



74TH ANNUAL SHORT COURSES FOR WATER & WASTEWATER OPERATORS

June 4 – June 9, 2023

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)*

74th 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).**

Important Reminder: A refundable \$10.00 key cash deposit will be collected at the time of registration. However, students will be billed \$60.00 for lost keys.

Sunday, June 4, 2023

- 4:00 p.m. to 6:00 p.m. Organization 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 and Greet beginning at 7:30 p.m. in the Mount Café which is adjacent to the Dining Room.

Monday, June 5 through Thursday, June 8, 2023

- 7:00 a.m. 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 p.m. to 5:00 p.m. Training Sessions
- 5:00 p.m. to 6:00 p.m. Dinner for Non-commuters (Mon, Tues, & Thurs)
- 5:00 p.m. to 6:30 p.m. Picnic Dinner for Non-commuters (Wed)

Friday, June 9, 2023

- 7:00 a.m. to 8:00 a.m. Check-out, Key Return, Breakfast for Non-commuters
- 8:00 a.m. to 11:00 a.m. Final Short Course Exam - All sessions
OR
- 9:00 a.m. to 1:00 p.m. 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 new ideas and serve as a “refresher” 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 Robert Nally at robert.nally@wsscwater.com, or Rachel Ellis at info@wwoShortCourses.org.

Mount St Mary’s University

The University’s only function is to provide facilities for the courses. The College **should not** be contacted regarding registration or arrangements. All questions should be directed to 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 operator certification exams for all classes at the conclusion of the Short Course on Friday June 9, 2023 from 9 a.m. to 1 p.m. in Patriot Hall. This exam is not part of the actual Short Course 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.**

The Board must receive the application for those wishing to take the Certification Exam at Mount St. Mary’s University by May 12, 2023. **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 sponsored 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. ***New this year – The Short Course Committee will be offering ten (10) scholarships based on need. See the Short Courses website (www.shortcourses.org) 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 one of the Short Course Staff.

Conduct of Participants

Throughout the history of the Short Course most participants have conducted themselves in a most reasonable manner and are 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 refund. Notification to your employer and the cause for removal will follow.

In addition, anyone found unduly under the influence of alcohol, 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 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 with the actual hours attended. The Short Course Committee does not submit individual classes for TRE credits. Attendees have the option to submit the hours for approval.

If you are taking a State Certification exam on Friday, June 9, and you are also interested in taking the Short Course final exam, you may do so Thursday evening. Only individuals taking the State Certification exam will be eligible for this option. You must make arrangements with the course coordinator by Tuesday, June 6.

All participants must sign their own name to the attendance sheets during the class to receive credit. NO EXCEPTIONS.

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 (none, CSAWWA, CWEA, WWOA)
 - b. Membership # (if applicable)
 - c. Scholarship Winner (yes/no)
 - d. Type of registration (Full week or single day)
 - e. Attend Sunday buffet (yes/no)
 - f. Attendee information: First Name, Last Name, Email Address, Phone #, Emergency contact phone #, Organization/Company name, Address, Gender
 - g. Which course you the attendee plans to attend:
Introduction to Water, Water 3&4, Advanced Water, Water Distribution, Advanced Water Distribution, Introduction/Intermediate Wastewater, Advanced Wastewater, Industrial Wastewater, Wastewater Collection, or Superintendent

Connect to our online registration system by visiting <https://wwoshortcourses.regfox.com/74th-annual-short-courses> or go through the Short Course website at www.WWOShortCourses.org

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 Through Apr. 1 – May 6, 2023	Non-Members Through Apr. 1 – May 6, 2023	Members After May 7 - 20, 2023	Non-Members After May 7 - 20, 2023
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

Payment

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

Cancellations will be assessed a fee of \$25.00. No refunds will be issued May 28 – June 4, 2023.

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 or an instructor, or if 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, Robert Nally at (910) 233-3056 should you need help.

Overnight Room Accommodations

Overnight accommodations will be available at a cost of \$50.00 per person per night. This fee includes an air-conditioned room. The rooms will be available from 4:00 p.m. Sunday, June 4 and must be vacated by 8 a.m. on Friday, June 9. **A refundable \$10.00 cash key deposit will be collected at the time of registration. However, students will be billed \$60.00 for lost keys.** Room and board costs includes 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 accommodations begin with the buffet dinner on Sunday evening, June 4, and end with breakfast on Friday morning, June 9. The serving times are:

Breakfast – 7 a.m. to 8 a.m.

Lunch – Noon to 1 p.m.

Dinner – 5 to 6 p.m. (except Wednesday 5 to 6:30 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 other attendee(s), you can pay their key deposit when paying yours, and they will receive their key after checking in. Please coordinate with them so they are aware that you have already signed up for a room for them. If you chose not to reserve their 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 with the motel. 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.

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 and/or campus visitation privileges.

Sunday Evening Meet & Greet

On Sunday, June 4, 2023, the Short Course will begin with a Buffet Dinner and Meet and Greet in Patriot Hall. The buffet will be served from 6:00 - 7:30 p.m. with a Meet and Greet to follow until 11:00 p.m.

Evening Recreational Activities

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

Tuesday 7:00 - 11 p.m. Wings Night, Karaoke and Televised Sports

Wednesday 6:00 - 11 p.m. Picnic Night, Meter Madness/Pipe Cutting Contests, Music, and TV

Thursday Study Night No Activities Scheduled

SESSION LISTINGS

Disclaimer

The Introductory Water is designed for those persons just entering the field and persons 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 should take the more advanced sessions for re-certification credit however all sessions are submitted for TRE credits.

Delaware Operator License Holders

Certified Delaware Operators can submit MDE approved courses for credit with Delaware.

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 approved for Maryland TRE credits (7375-23-03, 35 hrs., Process, All WT & WD Operators).

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 Class 1 or 2 State Certification Exam for Water Treatment.
- 8:30 a.m. – Noon **Source Water Protection** – Instructor, Edward Cope, 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
– Maryland Rural Water
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, Perry Violet, WSSC Water
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, Augustus Davies, 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 - 6:30 p.m. **DINNER**

THURSDAY

- 8:00 a.m. – Noon **Applied Mathematics** – Instructor, Scott Harmon, Maryland Rural Water
This session will focus on basic mathematics and applications fundamental to the 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 AM – 3:00 p.m. **Fluoridation in Drinking Water** – Instructor, 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** – Instructor, 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 Short Course Exam**
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Water 3&4 Course

Course Coordinator: Dinesh Bahadursingh

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 approved for Maryland TRE credits (7376-23-03, Process, 35 hrs., WT 3&4, WD Operators).

MONDAY

- 8:00 – 8:30 a.m. **Overview** - Course Coordinator, Dinesh Bahadursingh, WSSC
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, Terry Bradley, Retired
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.

BREAK

1:00 – 5:00 p.m.

Coagulation, Flocculation & Sedimentation – Instructor, Scott Harmon, Maryland Rural Water.

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, Anne Arundel County DPW

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.

BREAK

1:00 – 5:00 p.m.

Water Examination Review – Instructors, Dinesh Bahadursingh, Robert Nally, and Jay Price, WSSC Water. 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.

BREAK

1:00 – 5:00 p.m.

Water Examination Review – Instructors, Dinesh Bahadursingh, Robert Nally, and Jay Price, WSSC Water. This session is designed to review topics that may help those taking the State examinations.

Or

PLC Systems for Water Operators – Instructor, Augustus Davies, 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 - 6:30 p.m. **DINNER**

THURSDAY

8:00 a.m. – Noon **Applied Mathematics** – Instructor, Perry Violet, WSSC Water
This session will focus on basic mathematics and applications fundamental to the 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. **BREAK**

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 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 Short Course Exam**

ADVANCED WATER

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. Persons taking this course should be a certified operator with approximately four years or more experience in water treatment technology and have completed basic introductory water courses. This course has been approved for Maryland TRE credits (7377-23-03, Process, 35 hrs., WT 1-4 Operators, Superintendents).

MONDAY

- 8:00 - 8:50 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.
- 8:50 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, 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, Md Rural Water
This session will be covering 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** - Terry Bradley, Training Safety & Health Solutions
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, Md Rural Water
This session will be covering 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 - 6:00 p.m. **DINNER**

THURSDAY

8:00 a.m. - Noon **The Evolution of a Project: Water Treatment Plant Expansion, from Planning to Final Acceptance**– Instructor, Sharon Cole, 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.

12:00 – 1:00 p.m. **LUNCH**

1:00 - 5:00 p.m. **Advanced Filtration Processes: Theory and Practices** - Instructor, Andy Crider, 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 operations require. 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 Short Course Examination**

Water Distribution Course

Course Coordinator: David Wilkens

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 approved for Maryland TRE credits (7378-23-03, Non-Process, 35 hrs., WT 1-4, WD Operators).

MONDAY

8:00 – 8:30 a.m. **Orientation** – Course Coordinator, David Wilkins, WSSC Water
An overview of the Water Distribution program will be presented and course objective discussed, and TRE requirements will be discussed.

8:30 a.m. – Noon. **Math Skills** – Instructor, Wanda Ketner, WSSC Water
The purpose of this course is to refresh and/or improve your math skills in the area of distribution math as it relates to water calculations. You will learn how to compare ratios and proportion, solve for the unknown, and explore liner measurements, area and volume measurements.

Noon – 1:00 p.m. **LUNCH**

1:00 – 5:00 p.m. **Math Skills (continued)** – Instructor, Wanda Ketner, WSSC Water

5:00 – 6:00 p.m. **DINNER**

TUESDAY

8:00 a.m. – Noon **Backflow Prevention and Cross-Connection Control** – Instructor, Carrol Matthews, WSSC Water
The purpose of this course is to provide the attendee with a basic understanding of backflow and the means and methods to prevent backflow. The course will provide industry terminology and definitions,

identify cross-connection related regulations, provide an introduction to 7 essential elements of a cross-connection control program, and introduce the varying types of non-testable backflow prevention devices and testable backflow prevention assemblies.

Noon – 1:00 p.m.

LUNCH

1:00 – 5:00 p.m.

Backflow Prevention and Cross-Connection Control (continued) – Instructor, Carrol Matthews – WSSC Water

5:00 – 6:00 p.m.

DINNER

WEDNESDAY

8:00 a.m. – Noon

Centrifugal Pumps and components – 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.

Centrifugal Pumps and components (continued) – Billy Dove - Hazen & Sawyer

5:00 - 6:30 p.m.

DINNER

THURSDAY

8:00 a.m. – Noon

Water Main Tapping, Valves and Fire Hydrants – Instructor, Mark Snyder, Mueller

The course will cover the safe operation and maintenance of fire hydrants and valves. We will also demonstrate how to tap a water main under pressure.

Noon – 1:00 p.m.

LUNCH

1:00 – 3:00 p.m.

Valves and Fire Hydrants (continued) – Instructor, Mark Snyder, Mueller

3:00 – 5:00 p.m.

Session Review & Test Taking Skills – Instructor, Billy Dove, Hazen & Sawyer

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 – 6:00 p.m.

DINNER

FRIDAY

8:00 – 11:00 a.m.

Final Short Course Exam

Advanced Water Distribution Course

Course Coordinator: Clark Howells

The Advanced Water Distribution courses are designed for veteran distribution operators that maintain and operate a water distribution system. This course will cover advanced topics and build off topics covered in the Water Distribution Course. Topics in this course include Backflow Prevention, Source Water Protection, Valve Repair, Centrifugal Pumps and Components, Water Quality Monitoring, and pH Control in Drinking Water. Persons taking this course should be a certified operator or have completed the Water Distribution Course. This course has been approved for Maryland TRE credits (7379-23-03, Non-Process, 35 hrs., WT 1-4, WD Operators).

MONDAY

8:00 – 8:30 a.m. **Overview** – Course Coordinator, Clark Howells, Baltimore City DPW
An overview of the Advanced Water Distribution course will be presented, course objectives and TRE requirements will be discussed.

8:30 a.m. – Noon **Source Water Protection** – Instructor, Edward Cope, 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 pm **Math** - Instructor, Wanda Ketner, WSSC Water
The purpose of this course is to refresh and/or improve your math skills in the area of distribution math as it relates to water calculations. You will learn how to compare ratios and proportion solve for the unknown, and explore liner measurements, area and volume measurements.

5:00 – 6:00 p.m. **DINNER**

TUESDAY

8:00 a.m. – Noon **Backflow Prevention** – Instructor, Chip Matthews, WSSC Water
This course is designed to meet the needs of water/wastewater professionals by focusing on the essentials of developing and managing an effective cross-connection control program. Topics include legal authority, policies, record keeping, training and education, assembly standards, the elements of a good ordinance, and liabilities and responsibilities. In addition, this course will also touch on Methods, Devices and Assemblies used in Cross Connection Control and Ways to choose the proper containments of Isolations component.

Noon – 1:00 p.m. **LUNCH**

1:00 – 5:00p.m. **Backflow Prevention** (continued)– Instructor, Chip Matthews -WSSC Water

5:00 – 6:00 p.m. **DINNER**

WEDNESDAY

8:00 a.m. – Noon **Centrifugal Pumps and Distribution Systems** –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. **Centrifugal Pumps and Distribution Systems(continued)** – Billy Dove, Hazen & Sawyer

5:00 – 6:30 p.m. **DINNER**

THURSDAY

8:00 a.m. – Noon **Valve Repair** – Instructor, Tim Allen, WSSC Water
This session will be a discussion on valve repair and its importance in the distribution system. Repairing valves rather than just replacing them can have positive cost benefit as well as reduce the impact on distribution system that sometimes comes with valve replacement.

Noon – 1:00 p.m. **LUNCH**

1:00 p.m. – 3:00 pm **Water Quality Monitoring Within the Distribution System-** Instructor, Deborah Pitts, Baltimore City DPW
The course will cover the importance of the distribution system as a barrier for protecting public health. Identify water quality standards and regulations that impact the distribution system and to review sampling protocols for distribution system regulation compliance.

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 Short Course Exam**

Introductory/Intermediate Wastewater Course

Course Coordinator: Rob Kraus

The course is designed for the Operator-In-Training with basic wastewater skills. The operator taking this course will generally have one to three years of operating experience. Information covered in this session should be helpful with some parts of the certification exams, but in no way assures one of passing. This course will make use of instructor hand outs and note taking by the attendee. A course exam will be offered on Friday for those not taking the State Certification exam. Those students taking the State certification exam (on Friday, June 9th), must pre-register through MDE. This course has been approved for Maryland TRE credits (7380-23-03, Process, 35 hrs., All WW & IWW Operators).

Monday

8:00 - 8:15 a.m. **Overview** – Course Coordinator, Rob Kraus, (WWOA), Anne Arundel County DPW

During this period Course materials will be distributed, the TRE requirements discussed and an overview of the curriculum outlined.

8:15 a.m. - Noon **Intermediate Math** - 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 or failure to do so.

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

1:00 - 5:00 p.m. **Pumps** – Instructor, John Weis, MM Engineering
The understanding of pumps and moving fluids through water and wastewater treatment plant is essential. This session will discuss the various types of pumps used as well as routine maintenance and troubleshooting, what causes cavitation and how to recognize and solve it.

5:00 – 6:00 p.m. **DINNER**

Tuesday

8:00 a.m. - Noon **Activated Sludge Process Control** – Instructor, Lenny Gold, LGA
This session will focus on activated sludge treatment of wastewater and the techniques for monitoring and controlling the process. 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. **Activated Sludge Process Control (continued)** – Instructor, Lenny Gold, LGA
This session will focus on activated sludge treatment of wastewater and the techniques for monitoring and controlling the process. 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.

5:00 – 6:00 p.m. **DINNER**

Wednesday

8:00 a.m. - Noon **Advanced Treatment** – Instructor, William Shreve, Retired
This session will discuss methods of nutrient removal, sand filtration and other advanced treatment processes.

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

1:00 – 5:00 PM **Advanced Treatment Cont.** – Instructor, William Shreve, Retired
This session will discuss methods of nutrient removal, sand filtration and other advanced treatment processes

5:00 – 6:30 p.m. **DINNER**

Thursday

8:00 a.m. - Noon **Chemicals** – Instructor, Andrew Rupprecht/Nate Barnes, 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.

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 Short Course Examination**

Advanced Wastewater Course

Course Coordinator: Mike Marinelli

This session is designed for certified wastewater operators/superintendents. The person taking this class should have two or more years of experience. In addition, it serves as a refresher course for the seasoned veteran operator/superintendent. This course has been approved for Maryland TRE credits (7381-23-03, Process, 35 hrs., All WW & IWW Operators, Superintendents).

Note: Experienced attendees taking the State certification exam should enroll in the Introduction/Intermediate Wastewater Course. Although some of these sessions are

designed to review standard advanced wastewater processes, many of the sessions will discuss recent advancements in technology in an effort to expand the veteran operator's knowledge beyond his/her own facility.

MONDAY

- 8:00 - 8:15 a.m. **Overview** – Michael Marinelli, WSSC Water
An overview of the Advanced Wastewater program will be presented, and course objectives, logistics, and TRE requirements will be discussed.
- 8:15 – 10:00 **Innovative Technologies for Resource Recovery Facilities** - Instructor, Caroline Nguyen, WSSC Water
Discuss and review technologies/tools/strategies that are intended to intensify the WRRF process and/or make them more efficient. Will discuss: Carbon Efficient N and P removal, Partial denitrification-anammox(PdNA), Aerobic granular sludge, EBPR, and P Recovery.
- 10:00 – Noon **Sludge Management** – Instructor, Maia Tatinclaux, RK&K
Discussion and understanding of EPA 503 rule for land application and beneficial reuse.
- Noon – 1:00 p.m. **LUNCH**
- 1:00 – 5:00 p.m. **Introduction to SCADA Concepts**, Instructor - Bill Cantwell, WSSC Water
Discussion on the hardware and software that comprises an integrated control system(ICS). Will include how instrumentation and equipment are wired, interactions with PLCs, the purpose of HMIs and interactions with PLCs, defining a SCADA system and how it operates in the ICS environment.
- 5:00 - 6:00 p.m. **DINNER**

TUESDAY

- 8:00 a.m. – Noon **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
- Noon – 1:00 p.m. **LUNCH**
- 1:00 - 5:00 p.m. **A Virtual Tour of an Advanced Wastewater Treatment Plant** - Instructor, Ronald Moler III, WSSC Water
In this class we will be taking a virtual tour of an advanced wastewater treatment plant. We will start at the plant's pump station and discuss the preliminary treatment processes. Then we will move onto secondary treatment, here we will discuss BNR, ENR, and Biological & Chemical phosphorus removal. We will follow the flow pattern and the purpose of each zone in an LME and 5-stage Bardenpho treatment process. Then we will move onto tertiary treatment where we will discuss filtration and disinfection. We will end the virtual tour at the plant's effluent outfall.

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

WEDNESDAY

8:00 a.m. – Noon **An In-Depth Look at ENR** – Instructor, Marty Johnson, WSSC Water
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 the plant performance and optimization through monitoring, testing, equipment changes, and chemical addition. Interpretation of data and operational problems/remedies will also be presented.

12:00 – 1:00 p.m. **LUNCH**

1:00 - 5:00 p.m. **An In-Depth Look at ENR (continued)** – Instructor, Marty Johnson, WSSC Water

5:00 - 6:30 p.m. **DINNER**

THURSDAY

8:00 – Noon. **An In-Depth Look at ENR (Day 2)** – Instructor, Marty Johnson, WSSC Water

12:00 – 1:00 p.m. **LUNCH**

1:00 - 4:00 p.m. **An In-Depth Look at ENR (continued)** – Instructor, Marty Johnson, WSSC Water

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 Short Course Examination**

Industrial Waste Treatment Course

Course Coordinator: Bill Farrell

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 approved for Maryland TRE credits (7383-23-03, Process, 32 hrs., All WW & IWW Operators).

MONDAY

- 8:00 – 9:00 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.
- 9:00 a.m. – Noon **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.
- Noon – 1:00 p.m. **LUNCH**
- 1:00 – 5:00 p.m. **Pumps** – Instructor, John Weis, MM Engineers
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.
- 5:00 – 6:00 p.m. **DINNER**

TUESDAY

- 8:00 a.m. – Noon **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.
- Noon – 1:00 p.m. **LUNCH**
- 1:00 – 5:00 p.m. **Metals Precipitation / Oil Water Separation, Thickening & Dewatering** – Instructor, Bill Farrell, 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 the 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 – 3:00 p.m.

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 has 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.

5:00 - 6:30 p.m.

DINNER

THURSDAY

8:00 – 9:00 a.m.

Principles of Biological Treatment – Instructor, Tbd
This section will cover the wastewater characterization, an introduction to biological treatment systems, and basic microbiology.

9:00 – 10:00 a.m.

Anaerobic Treatment Processes – Instructor, Tbd
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. An overview of equipment and layouts associated with anaerobic systems will be presented along with a discussion of system O&M issues.

10:00 a.m. – Noon

Aerobic Treatment I – Instructor, Tbd
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.

Membrane Treatment – Instructor, Rob Kerschner, Kerschner Environmental Technologies
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.

3:00 – 4:00 p.m.

Course Review

4:00 – 5:00 P.M

Final Exam

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 approved for Maryland TRE credits (7382-23-03, Non-Process, 35 hrs., All WW & IWW Operators, Superintendents).

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 program will be presented, with course objectives and TRE requirements being discussed.
- 8:30 - 9:30 a.m. **Force Main Inspection and Assessment** - Instructor, Ethan Vidal, Xylem Inc.
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. **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 the industry. Industry standards covering design life, product performance and acceptance testing will be reviewed to help ensure a successful manhole rehabilitation project.
- 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 and for pressure systems, Bernoulli's Principle will be explained. Example problems 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. **Flow Monitoring** – Instructor, Tbd
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.

- 2:00 – 3:00 p.m. **An Introduction to Asset Management** – Instructors: Gian Cossa, Gregory Stephens, and Kendrick St Louis – DC Water
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.
- 3:00 – 4:00 p.m. **SSES//Private Property I/I** – Instructor, Paul Sayan, Louis Berger Water Services
The presentation will explain the purpose of the SSES investigations including flow monitoring, CCTV and manhole inspections, smoke and dye testing. The presentation will also discuss how SSES investigations are related to private property inflow/ infiltration and general guidance to develop and implement a private property I/I reduction problem.
- 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 carry 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**
- 8:00 a.m. – Noon **TUESDAY**
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 the water and wastewater treatment 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)** – Instructor, Wayne E. Reed, Army Corps of Engineers, Washington Aqueduct

5:00 – 6:30 p.m. **DINNER**

THURSDAY

8:00 AM – Noon **Safety Programs** – Instructor, Michael Lewis, 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. Safety Programs – Instructor, Michael Lewis – 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 Short Course Examination**

Superintendents Course

Course Coordinators: Michael Lewis and Winfield McKell

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.

- Understanding the Dangers of and Treatment Methods for PFAS Chemicals (7374-23-3, Non-Process, 4 hrs., All Operators, All Superintendents)
- Sustainable Management of Rural and Small Systems Workshop (#6533-19-03, Non-Process, 4 hrs., Superintendents only)

- ALICE (Alert, Lockdown, Inform, Counter, Evacuate) – (#6532-19-03, Non-Process, 4 hrs., All Operators, Superintendents)
- Incident Command System & National Incident Management (7259-22-03, Non-Process, 4 hrs., All Operators & Superintendents)

TUESDAY

- 8:00 a.m. – Noon **Understanding the Dangers of and Treatment Methods for PFAS Chemicals** – Instructor, Scott Harmon, Md Rural Water
This session will be covering 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. **Sustainable Management of Rural and Small Systems Workshop** – Instructor, Bill Shreve, retired
Participants will learn about and use the key management areas, the self-assessment process, and tools, tips, and measures for performance improvement. The two overarching objectives for the day are for the participant to learn about ways to think about managing your system more sustainably and learn about a self-assessment process that can be used in various settings to improve understanding about utility operating and capital requirements and build support for needed performance improvements.

WEDNESDAY

- 8:00 a.m. – Noon **ALICE (Alert, Lockdown, Inform, Counter, Evacuate) Training -**
Instructor, Angela Ballard-Landers, WSSC Water
Training is designed to educate individuals on how to prepare and plan for intruder threat/active shooter attack. The ALICE training method is very different than the traditional “lockdown only” approach. The goal of the training is to increase the odds of survival by taking a more proactive approach.
- Noon – 1:00 p.m. **LUNCH**
- 1:00 – 5:00 p.m. **Incident Command System and National Incident Management - System** - Instructor, David McDonough, WSSC Water
ICS 100 - Introduction to the Incident Command System, introduces the Incident Command System (ICS) and provides the foundation for higher level ICS training. This course describes the history, features and principles, and organizational structure of the Incident Command System. It also explains the relationship between ICS and the National Incident Management System (NIMS). At the completion of this course, you should be able to:
- Explain the principles and basic structure of the Incident Command System (ICS).
 - Describe the NIMS management characteristics that are the foundation of the ICS.
 - Describe the ICS functional areas and the roles of the Incident Commander and Command Staff.

- • Describe the General Staff roles within ICS.
 - • Identify how NIMS management characteristics apply to ICS for a variety of roles and discipline areas.
 - IS-700, provides an overview of the National Incident Management System (NIMS). The National Incident Management System defines the comprehensive approach guiding the whole community - all levels of government, nongovernmental organizations (NGO), and the private sector - to work together seamlessly to prevent, protect against, mitigate, respond to, and recover from the effects of incidents. The course provides learners with a basic understanding of NIMS concepts, principles, and components. At the end of this course, students will be able to:
 - • Describe and identify the key concepts, principles, scope, and applicability underlying NIMS.
 - • Describe activities and methods for managing resources.
 - • Describe the NIMS Management Characteristics.
 - • Identify and describe Incident Command System (ICS) organizational structures.
 - • Explain Emergency Operations Center (EOC) functions, common models for staff organization, and activation levels.
 - • Explain the interconnectivity within the NIMS Management and Coordination structures: ICS, EOC, Joint Information System (JIS), and Multiagency Coordination Groups (MAC Groups).
 - • Identify and describe the characteristics of communications and information systems, effective communication, incident information, and communication standards and formats.
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2023 Water & Wastewater Operators Short Course Committee Members

Chairperson:	Rob Nally (CSAWWA), WSSC Water
Chairperson-Elect:	John Luu (CWEA), WSSC Water
Treasurer:	Clark Howells (CWEA), Baltimore City DPW
Secretary/Assist Treasurer:	Maia Tatinclaux (CWEA), RK & K
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), WSSC Water
Advanced Distribution:	Clark Howells (CWEA), Baltimore City DPW
Intro/Inter Wastewater:	Rob Kraus, (WWOA), Anne Arundel County DPW
Advanced Wastewater:	Mike Marinelli, (CWEA), WSSC Water
Industrial Wastewater:	Bill Farrell (CWEA), Prostart
Wastewater Collection:	Wayne Reed (CWEA), ACE - Washington Aqueduct Licette Villafane (WWOA), WSSC Water
Superintendents:	Mike Lewis (CSAWWA), WSSC Water Winfield McKell (WWOA), WSSC Water
College Liaison:	Jim Timmons (WWOA), Baltimore City DPW (Retired)
Admin. Coordinators:	Jay Price (CSAWWA/WWOA), WSSC Water Ivy Swann (WWOA), Anne Arundel County DPW Noelle Anuskiewicz (CWEA), Anne Arundel County DPW Conrad Shows (WWOA), DCWater (Retired) Scott Harmon (CWEA/CSAWWA), MD Rural Water Association Angela Ballard-Landers (CSAWWA), WSSC Water Billy Dove (CSAWWA), Hazen and Sawyer

Short Course Instructors

We offer our thanks to each instructor who is giving of their time and effort without monetary compensation to convey this beneficial information to the respective students. Also, thanks to the companies who have allowed the instructors time to participate in the Short Course. You will find the names of the instructors with the classes they are teaching.