** – Instructor, Dinesh Bahadursingh – WSSC Water
This session will focus on basic mathematics and applications fundamental to water treatment. Upon completion of this course, personnel should be able to perform calculations needed to verify various plant processes. Examples include chemical dosing, detention time, pressure calculations, backwash flow rates, and temperature conversions.

Noon – 1:00 p.m. **Lunch**

1:00 – 3:00 p.m. **Ozone Disinfection** – Instructor, Doug Grimes - Fairfax Water
This session is designed to introduce Operational and Maintenance personnel to the concept of using ozone gas to treat drinking water. Attendees will be briefed on the history of ozone usage. The entire ozone treatment process will be discussed, including storing liquid oxygen, generating ozone on site, measurement of ozone residual, calculation of disinfection credit, and destructing excess ozone. Various components of the ozone process will be identified, as well as operation and maintenance of the ozone process.

3:00 - 5:00 p.m. **Water 3&4 Course Review** – Instructor, Dinesh Bahadursingh – WSSC Water
This session will be a review of the week’s material in preparation for Short Course final exam.

5:00 – 6:00 p.m. **Dinner**

FRIDAY

8:00 – 11:00 a.m. **Final Course Exam** – Water 3&4

Advanced Water Course

Course Coordinator: Rob Swann

The Advanced Water Topics curriculum is designed for water treatment plant operators. The course work is designed to investigate water treatment subjects and issues in greater detail than would be covered in introductory classes. People taking this course should be certified operators with approximately four years or more experience in water treatment technology and have completed basic introductory water courses. This course has been submitted for Maryland TRE credits.

MONDAY

8:00 - 9:00 a.m. **Overview** - Instructor, Rob Swann – Anne Arundel County DPW
An overview of the Advanced Water program will be presented and course objectives discussed. Course materials will be distributed and TRE requirements will be discussed.

9:00 a.m. – Noon **Membrane Filtration and Reverse Osmosis Treatment Technologies -**
Instructor, Ben Movahed - Watek Engineering
The theory and application behind operation and maintenance of Membrane Filtration and Reverse Osmosis Treatment systems. Problems associated with Membrane and Reverse Osmosis units will be discussed along with lab demonstrations which will be conducted.

Noon - 1:00 p.m. **Lunch**

1:00 - 5:00 p.m. **SDWA –** Instructor, Eddie Cope – Hazen & Sawyer, Justin Akers – Anne Arundel County DPW
This course will introduce water supply system personnel to the most recent SDWA revisions, including Maryland regulations, and the National Primary Drinking Water Regulations. Additionally, participants will review the 1996 amendments which greatly enhanced the existing law by recognizing source water protection, operator training, funding for water system improvements, and public information as important components of safe drinking water. Information about updated monitoring requirements recordkeeping, emergency planning and response, and certification.

5:00 - 6:00 p.m. **Dinner**

TUESDAY

8:00 a.m. – Noon **Understanding the Dangers of and Treatment Methods for PFAS Chemicals –** Instructor, Scott Harmon – Rural Communities Assistance Partnership (RCAP)
This session will cover information and treatment methods for PFAS Chemicals including PFOA, PFOA and GenX chemicals. We will discuss the history, health effects and EPA’s actions to address this issue and will explore the Best Available Treatment Techniques for treatment and mitigation.

Noon – 1:00 p.m. **Lunch**

1:00 – 5:00 p.m. **The Evolution of Disinfection in Water Treatment -** Robert Swann Sr – Anne Arundel County DPW
The methods used for the disinfection of public water systems has evolved over the years. Many water utilities are considering alternative disinfection options and moving away from chlorine gas. This class will closely examine the benefits and drawbacks to the use of various forms of disinfection from on-site sodium hypochlorite generation to UV, ozone and future disinfection options.

5:00 - 6:00 p.m. **Dinner**

WEDNESDAY

8:00 a.m. - Noon **Fluoride use in Community Water Systems –** Instructor, Scott Harmon - Rural Communities Assistance Partnership (RCAP)
This session will cover the use of Fluoride chemicals in Community Water Systems. The student will learn of the beneficial use of fluoride chemicals and some of the controversies surrounding its use. The students will explore different types of fluoride chemicals and equipment used

during the fluoridation process. We will also discuss regulations regarding safe dosage and MCL levels of fluoride in drinking water.

Noon -1:00 p.m.

Lunch

1:00 – 5:00 p.m.

Pumps – Instructor, Irene Pais – Geiger Pumps

This course is designed to provide water professionals with a solid technical overview of hydraulics as well as a review of pump types, applications, advantages and disadvantages. Commonly used pumps for water treatment will be discussed. Issues surrounding mechanical seals and packing will also be covered.

5:00 - 8:00 p.m.

Dinner

THURSDAY

8:00 a.m. - Noon

The Evolution of a Project: Water Treatment Plant Expansion, from Planning to Final Acceptance – Instructor, Jimmy Howard – Anne Arundel County

Operators sometimes aren't involved in the project development process until they have to operate a new facility. That is typically too late to get the product that you want - and that is where operations staff make field modifications to suit their needs. This class will discuss the planning and document creation that leads to a desired construction. Language for special provisions, reading specifications, how to read project plans and the understanding of "or equal" will be highlighted. Other components that will be presented are training (how much and by whom), warranties, operation and maintenance manuals, acceptance/performance, project and construction management by engineers.

Noon – 1:00 p.m.

Lunch

1:00 - 5:00 p.m.

Advanced Filtration Processes: Theory and Practices - Instructor, Andy Kreider -Sherwood Logan and Assoc.

With increased emphasis being placed on optimum filter performance by recent legislation, this session will cover all aspects of advanced filtration processes including granular media and gravity filtration. Included in this four-hour session will be new design and rehabilitation of existing filters, media selection and design for particle removal, types of filter layouts, instrumentation and control, filter maintenance for optimum performance, and troubleshooting when required. Comparisons will be made of different methods of backwashing and students will be able to observe cross sections of pilot filters during backwashing. Different types of underdrains and filter media will be available for hands on demonstration.

5:00 - 6:00 p.m.

Dinner

FRIDAY

8:00 - 11:00 a.m.

Final Course Exam - Advanced Water

Water Distribution Course

Course Coordinators: David Wilkins & Wanda Ketner

The Water Distribution Systems Course is designed for those who operate and maintain a water distribution system. It is for both the beginner and seasoned operator and will cover basic and advanced concepts. This course has been submitted to the Maryland Board of Waterworks and Waste Systems Operators for TRE credits.

MONDAY

- 8:00 a.m. – Noon **Safety** – Instructor, David Gill – WSSC Water
This course aims to refresh and/or improve your safety skills. This course will emphasize construction safety. Topics will include trenching safety and the Right to Know.
- Noon – 1:00 p.m. **Lunch**
- 1:00 – 5:00 p.m. **Introduction to Cross-Connection Controls & Programs** – Instructor, Carroll Matthews – WSSC Water
The purpose of this course is to provide the attendee with a basic understanding of backflow, the importance of a Cross-Connection Program, and the means and methods to prevent backflow. The course will provide industry terminology and definitions, identify cross-connection-related regulations, introduce seven essential elements of a cross-connection control program, and introduce the varying types of non-testable backflow prevention devices and testable backflow prevention assemblies.
- 5:00 - 6:00 p.m. **Dinner**

TUESDAY

- 8:00 a.m. – Noon **Math** – Instructor, Wanda Ketner – WSSC Water
The purpose of this course is to refresh and/or improve your math skills in distribution math as it relates to water calculations. You will learn how to compare ratios and proportions, solving for the unknown, and explore linear measurements, area, and volume measurements.
- Noon – 1:00 p.m. **Lunch**
- 1:00 – 5:00 p.m. **Pipeline Assessment** – Instructor, Jorge A. Rodriguez, PE – Hazen & Sawyer
This course provides a comprehensive introduction to the principles, methodologies, and tools used to assess the condition of large-diameter water transmission pipelines. Emphasis is placed on understanding the design, behavior, and failure mechanisms of Prestressed Concrete Cylinder Pipe (PCCP). Students will explore condition assessment techniques, non-destructive testing technologies, data interpretation methods, and maintenance planning strategies used across the water utility industry. The course equips participants with the knowledge and practical insights needed to evaluate pipeline performance, identify potential risks, and support asset management decision-making for critical water infrastructure.
- 5:00 - 6:00 p.m. **Dinner**

WEDNESDAY

- 8:00 a.m. – Noon **Water Main Tapping, Valves, and Fire Hydrants** – Instructor, Jason Poole - Ferguson
The course will cover the safe operation and maintenance of fire hydrants and valves. Instructions will include a detailed description of parts and repairs to include the disassembly and assembly of valves and fire hydrants. We will also demonstrate how to tap a water main under pressure.
- Noon – 1:00 p.m. **Lunch**
- 1:00 – 5:00 p.m. **Water Main Tapping, Valves, and Fire Hydrants** (continued)
- 5:00 - 8:00 p.m. **Dinner**

THURSDAY

- 8:00 a.m. – Noon **Centrifugal Pumps and Components** – Instructor, Billy Dove- Hazen & Sawyer
This class will discuss water distribution systems. Among the topics discussed will be various types of water storage, hydraulic concepts of pressure and force, pressure-reducing valves, booster pumps, the importance of tank turnover, chlorination, and disinfection byproducts, and routine maintenance.
- Noon – 1:00 p.m. **Lunch**
- 1:00 - 5:00 p.m. **Session Review and Test-Taking Skills** – Instructor, Billy Dove - Hazen & Sawyer, and David Wilkins – WSSC Water
This session will be a review of the week's material in preparation for Short Course and/or the State test, along with some techniques on how to take a test.
- 5:00 - 8:00 p.m. **Dinner**

FRIDAY

- 8:00 – 11:00 a.m. **Final Course Exam** – Water Distribution
-

Introductory Wastewater Course

Course Coordinator: Rob Kraus

The course is designed for Operators-In-Training with basic wastewater skills. Attendees taking this course will generally have less than three years of operating experience. This course will make use of instructor handouts and note taking by the attendee. A final course exam will be offered on Friday. This course has been submitted to the Maryland Board of Waterworks and Waste Systems Operators for TRE credits.

Monday

- 8:00 - 8:15 a.m. **Overview** – Course Coordinator, Rob Kraus
During this period Course materials will be distributed, the TRE requirements will be discussed and an overview of the curriculum outlined.

- 8:15 a.m. - Noon **Preliminary and Primary Treatment** – Instructor, Monty Simon - JMT
This session will focus on the need for adequate preliminary and primary treatment of wastewater to remove inert materials such as rags grit and grease flowing into or received in waste treatment facilities, flow measurement and removal of settleable suspended solids and the consequences of failure to do so.
- Noon - 1:00 p.m. **Lunch**
- 1:00 - 5:00 p.m. **Wastewater Math** – Instructor, Bill Shreve Jr. - Baltimore DPW
This session will focus on the basic math skills needed for the operation and maintenance of a wastewater treatment facility.
- 5:00 – 6:00 p.m. **Dinner**

Tuesday

- 8:00 a.m. - Noon **Activated Sludge Process Control** – Instructor, Valerie Gacek - Hazen and Sawyer, Bruce Carbaugh - Middletown, MD
This session will focus on activated sludge treatment of wastewater and the techniques for monitoring and controlling the process. This course will cover Sludge Age, MCRT and MLSS differences of control methods, Calculation of SVI, types of microorganisms to look for and the importance of sludge wasting.
- Noon - 1:00 p.m. **Lunch**
- 1:00 - 5:00 p.m. **Advanced Treatment** – Instructor, William Shreve – Retired
This session will discuss methods of nutrient removal, sand filtration and other advanced treatment processes.
- 5:00 – 6:00 p.m. **Dinner**

Wednesday

- 8:00 a.m. - Noon **Pumps** – Instructor, Irene Pais - Geiger Pump and Equipment Company
This course is designed to provide wastewater professionals with a solid technical overview of hydraulics as well as a review of pump types, applications, advantages and disadvantages. Commonly used pumps for wastewater treatment will be discussed. Issues surrounding mechanical seals and packing will also be covered.
- Noon - 1:00 p.m. **Lunch**
- 1:00 - 5:00 p.m. **Chemicals in Water and Wastewater Treatment** - Instructors, Nate Barnes/Andrew Rupprecht - Premier Magnesia
This session will focus on the different chemicals and chemistries typically used in the treatment of wastewater. Pros and Cons of different chemicals and how using chemicals in one process can impact the associated processes will be discussed. Application dosages and locations will be reviewed.
- 5:00 – 8:00 p.m. **Dinner**

Thursday

- 8:00 a.m. - Noon **Disinfection** - Instructor, Bill Shreve Jr. - Baltimore DPW
This session introduces the various forms of chlorine, highlighting their practical uses, maintenance and important safety considerations. Participants will also learn about ultraviolet (UV) light, including its applications, maintenance and safe use.
- Noon - 1:00 p.m. **Lunch**
- 1:00 - 5:00 p.m. **Sludge Thickening and Digestion** – Instructor, Maia Tatinclaux- RK&K
Aerobic and Anaerobic digestion of wastewater sludge will be discussed including the advantages and disadvantages of each process, the necessity of pre-thickening of sludge in preparation for digestion and the various methods and equipment used will also be covered.
- 5:00 – 6:00 p.m. **Dinner**

Friday

- 8:00 – 11:00 a.m. **Final Introductory Wastewater Short Course Examination**
-

W5A Exam Preparatory Course

Course Coordinator: Mike Marinelli

The course is designed for operators with 2-3 years of wastewater operating experience, and who are preparing to sit for the W5A exam on Friday, June 5th or shortly afterward. The information covered in this session is designed to help pass the certification exam, but in no way ensure attendees of passing. It is suggested that anyone registering for this course download the following file ([Microsoft Word - Wastewater 5A Certification Test Study Guide 03.19.2025.docx](#)) and begin studying as soon as possible. This course has been submitted to the Maryland Board of Waterworks and Waste Systems Operators.

Note: It is highly advised that newer operators take the Introductory Wastewater course. If you do not plan to take the W5, W5A, or A exam but are an experienced operator, it is advised that you take the Advanced Wastewater course.

MONDAY

- 8:00 - 8:15 a.m. **Overview** – Course Coordinator, Michael Marinelli - WSSC Water
An overview of the 5A exam prep tract will be presented, and course objectives, logistics, and TRE requirements will be discussed.
- 8:15 a.m. – Noon **Pumps and Maintenance** – Instructor, Myron Diggs – WSSC Water
This session covers the various types of pumps used in wastewater systems, along with routine and corrective maintenance practices. Participants will also learn troubleshooting techniques, including the causes of cavitation and how to identify and resolve it.
- Noon – 1:00 p.m. **Lunch**

1:00 – 5:00 p.m. **Sludge Thickening and Digestion** – Instructor, Maia Tatinclaux – RK&K
Aerobic and Anaerobic digestion of wastewater sludge will be discussed, including the advantages and disadvantages of each process, the necessity of pre-thickening of sludge in preparation for digestion and the various methods and equipment used will also be covered.

5:00 – 6:00 p.m. **Dinner**

TUESDAY

8:00 a.m. – Noon **Wastewater Math** – Instructor, William Shreve, Jr. – Baltimore DPW
This class builds essential math skills used in wastewater operations, focusing on real-word calculations such as flow rates, volumes, loading, and chemical dosing. Participants will gain confidence applying math concepts to everyday workplace scenarios.

Noon – 1:00 p.m. **Lunch**

1:00 - 5:00 p.m. **Disinfection** - Instructor, William Shreve, Jr. – Baltimore DPW
This session introduces the various forms of chlorine, highlighting their practical uses, maintenance and important safety considerations. Participants will also learn about ultraviolet (UV) light, including its applications, maintenance and safe use.

5:00 – 6:00 p.m. **Dinner**

WEDNESDAY

8:00 a.m. – Noon **An In-Depth Look at ENR** – Instructor, Marty Johnson – Retired
This 2-day course is designed to give the operator highly detailed training on the biology and chemistry behind Enhanced Nutrient Removal. Operation and control of various treatment plant processes will be discussed. Training will also include diagnosing plant performance and optimization through monitoring, testing, equipment changes, and chemical addition. Interpretation of data and operational problems/remedies will also be presented.

Noon – 1:00 p.m. **Lunch**

1:00 - 5:00 p.m. **An In-Depth Look at ENR (continued)**

5:00 – 8:00 p.m. **Dinner**

THURSDAY

8:00 a.m. – Noon **An In-Depth Look at ENR (Day 2)** – Instructor, Marty Johnson – Retired
(DAY 2) This course is designed to give the operator highly detailed training on the biology and chemistry behind Enhanced Nutrient Removal. Operation and control of various treatment plant processes will be discussed. Training will also include diagnosing the plant performance and optimization through monitoring, testing, equipment changes, and chemical addition. Interpretation of data and operational problems/remedies will also be presented.

- Noon – 1:00 p.m. **Lunch**
- 1:00 - 4:00 p.m. **An In-Depth Look at ENR (continued)**
- 4:00 - 5:00 p.m. **Course Review** – Instructor, Michael Marinelli – WSSC Water
- 5:00 – 6:00 p.m. **Dinner**

FRIDAY

- 8:00 – 11:00 a.m. **Final Course Exam** – W5A Exam Prep
-

Advanced Wastewater Course

Course Coordinator: Maia Tatinclaux

The Advanced Wastewater Course is designed for certified wastewater operators who have previously taken basic courses. This course was designed to meet the needs of wastewater treatment operators for re-certification of the 5A license and may be approved for other operators' certification as well. This course has been submitted for Maryland TRE credits.

Note: Experienced attendees taking the State certification exam should enroll in the W5A Exam Preparatory course. Although some of these sessions are designed to review standard advanced wastewater processes, many of the sessions will discuss recent advancements in technology to expand the veteran operator's knowledge beyond his/her own facility.

MONDAY

- 8:00 – 8:30 a.m. **Overview** – Course Coordinator, Maia Tatinclaux – RK&K
An overview of the Advanced Wastewater program will be presented, and course objectives, logistics, and TRE requirements will be discussed.
- 8:30 a.m. - Noon **Advanced Treatment and Control Techniques** – Instructor, Chris DeBarbadillo – Black & Veatch
This course will focus on advanced control techniques for activated sludge and other secondary treatment to improve system efficiency and treatment. It will include ammonia aeration control and using partial nitrification upstream of denitrification filters to increase nutrient removal capacity. Attendees will learn about these treatment techniques along with their impacts on daily operation. The course will help advanced operators consider whether any of these techniques would be a good fit for their wastewater treatment plant.
- Noon - 1:00 p.m. **Lunch**
- 1:00 - 3:00 p.m. **Overview of Municipal/Industrial Pre-Treatment** – Instructor, Ed Williams - Prostart
This session will provide a brief overview of the regulations governing how pretreatment is implemented in the State of Maryland. Discussions will include general and specific prohibitions, standards, and consequences of being classified as an SIU and reporting requirements. Attendees will learn how pre-treatment requirements impact a wastewater treatment plant's ability to accept and treat industrial wastewater.

3:00 – 5:00 p.m. **NPDES** – Instructor, TBD
This class will provide attendees with the process for permit renewals, the importance of reviewing draft permits and what to look for, and changes to MDE's permitting system. It will also discuss federal and state regulations and upcoming legislation which may impact future NPDES permitted limits.

5:00 - 6:00 p.m. **Dinner**

TUESDAY

8:00 a.m. – Noon **Emerging Contaminants of Concern** – Instructor, Malcolm Taylor – WSSC Water
This course will provide a survey overview of emerging contaminants of concern. These will include contaminants that are being monitored more and starting to appear on reporting and permitted effluent limits. Topics will include, but are not limited to, pfas in biosolids, pharmaceuticals, greenhouse gas emissions, and effluent temperature. Attendees will learn about upcoming regulations as they are being applied in other states and at utilities in Maryland along with potential treatment technologies that can be implemented to address future regulations.

Noon – 1:00 p.m. **Lunch**

1:00 - 5:00 p.m. **Membrane Treatment** - Instructor, Rob Kerschner – Innovative Treatment Products
Membrane separation has been used in industrial and municipal wastewater treatment applications for decades to separate materials from water based upon pore size and molecular weight. This session will discuss membranes, from Micro to Ultra to Nano to RO and the pressures and reasons for each application in waste treatment. Discussions of proper screening and cleaning techniques will be covered as well as controls and expected membrane life.

WEDNESDAY

8:00 a.m. – Noon **QA/QC Essentials for Water and Wastewater Operations** - Instructor, Casey Bosse and Samantha Rupert - Anne Arundel County DPW
This course will discuss QA/QC concepts and requirements for field and lab testing of permit-required samples. It will identify relevant 40 CFR Part 141 regulations governing QA/QC, discuss proper preservation, holding time, and Chain of Custody (COC) procedures per Standard Methods 1060, the performance of on-site QC checks (blanks, duplicates, CCVs) for process control parameters like pH, Chlorine, and Turbidity and how to evaluate laboratory data using control charts. primary concerns, next steps, and the final report will be discussed to help attendees better prepare for an EPA Audit.

Noon – 1:00 p.m. **Lunch**

1:00 – 5:00 p.m. **Advanced Sludge Processing** – Instructor, Maia Tatinclaux – RK&K
This course will cover sludge stabilization via aerobic and anaerobic digestion techniques along with sludge dewatering and drying. A brief

overview of pyrolysis/production of biochar will also be included. The attendees will learn advantages and disadvantages of each treatment technology, how they go together, and how they impact possibilities for end use of biosolids and sludge disposal.

5:00 - 8:00 p.m. **Dinner**

THURSDAY

8:00 – Noon **Risk and Resiliency and Emergency Response Plans** Instructor, Scott Harmon – Rural Community Assistance Partnership
This 4-hour technical training provides water and wastewater operators and superintendents with practical, EPA-aligned guidance on conducting Risk and Resilience Assessments (RRAs) and developing Emergency Response Plans (ERPs) in compliance with America’s Water Infrastructure Act (AWIA). Participants, including board members, operators, superintendents, and technical service providers, will learn how to identify system vulnerabilities, evaluate risks from natural hazards, cyber threats, and malevolent acts, and apply EPA tools such as the Small System RRA Checklist, VSAT, cybersecurity assessment resources, and ERP templates. Through real-world examples and interactive exercises, attendees will gain the skills needed to translate assessment findings into actionable emergency procedures, strengthen system resilience, and meet federal regulatory requirements while protecting public health and maintaining reliable water and wastewater service.

Noon – 1:00 p.m. **Lunch**

1:00 – 5:00 p.m. **Advanced Filtration Processes: Theory and Practices** Instructor, Andrew Kreider - Sherwood Logan and Assoc.
With increased emphasis being placed on optimum filter performance by recent legislation, this session will cover all aspects of advanced filtration processes including granular media and gravity filtration. Included in this 4-hour session will be new design and rehabilitation of existing filters, media selection and design for particle removal, types of filter layouts, instrumentation and control, filter maintenance for optimum performance, and troubleshooting when operations require help. Comparisons will be made of different methods of backwashing and students will be able to observe cross sections of pilot filters during backwashing. Different types of underdrains and filter media will be available for hands-on demonstrations.

5:00 – 6:00 p.m. **Dinner**

FRIDAY

8:00 – 11:00 a.m. **Final Course Exam** - Advanced Wastewater

Industrial Waste Treatment Course

Course Coordinators: Bill Farrell and Dwight Swan

The Industrial Waste Treatment Course is designed to cover a broad range of topics in the field. Review sessions for safety and chemistry are provided. The technology discussed will apply for both direct industrial waste dischargers and indirect dischargers to Publicly Owned Treatment Works (POTWs). The sessions during the first three days concentrate on chemical/physical processes and topics of general applicability. Thursday's sessions focus on biological treatment processes to address training requirements for Industrial Wastewater Works and Pretreatment Plants of Class 4, Biological Lagoons, and Class 5, Activated Sludge. This course has been submitted for Maryland TRE credits.

MONDAY

- 8:00 – 8:15 a.m. **Course Objectives & Orientation** – Course Coordinator, Bill Farrell - Prostart
This session will provide an introduction to the course with an explanation of its objectives and attendance requirements. Each session covered in this course will be discussed along with resources available for review of course materials, and the examination format.
- 8:15 a.m. – Noon **Pumps** – Instructor, Dwight Swann - Envirep
This will be a combined session with Intermediate Wastewater. The session will discuss the movement of water by pumping. Hydraulic principles of flow and pressure head, suction and discharge conditions, and cavitation. All types of pumps will be discussed, centrifugal, positive displacement, air lift, diaphragm that are used in water / waste treatment processes.
- Noon – 1:00 p.m. **Lunch**
- 1:00 - 3:00 p.m. **Overview of Municipal/Industrial Pretreatment, Local Limit Development, Monitoring Requirements and Compliance Enforcement** - Instructor, Ed Williams - Prostart
This session will provide a brief overview of the regulations governing how pretreatment is implemented in the State of Maryland. Discussions will include general and specific prohibitions, standards, and consequences of being classified as an SIU and reporting requirements.
- 3:00-5:00 p.m. **Prevention and Response to Violations** – Instructor, Ed Williams - Prostart
This session will discuss the operator's role in responding and reporting violations of wastewater discharge parameters.
- 5:00 – 6:00 p.m. **Dinner**

TUESDAY

- 8:00 a.m. – Noon **Controls** – Instructor, Allan Rodgers – Omni Engineering
Automation and controls are becoming more a part of wastewater treatment plants as costs for equipment and reliability of process meters and sensors have improved. The use of Programmable Logic Controllers (PLC) and Human Machine Interfaces (HMI) increases the operators' control over process and efficiency. Input, output, digital, and analog topics will be discussed.
- Noon – 1:00 p.m. **Lunch**

1:00 – 3:00 p.m. **Micro-Nuclear Power for Wastewater Facilities** – Instructor, Allan Rogers - Omni Engineering
The Clean Water Act of 1972 sparked the wastewater industry and converted a technological lagging industry into a front runner. Innovations in automation, energy use, conservation and process evolution have been the hallmark of the industry. Energy and environment are two sides of the same coin. It is the goal of this presentation to bring into focus the potential applications of Micro-nuclear power to this industry and the public.

3:00 - 5:00 p.m. **Metals Precipitation/ Oil Water Separation, Thickening & Dewatering** – Instructor, Ed Williams - Prostart
This session will discuss how to operate facilities that treat wastewater that neutralize acidic and basic waters, treat waste containing metals, oily waste, and complex metal wastes. It will also discuss the thickening, dewatering, and disposal of these wastes.

5:00 – 6:00 p.m. **Dinner**

WEDNESDAY

8:00 a.m. – Noon **Chemical Feed** – Instructor, Tim McComas – Coyne Chemical
This session covers the use of Chemicals in the treatment of wastewater. Topics will include chemicals, application points, and calculating chemical dosages and feed rates. Jar Testing technique and Buchner funnel tests will be discussed for settling thickening and dewatering applications.

Noon – 1:00 p.m. **Lunch**

1:00 – 5:00 p.m. **Membrane Treatment** – Instructor, Rob Kerschner – Innovative Treatment Products
Membrane separation has been used in industrial applications for decades to separate materials from water based upon pore size and molecular weight. This session will discuss membranes from Micro to Ultra to Nano to RO and the pressures and reasons for each application in waste treatment. Discussions of proper screening and cleaning techniques will be covered as well as controls and expected membrane life.

5:00 - 8:00 p.m. **Dinner**

THURSDAY

8:00 – 10:00 a.m. **Principles of Biological Treatment** – Instructor, Larry Slattery - Harford County
This section will cover wastewater characterization, an introduction to biological treatment systems, and basic microbiology.

10:00 a.m. - Noon **Aerobic Treatment I** – Instructor, Larry Slattery - Harford County
The principles of aerobic treatment will be reviewed. This session will include a presentation of activated sludge theory, the reactor configurations; complete mix, plug flow and batch. Basic calculations

specific to these systems will be covered. Also discussed will be fixed film, attached growth systems.

Noon – 1:00 p.m.	Lunch
1:00 – 3:00 p.m.	Anaerobic Treatment Processes – Instructor, Richard Castillo - Prostart The principles of biologic treatment will be reviewed. This session will include a discussion of the different types of anaerobic treatment, selection criteria, and the advantages and disadvantages of each type. Basic calculations specific to these systems will be covered.
3:00 – 4:00 p.m.	Course Review
4:00 – 5:00 p.m.	Final Course Exam - Industrial Wastewater
5:00 - 6:00 p.m.	Dinner

Wastewater Collection Systems Course

Course Coordinators: Wayne Reed and Licette Villafane

The Wastewater Collection Systems Course is designed for those who operate and maintain a wastewater collection system. It is for both the beginner and seasoned operator and will cover basic and advanced concepts. This course has been submitted to MDE for TRE approval.

MONDAY

- 8:00 – 8:30 a.m. **Overview** – Course Coordinators, Wayne E. Reed - Army Corps of Engineers, Washington Aqueduct and Licette Villafane, WSSC Water
This session will provide an overview of the Wastewater Collection Course, with course objectives and TRE requirements being discussed.
- 8:30 - 9:30 a.m. **Force Main Inspection and Assessment** – Instructor, Jeremiah Fagan
The presentation will cover the risk-based approach for the evaluation of wastewater force mains using non-destructive techniques and technologies in addition to advanced analytical methods. These techniques have been used by numerous force main owners throughout North America including local utilities. Case studies and lessons learned will be presented.
- 9:30 – 10:30 a.m. **An Introduction to Asset Management** – Instructor, Gregory Stephens - DCWATER
Asset Management is a comprehensive business program advocated by the US EPA and the utility industry to optimize infrastructure sustainability. It is essentially the practice of managing infrastructure capital assets to minimize the total cost of acquiring, operating and maintaining them, while improving service levels. The process involves incorporating detailed asset inventories, data management, related business processes and long-range financial planning

to drive decision-making by optimizing the ability to prioritize capital program projects and preventive maintenance work.

- 10:30 – 11:30 a.m. **Collection System Basic Hydraulics** – Instructor, Jemil Yesuf – Baltimore City DPW
Provide an overview of basic hydraulic principles that apply to gravity sewer flows as well as to pressure flows and pumping stations. For gravity systems, Manning’s Equation will be discussed. For pressure systems, Bernoulli’s Principle will be explained. Examples that require the application of these principles will be solved during the class.
- 11:30 a.m. – Noon **Review** – Instructor, Wayne Reed – Army Corps of Engineers, Washington Aqueduct
- Noon – 1:00 p.m. **Lunch**
- 1:00 – 2:00 p.m. **What your Executives Expect** – Instructor, Paul Sayan - City of Baltimore, DPW
The objective is to explain to operators of any organization including worker safety, collaboration and customer satisfaction. Expectations have changed from customers and executive management. It is not enough to say that a problem has been fixed; rather, has the root cause been determined and the root cause fixed and did you involve other groups within the organization to confirm the problem and solution and ensure that there are no unanticipated outcomes.
- 2:00 – 3:00 p.m. **Flow Monitoring** – Instructor, George Clark – WSSC Engineering
Elements of open channel flow measurements (area and velocity, flumes, weirs) and flows through force mains (magnetic meters, pumps running timers) will be presented as a basis to establish baseline infiltration and peak wet weather flows.
- 3:00 – 4:00 p.m. **Manhole Rehab** – Instructor, Ian Moore - Exeter Supply
Attendees will learn the significance of manhole frame – chimney leakage, other manhole leakage sources and how to identify them. Costs associated with treating excess flows, maintenance and other potential problems also will be covered. A variety of repair methods will be discussed, including the most recent technologies to enter industry. Industry standards covering design life, product performance and acceptance testing will be reviewed to help ensure a successful manhole rehabilitation project.
- 4:00 – 5:00 p.m. **Wastewater Pumping and Operations** – Instructor, Wayne Reed – Army Corps of Engineers, Washington Aqueduct
Wastewater pumping and operations presentation will discuss wet well maintenance for settling grease and odor control. Discussions will evolve into the different types of wastewater pumping stations from temporary can-type stations to more

custom-built stations with mechanical and support equipment for the pumping and screening operations.

5:00 – 6:00 p.m. **Dinner**

TUESDAY

8:00 a.m. – Noon **Disinfection & Chemical Feed Applications** – Instructor, Paula Martin – retired
Effective chemical application is essential to the treatment of water and wastewater. This course will start with an open discussion of chemical feed applications in both water and wastewater fields.

Noon – 1:00 p.m. **Lunch**

1:00 – 5:00 p.m. **Math Application** – Instructor, Paula Martin, retired
A workshop focusing on calculating chemical feed dosages will follow. The workshop includes calculating the capacity of tanks, flow rates, and chemical dosages for disinfection, de-chlorination, odor control, coagulation, and corrosion control. Students will progress at their own pace through multiple and progressively more difficult quizzes.

5:00 – 6:00 p.m. **Dinner**

WEDNESDAY

8:00 a.m. – Noon **Centrifugal Pumps and Components** – Instructor, Wayne E. Reed -Army Corps of Engineers, Washington Aqueduct
Topics presented in this session include hydraulics of pumps as applied to the waterworks industry, pump operation and routine maintenance.

Noon – 1:00 p.m. **Lunch**

1:00 – 5:00 p.m. **Centrifugal Pumps and Components (continued)**

5:00 – 8:00 p.m. **Dinner**

THURSDAY

8:00 a.m. – Noon **Basic Chlorine and Chlorine Cylinder Program** – Instructor, Rodney Buterbaugh - WSSC Water
OSHA permit required confined space; lock out tag out, basic chlorine, chlorine cylinder program, excavation and trench in safety.

Noon – 1:00 p.m. **Lunch**

1:00 – 3:00 p.m. **OSHA Permit Required Confined Space; Lock out Tag out and Excavation and Trench in Safety** – Instructor, Rodney Buterbaugh – WSSC Water

3:00 - 5:00 p.m. **Exam Review** – Instructor, Wayne E. Reed - Army Corps of Engineers, Washington Aqueduct

5:00 – 6:00 p.m. **Dinner**

FRIDAY

8:00 – 11:00 a.m. **Final Course Exam** - Wastewater Collections

Superintendent Course

Course Coordinator: Noelle Anuszkiewicz

The Superintendents Course is designed for certified water and wastewater superintendents, managers, supervisors and experienced operators who have previously taken basic and advanced courses. This course was designed to meet the needs of superintendents for re-certification and may be approved for other operators' certification as well. Each individual class has been submitted or has already been approved for Maryland TRE credits.

MONDAY

8:00 - 9:00 a.m. **Overview** - Instructor, Noelle Anuszkiewicz – Anne Arundel County DPW. An overview of the Superintendent program will be presented and course objectives discussed. Course materials will be distributed, and TRE requirements will be discussed.

9:00 a.m. – Noon **Membrane Filtration and Reverse Osmosis Treatment Technologies** - Instructor, Ben Movahed - Watek Engineering
(TRE# 4326-08-08, 3.0 hrs., Process, All Operators, All Superintendents)
The theory and application behind operation and maintenance of Membrane Filtration and Reverse Osmosis Treatment systems. Problems associated with Membrane and Reverse Osmosis units will be discussed along with lab demonstrations which will be conducted.

Noon - 1:00 p.m. **Lunch**

1:00 - 5:00 p.m. **SDWA** – Instructors, Eddie Cope – Hazen & Sawyer, and Justin Akers – Anne Arundel County DPW
This course will introduce water supply system personnel to the most recent SDWA revisions, including Maryland regulations, and the National Primary Drinking Water Regulations. Additionally, participants will review the 1996 amendments which greatly enhanced the existing law by recognizing source water protection, operator training, funding for water system improvements, and public information as important components of safe drinking water. Information about updated monitoring requirements recordkeeping, emergency planning and response, and certification.

5:00 - 6:00 p.m. **Dinner**

TUESDAY

8:00 – 10:00 a.m. **Conflict Resolution and De-escalation** – Instructor, Allison Dyott – Anne Arundel County DPW
This course will empower leaders at every stage of professional development with the skills and awareness necessary to approach

problems and disagreements tactfully and promote mutual understanding. Training will provide ways to think critically about the varying types of conflict they encounter in the workplace and how they naturally and currently react to it, consider alternative methods to approaching problems and disagreements that foster steady reasoning and mutual understanding, and help students feel equipped and empowered to try new strategies in their work environment and ready to share these methods with their colleagues and employees.

10:00 a.m. – Noon

Navigating Water & Wastewater Membership Organizations

Instructor, Allison Dyott – Anne Arundel County - DPW

This course will break down what local and national water and wastewater organizations are all about and how supervisors and employees at every level can get involved collaborate and problem-solve with other utilities and to foster career development for themselves and others while building relationships through committee participation. Students will develop an understanding of local and national-level membership organizations, publications, and events in the water and wastewater industry, begin to think critically about networking and career development goals for themselves and their employees and how industry membership organizations and resources may help them achieve these goals, and feel confident and empowered to engage with membership organizations.

Noon – 1:00 p.m.

Lunch

1:00 - 5:00 p.m.

How to Survive an EPA Audit - Instructors, Eddie Cope, Hazen & Sawyer and Justin Akers – Anne Arundel County DPW, (TRE# 7958-25-03, 4.0 hrs. Non-Process, All Operators & All Superintendents)

The three basic phases of an EPA Audit/Inspection (Pre-audit, the Actual audit, Closing Conference/post audit) will be discussed. Pre-audit items include documents for the inspector(s). The actual audit process will be discussed including having the correct people available, proper communication, record keeping, and the inspection walkthrough. Closing Conference/Post audit items such as primary concerns, next steps, and the final report will be discussed to help attendees better prepare for an EPA Audit/Inspection.

WEDNESDAY

8:00 a.m. – Noon

QA/QC Essentials for Water and Wastewater Operations - Instructor, Casey Bosse and Samantha Rupert - Anne Arundel County DPW

This course will discuss QA/QC concepts and requirements for field and lab testing of permit-required samples. It will identify relevant 40 CFR Part 141 regulations governing QA/QC, discuss proper preservation, holding time, and Chain of Custody (COC) procedures per Standard Methods 1060, the performance of on-site QC checks (blanks, duplicates, CCVs) for process control parameters like pH, Chlorine, and Turbidity and how to evaluate laboratory data using control charts. primary concerns, next steps, and the final report will be discussed to help attendees better prepare for an EPA Audit.

Noon – 1:00 p.m.

Lunch

1:00 – 5:00 p.m. **Cybersecurity for Water/Wastewater Plants: Practical Defense for Operators and Managers**– Instructor, Brian Golden-Bock, TAC, BSME, and Steve Hutchinson, TAC, BSEE, MSCS, The Technology Advancement Center (TAC)
This course is designed as a defensive, operations-first cybersecurity class for water and wastewater treatment and distribution environments. It provides a clear mental model of how attacks occur, what operators/managers should be watching for, and what low-cost cybersecurity improvements can realistically be implemented at small and mid-sized plants.

5:00 - 8:00 p.m. **Dinner**

THURSDAY

8:00 a.m. – Noon **Risk & Resiliency, and Emergency Response Plans**
Instructor, Gregory “Scott” Harmon, Rural Community Assistance Partnership (RCAP)
This course provides water and wastewater operators and superintendents with practical, EPA-aligned guidance on conducting Risk and Resilience Assessments (RRAs) and developing Emergency Response Plans (ERPs) in compliance with America’s Water Infrastructure Act (AWIA). Participants will learn how to identify system vulnerabilities, evaluate risks from natural hazards, cyber threats, and malevolent acts, and apply EPA tools such as the Small System RRA Checklist, VSAT, cybersecurity assessment resources, and ERP templates.

Noon – 1:00 p.m. **Lunch**

1:00 – 5:00 p.m. **Advanced Filtration Processes: Theory and Practices** – Instructor, Andy Kreider - Sherwood Logan and Assoc.
(TRE# 7956-25-03, 4.0 hrs., Process, All Operators & All Superintendents)
With increased emphasis being placed on optimum filter performance by recent legislation, this session will cover all aspects of advanced filtration processes including granular media and gravity filtration. Included in this 4-hour session will be new design and rehabilitation of existing filters, media selection and design for particle removal, types of filter layouts, instrumentation and control, filter maintenance for optimum performance, and troubleshooting when operations require help. Comparisons will be made of different methods of backwashing and students will be able to observe cross sections of pilot filters during backwashing. Different types of underdrains and filter media will be available for hands-on demonstration.

5:00 - 8:00 p.m. **Dinner**

2026 Water & Wastewater Operators Short Course Committee Members

Chairperson	Ivy Swann (WWOA), Anne Arundel County DPW
Vice Chairperson	Mark Proctor (CSAWWA), WSSC Water
Treasurer:	Rob Nally (CSAWWA), WSSC Water
Secretary/Assist Treasurer:	Clark Howells (CWEA), WSSC Water
Intro to Water:	Rob Nally (CSAWWA), WSSC Water
Water 3 & 4:	Dinesh Bahadursingh (CSAWWA), WSSC Water
Advanced Water:	Rob Swann (CSAWWA), Anne Arundel County DPW
Water Distribution:	David Wilkins (CSAWWA) & Wanda Ketner (CSAWWA), WSSC Water
Introductory Wastewater:	Rob Kraus, (WWOA), Anne Arundel County DPW
W5A Exam Prep:	Mike Marinelli, (CWEA), WSSC Water
Advanced Wastewater:	Maia Tatinclaux (CWEA), RK&K Engineers
Industrial Wastewater:	Bill Farrell (CWEA) Prostart & Dwight Swan, (WWOA & CWEA), Envirep
Wastewater Collection:	Wayne Reed (CWEA), Army Corps of Engineers & Licette Villafane (WWOA), WSSC Water
Superintendents:	Noelle Anuszkiewicz (CWEA), Anne Arundel County DPW
Admin. Coordinators:	Jay Price (WWOA/CSAWWA), Hazen & Sawyer Scott Harmon (CWEA/CSAWWA), RCAP John Luu (CWEA), WSSC Water Billy Dove (CSAWWA), Hazen and Sawyer Doug Abbott (CSAWWA/CWEA/WWOA), Easton Utilities Tim Porcella (WWOA), Baltimore County Utilities Will Shreve (WWOA), Baltimore City DPW Valerie Gacek (WWOA), Hazen and Sawyer Bruce Carbaugh (WWOA,CSAWWA) Town of Middletown

Short Course Instructors

We offer our thanks to each instructor who volunteers his/her time and effort to convey this beneficial information to the respective students. Also, thanks to their employers who have allowed the instructors time to participate in the Short Courses. You will find the names of individual instructors listed with classes they are teaching.