



71st ANNUAL SHORT COURSES FOR WATER & WASTEWATER OPERATORS

May 31 – June 5, 2020

HELD
AT

WASHINGTON COLLEGE
300 WASHINGTON AVE,
CHESTERTOWN, MARYLAND

*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)*

71st SHORT COURSE PROGRAM & SCHEDULE

***Important note to all overnight attendees: 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, May 31, 2020

4:00 to 6:00 p.m. Registration and Room Assignments located in the Larrabee Arts Center (for campus map click the following link).
<https://www.washcoll.edu/about/campus-map.php>

6:00 to 11:00 p.m. The Short Courses will begin with a Buffet Dinner at 6 p.m. in the Main Dining Room located on the second floor of Hodson Hall, followed by a Meet and Greet beginning at 7:30 p.m. located downstairs from the Dining Room.

Monday, June 1 through Thursday, June 4, 2020

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

Friday, June 5, 2020

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

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

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 Courses for Water and Wastewater Operators offer 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.

Questions/Problems

If there are any questions not answered in this brochure or problems encountered prior to registration, you can contact Michael Lewis at Joseph.Lewis@wsscwater.com, or Rachel Ellis at info@wwoShortCourses.org.

Non-Discrimination Statement

The WWO Short Courses 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 Courses 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 Courses and offends the organization’s core values which include a commitment to equal opportunity and inclusion. All Short Courses Committee Members instructors, students, and staff members are expected to join with and uphold this commitment.

Washington College

The College’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 individuals listed above or Short Courses Committee members.

Directions to Washington College

Washington College is located in historic Chestertown, Maryland on Maryland’s Eastern Shore north of Centreville on U.S. 213. The College is on the west side of the highway and is well marked. Directional signs to the Short Courses registration 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 Courses on Friday, June 5, 2020 from 9 a.m. to 1 p.m. in Hodson 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 Courses. **Payment to attend the Short Courses 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 by May 15, 2020. **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:

<http://mde.maryland.gov/programs/Permits/EnvironmentalBoards/Documents/MDE-WMA-BWW-EXM.pdf>

Mail completed applications to:

Board of Waterworks & Waste Systems Operators
P.O. Box 2057
Baltimore, MD 21203

Any questions regarding the Certification Exam may be referred directly to Board staff at 1(800) 633-6101, ext. 3167 or (410) 537-3167.

Sponsorship/Scholarships

The Annual Water and Wastewater Operators Short Courses are sponsored by the Short Courses 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 to attend the Short Courses are offered through each organization. Members of each organization are eligible per the selection process of the organization. For additional information, please see the following websites:

CSAWWA Short Courses Scholarship - www.csawwa.org

WWOA Short Courses Scholarship – www.wwoa.net

CWEA/Stanley Kappe Short Courses Scholarship – www.chesapeakewea.org

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 Courses Staff.

Conduct of Participants

Throughout the history of the Short Courses 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 Courses immediately and will be banned from all future Short Courses. Unduly under the influence will be in the judgment of any Short Courses Committee member or university official.

Attendance and Training Credit Hours Earned

The policy of the Short Courses Committee is that a student must attend at least 80% of the training (Short Courses final exams included in the total time). The State examination does not count towards class attendance as part of the Short Courses. 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 Courses Committee does not submit individual classes for TRE credits with the exception of the Superintendent Course. Attendees have the option to submit classes for individual approval.

If you are taking a State Certification exam on Friday, June 5th, and you are also interested in taking the Short Courses 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 2nd. **All participants must sign their own name to the attendance sheets during the class to receive credit. NO EXCEPTIONS.**

Delaware Operator License Holders

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

Short Courses 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, Age (must be 18 to attend)
 - 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/71st-annual-wwo-short-courses> or go through the Short Courses 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 April 30, 2020	Non-Members Through April 30, 2020	Members Beginning May 1, 2020	Non-Members Beginning May 1, 2020
Full Week – Complete Pkg. (classes, meals, lodging)	\$595	\$620	\$650	\$675
Full Week – Classes & lunch only	\$325	\$350	\$375	\$400
Single Day (includes lunch)	\$90	\$95	\$95	\$100
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 - you can register a group of attendees using one credit card.
- Pay by check. Checks should be made payable to Short Courses and mailed to the address shown in the Online Registration System. (Include all attendee names with your check).

Payments not made within 45 days of the course (**July 15, 2020**) will be charged an additional processing fee of \$50.00. Cancellations will be assessed a fee of \$25.00. No refunds will be issued May 24 – 31, 2020.

NOTE: Certificates of attendance will not be issued until full payment has been received.

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 (410)778-7810. Messages will be taken, and every attempt will be made to contact you. The 24-hour lockout/guest assistance number is 443-694-9867.

On-Site Help

If you are a single day or late registrant, an instructor, or if you have any questions/problems during the week, you can find help in the Short Courses Headquarters in Room #108 of Daly Hall from 7 a.m. to 5 p.m. The phone number is (410)810-5090, during the hours of 7 a.m. to 5 p.m., or you can ask a Short Courses Committee member to assist you. After hours, please call Short Courses Chairperson, Michael Lewis at (240)687-8055.

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, May 31 and must be vacated by 8 a.m. on Friday, June 5. **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 include the standard cafeteria meals (breakfast and dinner) served in Hodson Hall. Lunch is included in the registration cost for all attendees.

REMINDER: NO LINENS WILL BE PROVIDED.

Meals for on-site accommodations begin with the buffet dinner on Sunday evening and end with breakfast on Friday morning. The serving times are:

Breakfast – 7:00 to 8:00 a.m.

Lunch – Noon to 1:00 p.m.

Dinner – 5:00 to 6:00 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 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 during registration.

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.

No Smoking

Smoking 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.

Evening Recreational Activities @ Hodson Hall Game Room

Sunday 6:00 – 11:00 p.m. Buffet Dinner, Meet & Greet to follow.
Monday 7:00 – 11:00 p.m. Nacho Grande Night, Meter Madness Contest & Televised Sports
Tuesday 7:00 – 11:00 p.m. Pizza Night, Water/Wastewater Trivia Contest and Televised Sports
Wednesday 7:00 – 11:00 p.m. Wing Night, Karaoke and Televised Sports
Thursday - Study Night, No Activities Scheduled

Disclaimer

Several Short Courses curriculums are designed for those persons just entering the field and/or persons holding Operator-in-Training certificates. Attendance at these classes in no way implies a guarantee that those participating in the sessions are assured of passing the State Certification exam. However, over the long history of the Short Courses, MDE exam results indicate that the courses have proven helpful. Fully certified operators should take the more advanced sessions for re-certification credit, however, all sessions are submitted for TRE credits.

SESSION LISTINGS

Introductory Water Course

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 (#????-20-03).

MONDAY

- 8:00 – 8:30 a.m. **Overview** – Instructor, Rob Swann Sr - Anne Arundel County DPW
An overview of the Introductory Water program will be presented, and course objectives discussed. TRE requirements will be outlined. This course will cover the materials, 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 **Chlorine Use and Safe Handling** – Instructor, Terry Bradley - City of Bowie
Session will cover the review of various disinfection technologies and discussion of the main types of chlorine application systems. Additional course topics are safety procedures for storage and use of chlorine tanks, current disinfection technologies, and the major physical and chemical characteristics of disinfection chlorine.
- Noon – 1:00 p.m. **LUNCH**
- 1:00 – 5:00 p.m. **Well Systems** – Instructor, Rob Swann Sr - Anne Arundel County DPW
This course is intended for superintendents and operators of public water systems that utilize groundwater wells as a source of supply. Topics to be covered include groundwater hydrogeology; types of wells and drilling techniques; well pumps, motors, and control systems; well pump station

design; operational strategies; well maintenance and rehabilitation alternatives; water quality monitoring; performance monitoring and troubleshooting; and sanitary risks and protection.

5:00 – 6:00 p.m. **DINNER**

TUESDAY.

8:00 a.m. – Noon **Applied Mathematics** – Instructor, Scott Harmon - Maryland Rural Water.

This session will focus on basic mathematics and application fundamentals to the water treatment industry. Upon completion of this course, personnel should be able to perform calculations needed to verify various plant processes. Examples include chemical dosing, retention time, pressure backwash flow rates and horsepower pump rates.

Noon – 1:00 p.m. **LUNCH**

1:00 – 5:00 p.m. **State Water Examination Review** – Instructors, Jay Price, Dinesh Bahadursingh, and Rob Nally – WSSC Water

This session is designed to review topics that may help those taking any of the State Water exams. **Note: This is a fast-paced review that is open only to those registered for the State exam.**

Or

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 **Water Treatment Processes** – Instructor, Perry Violet - WSSC Water

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. **Distribution Systems** – Instructor, Billy Dove - City of Baltimore

The 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, and the importance of tank turnover, chlorination, and disinfection byproducts.

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

THURSDAY

- 8:00 a.m. – Noon **Basic Electricity & Troubleshooting for Water/Wastewater Technicians.** – Instructor, Augustus Davies - WSSC Water
This course starts with an overview of electrical, instrumentation, and mechanical symbols, components, and functions. Electrical quantities, including current, resistance, voltage, and power, are discussed in terms of definition, units, measurements, and application in ladder diagrams. Overview of industrial control components and their schematic symbols commonly used in water and wastewater industries to control pumps and motors are discussed. This course will also review logic gate principles used in schematic and relay ladder logic, including the OR gates, AND gates, and XOR gates. Finally, attendees will gain troubleshooting skills and knowledge to solve electrical, mechanical, fluid flow, and P&ID related issues.
- Noon – 1:00 p.m. **LUNCH**
- 1:00 – 5:00 p.m. **Applied Mathematics (continued)** – Instructor, Scott Harmon - Maryland Rural Water.
This session will focus on basic mathematics and application fundamentals to the water treatment industry. Upon completion of this course, personnel should be able to perform calculations needed to verify various plant processes. Examples include chemical dosing, retention time, pressure backwash flow rates and horsepower pump rates.
- 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

The Water Class 3 & 4 is designed for those who operate plants with chlorination, pH control, flocculation, fluoridation, filtration, and iron removal utilizing ion exchange or contact oxidation processes (Class 3): and chlorination, pH control, fluoridation, aeration, coagulation, sedimentation, and filtration for both surface water treatment and complex iron removal (Class 4). Generally, these are larger water plants. A person taking this course should have at least two or three years of operating experience and/or have completed a basic/introductory water course. This course has been submitted for Maryland TRE credits, and is pending Board approval (#-20-03).

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, Terry Bradley - City of Bowie
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 – Instructors, Robert Nally - WSSC Water, and 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

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 – 5:00 p.m.

Water 3 & 4 State Examination Review – Instructors, Robert Nally, Dinesh Bahadursingh, and Jay Price - WSSC Water.
This session is designed to review topics that may help those taking the Water 3 or 4 State examinations. **Note: This is a fast-paced review that is open only to those registered for the June 5, 2020 State Certification exams.**

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

Water Treatment Processes – Instructor, Perry Violet - WSSC Water
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.

Distribution Systems – Instructor, Billy Dove – City of Baltimore DPW
The 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, and the importance of tank turnover, chlorination, and disinfection byproducts.

5:00 – 6:00 p.m. **DINNER**

THURSDAY

8:00 a.m. – Noon **Water 3 & 4 State 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 Water 3 or 4 State examinations. **Note: This is a fast-paced review that is open only to those registered for the June 5, 2020 State Certification exams.**

OR

Basic Electricity & Troubleshooting for Water/Wastewater Technicians. – Instructor, Augustus Davies – WSSC Water. This course starts with an overview of electrical, instrumentation, and mechanical symbols, components, and functions. Electrical quantities, including current, resistance, voltage, and power, are discussed in terms of definition, units, measurements, and application in ladder diagrams. Overview of industrial control components and their schematic symbols commonly used in water and wastewater industries to control pumps and motors are discussed. This course will also review logic gate principles used in schematic and relay ladder logic, including the OR gates, AND gates, and XOR gates. Finally, attendees will gain troubleshooting skills and knowledge to solve electrical, mechanical, fluid flow, and P&ID related issues.

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 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

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 (#????-20-03).

MONDAY

8:00 - 8:50 a.m. **Overview** – Course Coordinator, Scott Harmon – MD Rural Water
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 **Advanced Filtration Processes: Theory and Practices** – Instructor, Patrick Foley - 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.

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

1:00 - 5:00 p.m. **Preparing for and responding to a terrorism incident from a Public Works perspective** – Instructor, Pete Steps - Anne Arundel County
What is terrorism? What is a PTE? What is a CBRNE incident? This course answers these questions and others. Topics discussed in this session will pertain to weapons of mass destruction, how to perform a vulnerability assessment of your facility and more.

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

TUESDAY

8:00 a.m. – Noon. **ALICE (Alert, Lockdown, Inform, Counter, Evacuate) Training** - Instructors, Angela Ballard-Landers - WSSC, Olivia Higgins - WSSC
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, J.D. – 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.

5:00 - 6:00 p.m.

DINNER

WEDNESDAY

8:00 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. **Pumps** – Instructor, Jeremy Marine – 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 **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.

Noon – 1:00 p.m. **LUNCH**

1:00 - 5:00 p.m. **Instrumentation and Controls for the Operator** – TBD- Sherwood Logan and Assoc
This class introduces the fundamentals of measuring, displaying and controlling important plant operating parameters such as levels, pressures, flows and dosages. Class discussions will center on automatic systems that actuate and adjust valve positions, motor speeds and chemical feeders.

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

FRIDAY

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

Water Distribution Course

The Water Distribution Systems course are designed for those who operate and maintain a water distribution system. They are for both the beginner and seasoned operator and will cover basic and advanced concepts. This course has been approved for Maryland TRE credits (#????-20-03).

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 **Safety** - Instructor, Pete Steps – Anne Arundel County DPW (retired)
The purpose of this course is 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. **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.

5:00 – 6:00 p.m. **DINNER**

TUESDAY

8:00 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. **Water Disinfection** – Instructor, Perry Violet – WSSC Water
The purpose of this Disinfection Strategies class is to provide the attendee with some disinfection strategies used in the water and wastewater industries. It will explain some physical and chemical disinfection strategies used in the water treatment and the effects on the water distribution system. It will also discuss advantages and disadvantages of the various treatment techniques as well as the benefits of multiple disinfection strategies approach.

5:00 – 6:00 p.m. **DINNER**

WEDNESDAY

8:00 a.m. – Noon **Water Main Tapping** – Instructor, Mark Snyder – Mueller Co. and Pat Burke, Ferguson Waterworks

Noon – 1:00 p.m. **LUNCH**

1:00 – 5:00 p.m. **Valves and Hydrants** – Instructors, Mark Snyder - Mueller Co. & Pat Burke - Ferguson Waterworks
The course will cover the safe operation and maintenance of fire hydrants and valves. Instruction will include a detailed description of parts and repairs to include the disassembly and assembly of valves and fire hydrants.

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

THURSDAY

- 8:00 a.m. – Noon **Centrifugal Pumps and Distribution Systems** – Instructor, Billy Dove – Baltimore City DPW
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 – 3:00 p.m. **Centrifugal Pumps and Distribution Systems** – Instructor, Billy Dove – Baltimore City DPW
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.
- 4:00 – 5:00 p.m. **Session Review & Test Taking Techniques** – Instructor, 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 – 6:00 p.m. **DINNER**

FRIDAY

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

Advanced Water Distribution Course

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. This year we feature a 4-day course on Backflow Prevention. Persons taking this course should be a certified operator or have completed the Water Distribution Course. This course has been submitted for Maryland TRE credits, and is pending Board approval (#????-20-03).

MONDAY

- 8:00 – 9:00 a.m. **Overview** – Course Coordinator, John Luu – WSSC
An overview of the Advanced Water Distribution course will be presented, course objectives and TRE requirements will be discussed.
- 9:00 a.m. – Noon **Backflow Prevention** – Instructor, Chip Matthews – WSSC
In this 4-day course, participants will develop a working knowledge of the causes and principles of backflow and backflow prevention. Recognizing proper backflow prevention assembly application and operation is stressed. Complete understanding and the ability to perform accepted field-test procedures for all backflow prevention assemblies is required for successful completion.

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

1:00 – 5:00 p.m. **Backflow Prevention** (continued)

5:00 – 6:00 p.m. **DINNER**

TUESDAY

8:00 a.m. – Noon **Backflow Prevention** (continued)

Noon – 1:00 p.m. **LUNCH**

1:00 – 5:00 p.m. **Backflow Prevention** (continued)

5:00 – 6:00 p.m. **DINNER**

WEDNESDAY

8:00 a.m. – Noon **Backflow Prevention** (continued)

Noon – 1:00 p.m. **LUNCH**

1:00 – 5:00 p.m. **Backflow Prevention** (continued)

5:00 – 6:00 p.m. **DINNER**

THURSDAY

8:00 a.m. – Noon **Backflow Prevention** (continued)

Noon – 1:00 p.m. **LUNCH**

1:00 – 5:00 p.m. **Backflow Prevention** (continued)

5:00 – 6:00 p.m. **DINNER**

FRIDAY

8:00 – 11:00 a.m. **Final Short Course Exam**

Introductory/Intermediate Wastewater Course

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 5th), must pre-register through MDE. This course has been approved for Maryland TRE credits (#????-20-03).

MONDAY

8:00 - 9:00 a.m. **Overview** – Course Coordinator, Rob Kraus - Anne Arundel County DPW

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

9:00 a.m. - Noon **Intermediate Math** - Instructor, Bill Jones - Anne Arundel County DPW

Basic math concepts including solving wastewater and water equations, emphasizing dimensions and conversion factors, flow rates, loading rates and typical formulas needed for certification preparation.

Noon - 1:00 p.m.

LUNCH

1:00 - 5:00 p.m.

Preliminary and Primary Treatment – Instructor, TBD

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.

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.

Advanced Treatment – Instructor, William Shreve – Charles County DPW

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, 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.

Noon - 1:00 p.m.

LUNCH

1:00 - 3:00 p.m.

Disinfection – Instructor, Earl Ludy – Somerset County Sanitary District

This session will identify and discuss different methods of disinfection including the advantages and disadvantages of each method.

3:00 - 5:00 p.m.

Safety – Instructor, Burt Sklar- APG

Proper use of Personal Protective Equipment (PPE), working in confined sources, lockout/tagout, chlorine handling and chemical safety will be covered in this session.

5:00 – 6:00 p.m.

DINNER

THURSDAY

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. **Wastewater Lab** – Instructor, Dale Baker – Garrett County
Lecture, demonstration, and hands-on training on pH Temperature and using meters, DPD-FS and Spectrophotometer.

OR

1:00 - 5:00 p.m. **Wastewater Course Review/Q&A** – Rob Kraus - Anne Arundel County
DPW

5:00 – 6:00 p.m. **DINNER**

FRIDAY

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

Advanced Wastewater Course

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 (#????-20-03, Process).

Note: 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** – Course Coordinator, Jay Price - WSSC Water
An overview of the Advanced Wastewater program will be presented, and course objectives, logistics, and TRE requirements will be discussed.

8:15 a.m. - Noon **A Virtual Tour of an Advanced Wastewater Treatment Plant** –
Instructor, Ronald Moler III – WSSC Water
In this class, students will be taking a virtual tour of an advanced wastewater treatment plant. The tour will start at the plant's pump station where we will discuss the preliminary treatment processes. As we follow the flow we will move onto secondary treatment, here we will discuss BNR, ENR, and Biological & Chemical phosphorus removal. Breaking down each zone and discussing its purpose in an MLE and 4 and 5-stage Bardenpho treatment process. Also discussing separate and single sludge systems. We will dive onto tertiary treatment where we will discuss filtration and disinfection. We will end the virtual tour at the plant's effluent outfall delivering clean and clear water back into the environment.

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

1:00 – 5:00 p.m. **Anaerobic Digesters, Thermal Hydrolysis, and Sidestream Treatment** - Christine deBarbadillo - DCWater
This class will provide an overview of anaerobic digesters and enhancement processes such as thermal hydrolysis and will discuss advantages and disadvantages of each type. Topics will include: types of digesters and thermal treatment processes, processing rate, number of stages to the process, operating temperatures, and types of mixing strategies. The class will also discuss the characteristics of the filtrate or centrate that is generated from biosolids dewatering equipment. Topics will include: centrate characteristics, impact on the main plant processes, and different types of sidestream treatment processes.

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

TUESDAY

8:00 a.m. – Noon **Biological Components of Wastewater** - Instructor, Cynthia Bland, REM, CEP – PEER Consultants, P.C.
This 1-day course will review the wide variety of pathogens that are present in wastewater, sludge, foam, compost, aerosols and contaminated surfaces and present potential and actual risks to wastewater personnel. Pathogens reviewed include viruses, bacteria, fungi, protozoa and helminthes (worms) as well as allergens, endotoxins and exotoxins. Topics presented include: an overview of relevant history, hazards and organisms; aerosols, compost, foam and sludge; disease transmission and the body's defenses; removal, inactivation and destruction of pathogens; hygiene measures, protective equipment and immunizations. The course will also cover organism identification and the effects of the presence, absence, mobility, and organism type on wastewater process control as well as microscopic features will be included as an overview of sampling.

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

1:00 - 5:00 p.m. **Biological Components of Wastewater** (continued)

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

WEDNESDAY

8:00 a.m. – Noon **An In-Depth Look at ENR** – Instructor, Marty Johnson - WSSC
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.

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

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

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

THURSDAY

8:00 a.m. – Noon **An In-Depth Look at ENR (Day 2)**

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, Jay Price - WSSC**

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

FRIDAY

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

Industrial Waste Treatment Course

The Industrial Waste Treatment course is designed to cover a broad range of topics in the field. Both biological and physical chemical treatment will be discussed. The technology discussed will apply to both direct industrial dischargers and indirect dischargers to the Publicly Owned Treatment Works (POTWs). The sessions will focus on topics requirements for the Industrial Waste water Works and Pretreatment Plants of Class 4, Biological lagoons, and Class 5, Activated Sludge. The week's courses have been approved for Maryland TRE Credits (#????-20-03)

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 requirement. Each session covered in this course will be discussed along with the resources available for review of course material 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 the consequences of being classified as a SIU and reporting requirements.

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**

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 waste water discharge parameters.

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

TUESDAY

8:00 a.m. - Noon **Chemical Feed** - Instructor, Tim McComas - Coyne Chemical
This session covers the use of Chemicals in the treatment of waste water. 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 - 5:00 p.m. **Metals Precipitation/ Oil Water Separation, Thickening & Dewatering** – Instructor, TBD

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

WEDNESDAY

8:00 a.m. - Noon **Pumps** – Instructor, John Weis - MM Engineers
This will be a combined session with Intermediate Waste Water. 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. **Controls** – Instructor, Allan Rodgers – Omni Engineering
Automation and controls are becoming more a part of waste water 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.

3:00 - 5:00 p.m. **Disinfection** –Instructor, Earl Ludy - Somerset County Sanitary District
This session will discuss and identify the various means of disinfection including the advantages and disadvantages of each method such as Chlorination and Ultraviolet (UV).

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

THURSDAY

8:00 - 9:00 a.m. **Principles of Biological Treatment** – Instructor, Chris Younger, Harford County DPW
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, - Chris Younger - Harford Co DPW
The principles of biological 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 the equipment layouts associated with anaerobic systems will be presented along with a discussion of the &O&M issues.
- 10:00 a.m. - Noon **Aerobic Treatment I** – Instructor, Chris Younger, Harford Co DPW
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-** Coordinator-Bill Farrell, Prostart
- 4:00 - 5:00 p.m. **Final Exam**

Wastewater Collection Systems Course

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 (#????-20-03).

MONDAY

- 8:00 – 8:30 a.m. **Overview** – Course Coordinators, Wayne E. Reed - Army Corps of Engineers, Washington Aqueduct and Licette Villafane of WSSC Water 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 system’s, 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, Jessica Shiao – WSSC Water
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 – 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.
- 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**

TUESDAY

8:00 a.m. – Noon **Disinfection & Chemical Feed Applications** – Instructor, Paula Martin
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
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 – 6:00 p.m. **DINNER**

THURSDAY

8:00 – Noon **Basic Chlorine and Chlorine Cylinder Program** – 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. **OSHA Permit Required Confined Space; Lock out Tag out and Excavation and Trench in Safety** – 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

The Superintendents Course is designed for certified water and wastewater superintendents, managers, supervisors, and experienced operators who have taken basic and advanced courses. This course was designed to meet the needs of superintendent’s re-certification and may be approved for other operators’ certification as well.

Each of the four 4-hour classes have been approved for Maryland TRE credits.

- ALICE (Alert, Lockdown, Inform, Counter, Evacuate) – Ops All, Supers All)
- Incident Command System and National Incident Management System -
- Sustainable Management of Rural and Small Systems Workshop – (Ops N/A, Supers All).
- Compliance & Safety for Small Water Systems – (Ops, Supers).

TUESDAY

8:00 a.m. – Noon **ALICE (Alert, Lockdown, Inform, Counter, Evacuate) Training -**
Instructors, Angela Ballard-Landers & Olivia Higgins – WSSC Water
ALICE (Alert, Lockdown, Inform, Counter, Evacuate) 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, J.D. – 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.

WEDNESDAY

8:00 a.m. – Noon

Sustainable Management of Rural and Small Systems Workshop –
 Instructor, Eric Dutrow – Maryland Rural Water Association
 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.

Noon – 1:00 p.m.

LUNCH

1:00 – 5:00 p.m.

Compliance & Safety for Small Water Systems
 Instructor, Scott W. Getchell, PO – GMB Architects/Engineers
 Participants will learn a wide variety of compliance related topics such as the induction and compliance of the SDWA, proper sampling procedures and associated regulations, operator certification requirements, MDE permits and reporting, proper operator recordkeeping, OSHA and EPA requirements. These important topics were compiled for the beginning operator as well as the experienced operator/manager.

Agenda

1. Introductions and class objectives
 2. Safe Drinking Water Act
 3. Water Sampling
 4. Operator Certification Requirements
 5. MDE Regulations
 6. Record Keeping
 7. OSHA Regulation
 8. Risk Management Plans
 9. Process Safety Management
-

2020 Water & Wastewater Operators Short Courses Committees

Chairperson:	Michael Lewis (CSAWWA), WSSC Water
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Water Distribution:	John Luu (CWEA), WSSC Water
Wastewater Treatment:	Rob Kraus, (WWOA), Anne Arundel County DPW Jay Price (CSAWWA/WWOA), WSSC Water
Industrial Wastewater:	Bill Farrell (CWEA/WWOA/CSAWWA), MEI/RTS/Prostart
Wastewater Collection:	Wayne Reed (CWEA), ACE - Washington Aqueduct
Superintendent:	Winfield McKell (WWOA), WSSC Water
College Liaison:	Jim Timmons (WWOA), Baltimore City DPW (Retired)
Admin. Coordinators:	Noelle Anuszkiewicz (CWEA), Anne Arundel County DPW Billy Dove, (CSAWWA), Baltimore City DPW Mike Marinelli, (CWEA), WSSC Water Rob Nally (CSAWWA), WSSC Water Conrad Shows (WWOA), DCWater (Retired) Ivy Swann (WWOA) Licette Villafane (CSAWWA), WSSC Water

Short Courses Instructors

We offer our sincere 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 Courses. You will find the names of the instructors with the classes they are teaching.