JANUARY - JUNE 2020 SCHEDULE

For Drinking Water and Wastewater Operators and Superintendents, Environmental Health Specialists, and other Environmental Professionals

www.mcet.org
MCET has helped wastewater treatment facilities throughout Maryland move from Biological Nutrient Removal (BNR) to Enhanced Nutrient Removal (ENR), and in some cases, directly to ENR systems. If you are preparing to or are currently going through an upgrade and need technical assistance, contact us at 301-934-7500, e-mail info@mcet.org or visit our web site at www.mcet.org to download the assistance request forms.

This assistance is funded by the Maryland Department of the Environment for qualified treatment facilities.

Our Technical Assistance effort may include assistance in the following areas:

- Developing comprehensive process control programs for WWTPs including ENR facilities.
- Troubleshooting O&M (operation & maintenance) problems affecting plant performance.
- Providing O&M input relating to plans for upgrading the WWTP.
- Reviewing NPDES permit requirements and assisting with permit renewals.
- Assistance developing a PM (preventive maintenance) program for the WWTP and collection system.
- Assistance developing critical SOPs.
- Evaluating chemical feed systems for cost effectiveness and efficiency.
- Assistance evaluating adequate staffing to match the requirements of the facility.
- Assistance with laboratory procedures.
- Working with utility staff and management to develop a shared understanding of the responsibilities of all parties to insure consistent compliance with regulatory requirements.
NEW! ONLINE WATER AND WASTEWATER COURSES!

MCET now offers the following online classes for TRE credit:

**Disinfection through Chlorination**
TRE Pending, 7 hours, $69
This online class provides a comprehensive discussion of all aspects of disinfection with chlorine, the regulatory framework for using chlorine products, targeted pathogens and the generation of harmful disinfection by-products when chlorine reacts with natural organic materials (NOM) in the water. The disinfection action of chlorine in water and wastewater treatment, the hazards of chlorine and the formation of disinfection by-products is described along with the need for safe chemical handling and storage. This is a progressive course where students are required to successfully complete each module in a specific order prior to moving forward.

**Water Treatment Basics**
TRE Pending, 7 hours, $69
This online, self-paced course will cover topics that will allow participants to gain a basic knowledge of the operation of their water system. Each subject’s “Tech Brief”, developed by the National Environmental Services Center (NESC), is a four-page fact sheet which provides brief technical information about a drinking water issue relevant to the water system. This is a progressive course where students are required to successfully complete each module in a specific order prior to moving forward.

Online classes begin March 1!

For more information, visit www.mcet.org or call 301-934-7500

**Maryland Professional Engineers:** As an accredited college in Maryland, the Continuing Professional Competency (CPC) Standards Committee of the Maryland Board of Professional Engineers recognizes MCET’s Continuing Education Units (CEUs) from our technical classes for licensure renewal. Take any class marked process and use the CEUs towards your Maryland Professional Engineering Certification renewal hours.

**Environmental Health Specialists:** The process courses in this schedule may be used for continuing education hours for your EHS license.
MCET Training
Schedule of Classes

The Maryland Center for Environmental Training (MCET): 301-934-7500*
6170 Hughesville Station Pl., Hughesville, MD 20637

Hydrology Source and Water Conservation  March 10
Teams, Teamwork, and Team Building  March 18
NEW! Disinfection Through Chlorination  April 7
Wastewater Operations, Monitoring, & Process Control at an Advanced Wastewater Treatment Plant  April 28-29
Optimization of Activated Sludge & Fixed Film ENR Processes Through Automation  May 5
Reading Blueprints and Plans  May 13
Chemical Treatment  May 27
UPDATED! Electricity Basics for Water and Wastewater Operators  June 2
Biological Components of Wastewater  June 11
NEW! Removing Arsenic from Drinking Water  June 16
Aeration of Activated Sludge, BNR and ENR Processes  June 17

*Register online at www.mcet.org

Safety and Health Courses at MCET: 301-934-7500*
6170 Hughesville Station Pl., Hughesville, MD 20637

Confined Space Entry and the Operator  January 23
NSC First Aid, CPR, and AED  February 27
Excavation Safety – Trenching and Shoring  March 12
Preventing Workplace Violence  March 19
OSHA 10-Hour Construction  April 9 and 16
ATSSA Flagger Training  April 23
Job Safety Analysis  May 7
Injury Prevention Awareness for Supervisors  May 21
NSC First Aid, CPR, and AED  June 4
First Line Supervisor  June 24

*Register online at www.mcet.org

MDE (Contact MCET): 301-934-7519*
1800 Washington Blvd., Baltimore, MD 21290

Industrial Stormwater Permits  April 22
NEW! Water and Wastewater Utility Leaders  April 30
How to Prevent a Catastrophic Event to Your Water or Wastewater System  May 20
Apprentice Well Driller Exam Prep  May 21
Solids Handling  June 25
NetDMR  Various

*Register online at www.mcet.org

**NOTE: Classes at MDE start at 8:30 a.m.
Allegany College of Maryland: 301-784-5336, 301-784-5341 or 301-784-5365
12401 Willowbrook Road, SE, Cumberland, MD 21502

Principles of Wastewater Treatment Processes April 14
NEW! Water and Wastewater Chemical Feed Applications and Process Control May 12
Chloramines-Potable Water Disinfection with a Different Twist June 16

Anne Arundel Community College: 410-777-2325 or 410-777-7057
Center for Cyber & Professional Training, 7556 Teague Rd., Hanover, MD 21076

Advanced Disinfection Technologies for Water/Wastewater Operations February 25
Hypochlorite Disinfection March 4
Microbiology in Wastewater Treatment* April 3
NEW! Wastewater Process Math Workshop for the Serious Operator May 26
Pumps, Motors, and Controls June 10
*Class will be held at: 101 College Parkway, Arnold, MD 21012
**NOTE: Classes at Anne Arundel Community College start at 8:30 a.m.

Carroll Community College: 410-386-8100
1601 Washington Rd., Westminster, MD 21157

Safe Drinking Water Act-Federal Regulations March 17
Disinfection Operations for Water and Wastewater Systems April 28
Maximizing Success: How to Prepare for and take the State Certification Exam May 12
Operations of Sequencing Batch Reactors for Nutrient Removal June 2

Cecil College: 443-907-1379
107 Railroad Ave, Elkton, MD 21921

21st Century Principles of Water/Wastewater Chlorination and Dechlorination March 19
Legal Liability-Operator and Superintendent! May 28

Chesapeake College: 410-827-5833
1000 College Cir., Wye Mills, MD 21679

Ultraviolet Disinfection February 27
Lessons Learned: Process Optimization Based on ENR Case Studies March 12
Water Operations, Monitoring, and Process Control at a Water Treatment Plant April 14-15
Excavation Safety – Trenching and Shoring May 6
NPDES Permit Reporting May 19
Cross Connection and Backflow Prevention June 23
Frederick Community College: 301-624-2888
200 Monroe Ave., Frederick, MD 21701

- **BNR to ENR Operations: An Operator’s Perspective** March 5
- **Wastewater Treatment Fundamentals – Liquid Treatment** April 1-2
- **Mechanical Maintenance and the Operator** May 5
- **Basic and Enhanced Nutrient Removal** May 20
- **Getting to Know Your Water System** June 9

**NOTE: Classes at Frederick Community College start at 8:30 am**

Hagerstown Community College: 240-500-2553
17301 Valley Mall, Hagerstown, MD 21740

- **Activated Sludge Design Criteria and Performance Standards** March 24
- **Chlorine Awareness and Emergency Response** April 22
- **Concepts of Drinking Water Treatment** May 28
- **Activated Sludge – BOD Removal and Nitrification** June 23

Harford Community College: 443-412-2376 or 443-412-2163
401 Thomas Run Road, Bel Air, MD 21015

- **Effective Particle/Turbidity Removal at Water and Wastewater Treatment Facilities** March 11
- **Evaluating Water System Processes to Eliminate Sanitary Risks** April 21
- **Wastewater Certification Examination Prep** June 11

Wor-Wic Community College: 410-334-2815
32000 Campus Drive, Salisbury, MD 21804

- **Thermal Control in Water and Wastewater Process** April 9
- **Applied Process Math** May 14
- **Basic Concepts of Wastewater Treatment** June 3
Alphabetical Listing of MCET Courses

21st Century Principles of Water/Wastewater Chlorination and De-Chlorination
TRE 4320-08-07: All Operators (Process)
7 hours, $129 plus fees, Harrington Cecil, March 19
8 a.m. - 4 p.m.
Since the early 1900s, disinfection of municipal wastewater has typically been done through the use of some form of chlorine. This course looks at the most common mistakes water/wastewater systems make using hypochlorite and liquid-based de-chlorinating agents. Participants will learn why it is so important to accurately measure delivered hypochlorite/de-chlorinating agent strength and their rates of deterioration. Topics covered will include how valuable simple pump dose calculations can be to minimize and maximize residuals and the importance of verifying all pump settings via routine calibrations.

Activated Sludge – BOD Removal and Nitrification
TRE 5903-16-05: All WW; IWW 5, 6, and 7 (Process)
7 hours, $129, Elder Hagerstown, June 23
8 a.m. - 4 p.m.
This activated sludge process class is designed to help wastewater operators understand the basic operations and control of activated sludge processes. The class will discuss activated sludge process modifications, their advantages and disadvantages, and long-term process control. Operators will explore the critical components and microbiology of activated sludge processes, how to develop effective sampling programs and analyze lab results, and how activated sludge processes relate to other wastewater treatment processes.
Activated Sludge Design Criteria and Performance Standards
TRE 5661-15-03: WW 3-6 S&A; IWW 3-7 (Process)
7 hours, $129, Farley
Hagerstown, March 24
8 a.m. - 4 p.m.
All operators making process control decisions need to be aware of plant design criteria and regionally recognized performance standards. This is an important concept even if the plant is performing well. When upsets occur or you are dealing with seasonal I/I flows, comparing plant operations to design criteria and performance standards is one of the first steps to take when troubleshooting and making corrective process control decisions. This course is intended for the intermediate to advanced level operator and will focus on utilizing design criteria and performance standards when making process control decisions. Topics covered include standards and design criteria, key elements of process performance standards, evolution of activated processes, typical hydraulic sizing of BNR treatment components and a problem-solving exercise where operators will assume that all or part of the plant’s design criteria is not available and will need to use performance standards to develop substitute design criteria for a fictitious activated sludge wastewater treatment plant.

Advanced Disinfection Technologies for Water/Wastewater Operations
TRE 6218-17-08: All WW; IWW; All WT; WD (Process)
7 hours, $129 plus fees, Harrington
Anne Arundel, February 25
8:30 a.m. – 4:30 p.m.
With all the concerns related to applied standard chlorination, operators and superintendents are looking for ways to maintain disinfection capability yet reduce overall byproducts, system vulnerability, and safety and security. This program looks at emerging disinfection technologies, their applications in both water and wastewater, and their comparative utilization to kill and inactivate bugs, reduce byproducts, and maintain system integrity. Operators will examine the practice of chloramination, chlorine dioxide, peracetic acid applications, and other oxidation processes like UV/hydrogen peroxide and Fenton’s Reaction to maintain disinfection and operations capabilities without the typical issues associated with standard chlorination. We will look to case histories to see hardware needed, chemical dosing requirements, and cost factors and see what it takes to put these alternatives to chlorine to work.

This schedule is funded in part by the Maryland Department of the Environment, the College of Southern Maryland, and student tuition.
Aeration of Activated Sludge, BNR and ENR Process
TRE 4855-10-12: WW All; IWW All; Superintendents WW & IWW (Process)
7 hours, $129, Ritter
MCET, June 17
8 a.m. - 4 p.m.
Different technologies are used to aerate activated sludge processes, including Biological Nutrient Removal (BNR) and Enhanced Nutrient Removal (ENR) processes. Various aeration options currently used, available, and evolving for activated sludge, BNR and ENR processes will be covered in this course. Specifically, types of aeration diffusers (mechanical, fine bubble, and membranes) and blowers (positive, multistage, single stage, and high speed) will be addressed. The influence of MCRT and MLSS will also be addressed as to the efficiency, ease (or difficulty), and cost of aeration. Airflow rate requirements and their calculations will be discussed in depth. Diffuser fouling and scaling issues will be discussed. Finally, helpful operating hints will be provided based on experiences from operating facilities.

Applied Process Mathematics
TRE 6026-16-11: All Operators (Process)
7 hours, $129 plus fees, Hamilton
Wor-Wic, May 14
8 a.m. - 4 p.m.
Operators often have to use higher level mathematical formulas to perform their day-to-day work functions. This course will build on mathematical concepts taught in Introduction to Applied Process Mathematics and is designed to provide operators with problem solving skills specific to the water and wastewater industry. Participants will practice manipulating formulas for unknown variables, analyze operational problems using math skills, and review math skills necessary for certification exams. Upon completion of this course, the student should be able to calculate operational problems such as flow quantity, effluent treatment, and sludge volume.

Apprentice Well Driller Exam Prep
TRE 4947-11-06: WT All; WD (Non-Process)
6 hours, $15 plus fees, Boris
MDE, May 21
9 a.m. – 3 p.m.
This one-day course is designed to help prepare well drillers to take the written examination for the apprentice well driller license with the State Board of Well Drillers. Topics covered include design standards, well construction, well maintenance and rehabilitation, and well abandonment. Instruction will also include a complete overview of the regulations pertaining to water well construction regulations in the State of Maryland, with emphasis being placed on the public and environmental health impacts of these regulations.
Do you control traffic through a work zone in Maryland? Is it your responsibility to provide safe passage through and around work zones? This certified flagger course is a must for the work zone flagger and will certify you in safe flagging techniques. Topics will include the standard skill set of a good flagger, standard flagger control references, flagging signals and procedures, and standard flagger practices for various situations. ATSSA is a nationally recognized training program taught by a certified ATSSA trainer. Participants successfully completing the training will receive a laminated flagger certification card.

Basic Concepts of Wastewater Treatment
TRE 4874-11-02: WW 1-6; S&A; IW All (Process)
7 hours, $129 plus fees, Smith Wor-Wic, June 3
8 a.m. – 4 p.m.
Operators are responsible for protecting the environment and public health through the appropriate treatment of wastewater received at their facility. Topics to be covered include all aspects of treating wastewater: primary treatment, biological treatment methods, secondary treatment, sludge handling, chlorination and dechlorination methods, chemical addition, and use of key data to take control of the treatment process. This course will assist in preparing operators for the wastewater treatment certification examination and experienced operators will benefit from reviewing key concepts for processes that may not be used at their facilities.

Basic and Enhanced Nutrient Removal
4073-07-07, WW All; IWW All (Process)
7 hours, $129 plus fees, Young Frederick, May 20
8:30 a.m. – 4:30 p.m.
Wastewater treatment facility personnel will review the biological nutrient removal processes, including both basic and enhanced, for nitrogen and phosphorus removal. Forms of nitrogen and phosphorus nitrification and denitrification, chemical and biological phosphorus removal, alkalinity adjustment, supplemental carbon sources, process testing, control and permit compliance will all be discussed in detail. Process configurations and operational techniques to optimize year-round effluent performances will be discussed for both nitrogen and phosphorus.
Biological Components of Wastewater
TRE 5702-15-04: WW All, IWW All, WWC; All Superintendents (Process)
7 hours, $129 plus fees, Bland
MCET, June 11
8 a.m. - 4 p.m.

Wastewater contains countless numbers of living organisms, most of which are too small to see with the naked eye. This course will review the wide variety of pathogens that are present in wastewater, sludge, foam, compost, aerosols and contaminated surfaces and presents potential and actual risks to wastewater personnel. Pathogens reviewed include: viruses, bacteria, fungi, protozoa and helminths (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; and protective equipment and immunizations.

BNR and ENR Operations: An Operator’s Perspective
TRE 6547-19-05: All WW; IWW (Process)
7 hours, $129 plus fees, Welch
Frederick, March 5
8:30 a.m. – 4:30 p.m.

Most wastewater treatment facilities in Maryland are required to meet Enhanced Nutrient Removal (ENR) limits. This course is designed to help operators working at ENR facilities navigate the various systems involved in the nutrient removal treatment process. Topics included are Biological Nitrogen Removal (BNR), biological and chemical phosphorus removal, and what is required to meet the Enhanced Nutrient Removal standards. Participants will gain a better understanding of the biochemical mechanisms occurring in the nutrient removal process. With this information, operators will be better equipped to evaluate and make sound process control decisions.

Chemical Treatment
TRE 6021-16-11: All WW; All IWW; All WT (Process)
7 hours, $129 plus fees, Getchell
MCET, May 27
8 a.m. – 4 p.m.

Most water and wastewater treatment plants use chemicals for some of the processes. In water treatment, chemicals are used to adjust pH, aid in settling particulate matter, to enhance filtration, and to remove trace constituents. In wastewater treatment, chemicals can be used to remove phosphorus, enhance settling in primary and/or biological treatment and assist in odor control, sludge thickening, sludge dewatering, and sludge stabilization. In this class, students will learn about the various chemicals used, how they can be stored and handled safely, and how to calculate dosages. Ideas on costs and how to contract for the purchase of chemicals will be provided.
Chloramines - Potable Water Disinfection with a Different Twist
TRE 5131-12-06: All Operators (Process)
7 hours, $129 plus fees, Harrington Allegany, June 16
8 a.m. – 4 p.m.

Water operators will explore the use of, processes related to, and the issues regarding chloramination in their potable water supply. The course begins by comparing and contrasting common free chlorine versus chloramination in primary disinfection of potable water supplies, and related operations. Next, participants will receive an explanation of what it takes to make chloramination work for a typical public water supply, as well as establishing an appropriate chlorine-to-ammonia ratio. Other topics covered include: the advantages of this primary disinfection, residual based measurements, types of problems a water system should address when using chlorine/ammonia compounds, and which types of customers may have additional concerns about this type of disinfection.

Chlorine Awareness and Emergency Response
TRE 6164-17-06: All Operators (Non-Process)
7 hours, $129 plus fees, Bradley Hagerstown, April 22
8 a.m. - 4 p.m.

Chlorine has many different uses in today’s treatment plant. With its continued use, it is important to recognize the many hazards associated with chlorine and the proper way to handle the chemical. This course is targeted at operators who use chlorine as part of their daily work. Standard guidelines for daily operations and emergencies will be discussed. Topics covered include chlorine characteristics, storage tank construction, safety equipment, proper operation and handling of chemicals, emergency response procedures, stand-by chemical use, and first aid for chemical contact.

Concepts of Drinking Water Treatment
TRE 3819-06-07: WT All; WD (Process)
7 hours, $129 plus fees, Elder Hagerstown, May 28
8 a.m. – 4 p.m.

Totally new to the drinking water treatment field or just looking for a refresher? Recently hired apprentices and trainees will be introduced to the Safe Drinking Water Act and how it applies to the operator. The concepts of water sources, water storage, and distribution systems will be introduced during this course. Other topics covered will include basic concepts of pumping and pressure maintenance, disinfection, storage tanks, fluoridation, corrosion control, and plant safety. Participants will further discuss the key elements of an effective safety program.
Confined Space Entry and the Operator
TRE 1832-98-11: All Operators (Non-Process)
7 hours, $129 plus fees, Bland MCET, January 23
8 a.m. – 4 p.m.

Employees who work in confined spaces may face increased risk of exposure to serious hazards. Participants in this course will be introduced to the requirements for permit-required confined spaces for both the OSHA standard and the Maryland-specific requirement as outlined in OSHA 29 CFR Part 1910. Topics covered will include: entry permit programs, criteria for permit-required confined spaces, health and safety procedures for workers in confined spaces, hazard identification and equipment requirements, and rescue procedures. Upon completion of this course, participants should be able to determine if an area is a confined space; evaluate hazards associated with confined space entry, including lockout/tagout procedures; develop policies and procedures to address confined space hazards in the workplace; and select suitable confined space entry equipment.

Cross Connection and Backflow Prevention
TRE 6551-19-05: All Operators; All Superintendents (Non-Process)
7 hours, $129 plus fees, Kelsey Chesapeake, June 23
8 a.m. – 4 p.m.

As drinking water moves through the distribution system it could become contaminated, due to water flow reversal or through cross connections between potable water lines and non-potable water sources, if precautions are not taken. This course will define cross connections and backflow prevention and explore ways the operator can prevent these situations. Topics will include a review of various backflow control methods and devices, guidelines for acceptable practices, and the necessary criteria for a functioning, well-maintained and managed backflow and cross-connection control program.

Disinfection Operations for Water and Wastewater Systems
TRE 1842-98-12: All Operators (Process)
7 hours, $129 plus fees, Harrington Carroll, April 28
8 a.m. – 4 p.m.

Water and wastewater system operators will learn about chlorine and its alternatives for the primary disinfection of drinking water and treated wastewater. These alternatives may reduce disinfection by-products and eliminate the need for dechlorination. The course will describe the key criteria for disinfectant selection, including cost, safety, maintainability, control, and monitoring considerations. Also presented are the pros and cons of chlorine dioxide and chlorammines as alternatives to help reduce disinfection by-products and the benefits and features of alternative disinfectants like ozone, ultraviolet, mixed oxidant systems, and peroxide. The course includes a look at the various laboratory methods to determine residuals and demonstrations of some of the practical simplified test protocols. Finally, some class time is devoted to hands-on practice of a number of residual test methods.
NEW!

Disinfection Through Chlorination
TRE 5905-16-05: All Operators (Process)
7 hours, $129 plus fees, Elder
MCET, April 7
8 a.m. – 4 p.m.

This class provides a comprehensive discussion of all aspects of disinfection with chlorine, the regulatory framework for using chlorine products, targeted pathogens and the generation of harmful disinfection by-products when chlorine reacts with natural organic materials (NOM) in the water. The disinfection action of chlorine in water and wastewater treatment, the hazards of chlorine and the formation of disinfection by-products is described along with the need for safe chemical handling and storage. This class is designed to help participants recognize how and when to use various forms of chlorine chemicals. Operators will benefit from this one-day course designed to review the benefits and drawbacks of switching from gas to liquid systems. Topics will include principles of feeding gas chlorine, pumping hypochlorite and chlorine dioxide solutions using metering pumps, e.g. diaphragm and peristaltic and preventative maintenance recommendations for both chlorine gas and liquid feed systems.

Effective Particle/Turbidity Removal at Water and Wastewater Treatment Facilities
TRE 6163-17-06: All WT, All WW, WD, IWW (Process)
7 hours, $129 plus fees, Smith, G
Harford, March 11
8 a.m. – 4 p.m.

Designed to assist water and wastewater facility operations staff, this advanced course focuses on the operational considerations associated with effective turbidity and particle removal in conventional water treatment plants and advanced wastewater treatment plants. Physical and chemical methods of treatment will be covered in detail, including coagulation, flocculation, sedimentation/clarification, and filtration. Descriptions of the technology associated with each, as well as routine monitoring, operation, and troubleshooting will be discussed. Exercises in solving typical operational problems associated with these treatment technologies and related process math will be included.

The College of Southern Maryland maintains a policy of equal opportunity for all persons. Individuals with disabilities who require special accommodations in order to participate in the college’s instructional programs should notify the academic support/ADA coordinator at 301-934-7614 at least six weeks before the class begins. Requests made after this deadline will be considered on an individual basis and addressed whenever possible.
Electricity Basics for Water and Wastewater Operators
TRE 4792-10-05: All Operators (Non-Process)
7 hours, $129 plus fees, Henderickson MCET, June 2
8 a.m. – 4 p.m.
Electricity has long been recognized as a serious workplace hazard. This course will detail the OSHA “Electrical Safety-Related Work Practices”, review the National Electrical Code, define electrical terminology and cover safe work practices for those employees whose work may expose them to the hazard of being near or exposed to electrical parts. This training is to prepare individuals for certification and licensure as well a renewal of licenses and certification in the water and wastewater industry.

Evaluating Water System Processes to Eliminate Sanitary Risks
TRE 4322-08-07: WT All; WD; Superintendents WT, WD (Process)
7 hours, $129 plus fees, Cope Harford, April 21
8 a.m. – 4 p.m.
Water system supervisory and operating staff must have a thorough knowledge of all processes that comprise their water system. This would include the treatment, storage, and distribution system processes. Building on that knowledge, this course will focus on the elimination of sanitary risks in each process to ensure the delivery of safe drinking water to the consumer. Conducting this evaluation will not only eliminate potential threats to water quality, but will also prepare water staff for sanitary survey inspections conducted by MDE regulatory personnel as required by the SDWA.

Excavation Safety – Trenching and Shoring
TRE 1879-99-03: All Operators, All Superintendents (Non-Process)
7 hours, $129 plus fees
MCET, March 12, Bland
8 a.m. – 4 p.m.
Chesapeake, May 6, Bradley
8 a.m. – 4 p.m.
OSHA states excavation and trenching are among the most hazardous construction operations. They define an excavation as any man-made cut, cavity, trench, or depression in the earth’s surface formed by earth removal. Participants will be introduced to the requirements of the OSHA Excavation Standard, 29 CFR 1926 (Subpart P). Subjects covered will be the causes of trench failure, soil classification, trench protection systems, hazardous atmospheres and conditions, inspection techniques, and competent person responsibilities. This course will provide the basic training requirements for competent persons. Additional instruction will be given on: tests used to classify soil types in the field; the different methods of cave-in protection; selecting proper shoring methods using the provided OSHA tables; and the methodology used to minimize these and other hazards.
First Line Supervisor
TRE 4086-07-09: All Operators, All Superintendents (Non-Process)
7 hours, $129 plus fees, Valltto
MCET, June 24
8 a.m. – 4 p.m.

The First Line Supervisor Training Program is an interactive, participant-involved one-day course designed to expose supervisors and aspiring supervisors to a variety of critical skills, situational scenarios and strategies for effective supervision. Participants will be exposed to various supervisory dilemmas where they apply “lessons learned” to specific managerial problems and mock scenarios that routinely confront the first line supervisor on a daily basis. Accountability and responsibility will be explored as well as the supervisor’s role in institutionalizing ethical behavior. Instruction will also focus on the supervisor’s use of counseling as a behavioral control technique to solve performance-related problems while providing a foundation for future performance expectations.

Getting to Know Your Water System
TRE 5342-13-02: WT All; WD (Process)
7 hours, $129 plus fees, Hamilton Frederick, June 9
8:30 a.m. – 4:30 p.m.

Water treatment operators will benefit from this introductory course which will explore the uses of water, water sources, and the physical, chemical, and biological characteristics of water. Discussions will include an introduction to the Safe Drinking Water Act and a review of both Primary and Secondary Drinking Water regulations and the responsibilities of Operators. Topics will include: groundwater and surface water contamination, basic water treatment (disinfection, pH adjustment, etc.), chlorination technologies, and a review of basic math for use by the plant and distribution system operator.

How to Prevent a Catastrophic Event to Your Water or Wastewater System
TRE 5703-15-04: All Operators, All Superintendents (Process)
7 hours, $129 plus fees, Harrington MDE, May 20
8:30 a.m. – 4:30 p.m.

Operators and superintendents must recognize that many of the common standard practices used at water and wastewater systems today can lead to a potential catastrophic issue at their facilities. This course looks at some of these issues, where if not addressed, can ultimately lead to events that potentially cause bodily harm or even kill operators and customers. First, we will look at the results of lack of verification of even the very basic chemicals delivered to our facilities, document case histories where events have occurred, and show system personnel how simple and easy a verification program is to establish. Next, we will address operational issues such as the laboratory result where the Pink-Red color develops in the DPD Chlorine test, but is not chlorine; and what operations personnel can do to mitigate these issues. Additionally, learn why the Infrastructure Age requires extra vigilance to prevent system contamination. Even with backflow prevention, the fact remains that a garden hose is still the number one potential contamination source for water systems. We will discuss why water stagnation and biofilm formation can lead to bacterial contamination and how operations can minimize these issues with simple low-cost steps.
Hydrology Source and Water Conservation
TRE 2461-02-04: WT All; WD (Process)
7 hours, $129 plus fees, Cope
MCET, March 10
8 a.m. – 4 p.m.

Water supply hydrology and conservation are two of the important topics to be covered in this one-day class. The water treatment operator will be introduced to many issues surrounding water sources and conservation, specifically groundwater and surface water sources. Other topics covered will include options available for the facility during emergency situations, alternative water sources, use and conservation of water, and practical application of the information as it applies to the field.

Hypochlorite Disinfection
TRE 5456-13-11: All Operators (Process)
7 hours, $129 plus fees, Elder
Anne Arundel, March 4
8:30 a.m. – 4:30 p.m.

Hypochlorites - sodium and calcium - are the most common form of disinfection used in water treatment. This course focuses on the properties, use, and feed equipment when using hypochlorite for disinfection. Operators will be introduced to the uses and properties of hypochlorites, chemical handling including safety, regulatory requirements, and feed equipment. Various mathematics principles will be addressed throughout the workshop including changing % concentrations, dosage/feed rates, chlorine demand/dose, and CT calculations.

Industrial Stormwater Permits
TRE 6552-19-05: All Operators; All Superintendents (Non-Process)
6 hours, $89 plus fees, Hlavinka
MDE, April 22
8:30 a.m. – 3:30 p.m.

Facilities in Maryland with a stormwater discharge associated with industrial activity are regulated and required to apply for permit coverage which authorizes them to discharge stormwater to the waters of the state. In Maryland, there are several general permits that can be applied for based on the industry sector. This permit requires regulated industrial facilities to have a stormwater pollution prevention plan (SWPPP) in place, sample and monitor their stormwater runoff, implement nutrient control measures, and conducts appropriate reporting and corrective actions. Industrial stormwater permit holders will benefit from this training which focuses on general permitting for stormwater discharges associated with industrial activities. This includes facilities which are industrial sites (including no exposure exemptions), mineral mines, concrete and asphalt plants, marinas, coal mines, and seafood processors. Topics will include notice of intent (NOI), site evaluations, SWPPPs, permit coverage processes, monitoring and sampling, corrective actions, implementation of Chesapeake Bay Restoration Requirements, maintenance, reporting (NetDMR), and inspection information. Attendees will have the opportunity to interact in small groups with the Maryland Department of the Environment (MDE) staff while discussing the permitting processes and how to complete NOIs and develop SWPPPs.
Injury Prevention Awareness Program for Supervisors
TRE 2831-03-06: All Operators, All Superintendents (Non-Process)
7 hours, $129 plus fees, Bland MCET, May 21
8 a.m. – 4 p.m.

Front-line supervisors play an important role in injury prevention. It is important for them to understand the risk factors and job demands associated with the work performed in their areas. Front-line supervisors must learn to recognize and undertake interventions whenever risk factors are observed. Interventions might include identifying ways to help employees avoid fatigue through the application of proper body mechanics, use of recommended lifting techniques, and performing flexibility exercises. Other interventions might involve engineering or administrative redesign of work tasks. These concepts are reinforced through workplace-specific examples, demonstrations, and practice.

Job Safety Analysis
TRE 6553-19-05: All Operators, All Superintendents (Non-Process)
7 hours, $129 plus fees, Bland MCET, May 7
8 a.m. – 4 p.m.

Employers responsible for workplace safety, through a site-specific analysis process, can create a safe working environment for their employees. Participants are guided through a job hazard analysis methodology, which prioritizes hazards, breaks hazardous jobs into individual steps, and uncovers the unique hazards in each step.

Legal Liability: The Operator and Superintendent
TRE 5318-13-01: All Operators, All Superintendents (Non-Process)
7 hours, $129 plus fees, Morrissey Cecil, May 28
8 a.m. – 4 p.m.

As a water or wastewater treatment superintendent, manager or operator, it is critical you recognize the various types of legal liability you face while operating your systems and the repercussions of your actions. This course will provide participants with an overview of the legal requirements of the Clean Water Act, Safe Drinking Water Act, and Maryland’s water pollution and water supply laws, as well as additional requirements created by the courts and professional certification authorities. Attendees will leave with an understanding of the consequences of failing to meet statutory requirements and professional standards in their daily activities. This interactive course will explore issues through real-life examples of legal actions against facility staff and simulations of facility operations.

Lessons Learned: Process Optimization Based on ENR Case Studies
TRE 6019-16-11: WW 3, 5, A; IWW 5, 6 (Process)
7 hours, $149 plus fees, Gold Chesapeake, March 12
8 a.m. – 4 p.m.

The key components of the MCET Technical Assistance (TA) program includes the development of a comprehensive process control test program, understanding appropriate process adjustments based on process control data, and compliance with ENR performance requirements established by MDE. While working with ENR WWTPs and accomplishing these
components, important lessons were learned by O&M staff at these facilities as well as the TA providers from MCET. The lessons learned related to performance limiting factors (PLFs) that had to be addressed in order to achieve the process optimization goals established by the TA team. This course will review case studies of 4 or 5 ENR WWTPs in Maryland who participated in the MCET Technical Assistance (TA) program for a minimum of one year and will discuss in detail the lessons learned and how strategies were developed to meet the ENR requirements of the State.

**Maximizing Success: How to Prepare for and take the State Certification Exam**

TRE 5739-15-06: All Operators (Non-Process)
7 hours, $139 plus fees, Jones Carroll, May 12
8 a.m. – 4 p.m.

Making sure you are prepared to pass the State Certification Exam is not always as simple as just knowing the material; you also have to have knowledge of how to prepare and take the exam. This course will review how different study methods work for different learning styles, note taking strategies, and specific skills that would help in the learning environment. The course will then address examination techniques and what not to do when getting ready for an exam, for example, cramming and how to handle test anxiety. Other topics covered will include: an overview of multiple-choice questions; recognizing distracters and foils (wrong options); strategies and tactics; analyzing multiple choice questions; analyzing responses; how options can be wrong; how to guess intelligently; taking the multiple-choice test; varieties in the form of the question; and varieties in the nature of the question. Throughout this course, operators will take practice exams with themes becoming more complex to match increasing complexity of the State Certification exam.
**Mechanical Maintenance and the Operator**
TRE 6018-16-11: All Operators (Non-Process)
7 hours, $129 plus fees, Ritter Frederick, May 5
8:30 a.m. – 4:30 p.m.

This training is designed to provide operators with a greater understanding of mechanical maintenance and the effect it has on process operations. The course will identify how maintenance activities directly affect process control and the effects that poor maintenance can have on the ability to properly treat wastewater and drinking water. During the course we will discuss common tools and equipment that are utilized in effective equipment maintenance and troubleshooting to help identify items that should be in every operator’s tool kit. We will also cover predictive maintenance technology and its applications to water and wastewater treatment equipment including thermography, vibration analysis, and proper lubrication.

**Microbiology in Wastewater Treatment**
TRE 5613-14-12: WW All; IWW All (Process)
7 hours, $149 plus fees, Bland Anne Arundel, April 3
8:30 a.m. – 4:30 p.m.

Wastewater operators will obtain improved process control through microscopic examination of mixed liquors and other waste streams. The basics of microbiology will feature techniques to troubleshoot activated sludge problems and control strategy. All participants will be introduced to the microscope features and benefits, the microscope selection process, and cost factors. Time will be spent to familiarize the participants with the proper use and care of a microscope. The course includes an overview of microscopic evaluations, sampling, flocculation, filaments, toxicity, overall health, slide preparation, maintenance, staining techniques, and sample examination. The course will also cover organism identification and the effects of the presence, absence, mobility, and organism type on water and wastewater process control. This class is limited to 12 participants.

**National Pollutant Discharge Elimination System (NPDES) Permit Reporting**
TRE 6027-17-01: All Operators, All Superintendents (Process)
7 hours, $129 plus fees, Getchell Chesapeake, May 19
8 a.m. – 4 p.m.

The National Pollutant Discharge Elimination System (NPDES) permit program controls water pollution by regulating point sources that discharge pollutants into waters of the United States. This one-day course is designed to train wastewater operators and superintendents on the NPDES reporting process in Maryland. The following topics will be covered: general objectives of the discharge reporting system, proper identification of excessive discharges, required methods for reporting to regulatory agencies, and the accurate preparation of monthly Discharge Monitoring Reports. Dissolved oxygen, chlorine residual, pH tests, and flow monitoring will also be discussed. Each participant must bring to this course a calculator with a log function and a copy of his or her plant’s Discharge Permit.
NetDMR
TRE 5432-13-08: All Operators, All Superintendents (Non-Process)
7 hours, $75 plus fees, Charles MDE, January 16, February 20, March 19, April 16, May 21, June 18
8:30 a.m. – 4:30 p.m.
NetDMR is a national tool for regulated Clean Water Act permittees to submit discharge monitoring reports (DMRs) electronically via a secure Internet application to U.S. EPA through the Environmental Information Exchange Network. NetDMR allows participants to discontinue mailing in hard copy forms under 40 CFR 122.41 and 403.12. MDE and MCET are partnering to deliver a one-day course to assist NPDES permittees required to submit DMRs via a secure Internet connection. Attendees will be given signatory roles in the test environment of NetDMR. They will be provided with over-the-shoulder assistance and upon completion of this course will have access to the production environment of NetDMR. Only a signatory can be authorized to initiate the production environment of NetDMR.

NSC First Aid, CPR, and AED
TRE 2835-03-06: All Categories, All Classes (Non-Process)
7 hours, $118 plus fees, Smith J.
MCET, February 27
MCET, June 4
8 a.m. – 4 p.m.
This National Safety Council First Aid, CPR, and AED course is designed to provide participants with critical skills and knowledge to respond to and manage an emergency situation that can save a life. Course topics include: assessing the scene of an emergency, establishing the condition of a victim, infection control, and the latest guidelines for CPR and emergency cardiac care. Participants will work with a manikin to practice one-rescuer CPR and rescue breathing, use of an AE, and techniques for managing choking. Participants will also be introduced to first aid basics, including the treatment of medical emergencies and injuries and other techniques that they may need until emergency medical services arrive. Upon successful completion, participants will receive a National Safety Council First Aid CPR, and AED course completion card, valid for two years.

Operation of Sequencing Batch Reactors for Nutrient Removal
TRE 6555-19-05: All WW, IWW (Process)
7 hours, $139 plus fees, Jones Carroll, June 2
8 a.m. – 4 p.m.
Aerobic Sequence Batch Reactors (SBR) are unique configured, activated sludge plants. Central to the SBR design is the use of a single tank for multiple aspects of wastewater treatment, e.g., BODs, TSS’s, and nutrient removal. The process operates with a single sludge in a single reactor basin to accomplish both biological treatment and solids-liquid separation. Operators will review the SBR processes and become familiar with process control tests and troubleshooting. Topics in this course will include the history of SBRs, process configurations, process operation and controls, aeration and mixing, performance expectations, troubleshooting, and instrumentation and automation control.
Optimization of Activated Sludge and Fixed Film ENR Processes through Automation
TRE 6368-18-05 All WW; WC; IWW (Process)
7 hours, $139 plus fees, Jones
MCET, May 5
8 a.m. – 4 p.m.

One of Maryland’s top environmental priorities is upgrading wastewater treatment plants for nutrient removal. This class will discuss various automation options and operating practices currently used and available for removing nutrients from wastewater. The usage and cost of physical and biological technologies will be addressed. Dissolved oxygen and pH/ORP probes along with nitrate, ammonia, and phosphate analyzers will be discussed as to their role in automated process control. Other topics covered will include: the effluent concentration required as to the appropriateness of Enhanced Nutrient Removal (ENR) techniques; the importance of methanol dosing or another carbon source as a food source for denitrifying organisms; metal salt addition and effluent filtration for phosphorus removal; nutrient removal regulations pertinent to protecting the Chesapeake Bay; and operational issues related to TN and TP removal with recommended corrections.

OSHA 10-Hour Construction
TRE 2262-01-03: All Operators, All Superintendents (Non-Process)
10 hours, $227 plus fees, Bland
MCET, April 9 & 16
Day 1: 8 a.m. – 3 p.m.
Day 2: 8 a.m. – 2 p.m.

Orienting new personnel or serving as a refresher to construction safety and health standards, this course will provide an overview for participants on areas of construction safety and the OSHA guideline 29 CFR – 1926, Safety and Health Regulations for Construction. Topics discussed will include an introduction to OSHA, with an overview of the OSHA standards including the Focus Four: Fall Hazards; Caught-In or –Between Hazards; Struck-by Hazards; and Electrocution Hazards. Other topics may include: Toxic and Hazardous Substances; Stairways and Ladders; Scaffolding; Competent Person Requirements; Personal Protective Equipment (PPE); Hand and Power Tools; Lockout/Tagout; Signs, Signals and Barricades; Confined Space Entry; and Lift Truck Safety. Upon successful completion of this course, students receive the OSHA completion card from the Department of Labor.
Preventing Workplace Violence
TRE 2458-02-04, All Operators, All Superintendents (Non-Process)
7 hours, $129 plus fees, Valtos MCET, March 19
8 a.m. – 4 p.m.

Violence in the workplace is a serious public health problem. This course is intended to show both operators and superintendents how to deal effectively with potentially volatile situations. This session will focus on the employee’s role in helping to prevent violence in the workplace and ways to diffuse violent situations. Participants will be introduced to the stages of violent behavior; preventive measures; warning signs of workplace violence; security-conscious thinking; and measures required to take action.

Principles of Wastewater Treatment Processes
TRE 6465-18-10; WW All, IWW, WWC (Process)
7 hours, $129 plus fees, Hogan Allegany, April 14
8 a.m. – 4 p.m.

This course is designed to assist new and experienced wastewater operators work through the fundamental principles associated with the wastewater treatment process. Each of the wastewater treatment processes discussed will cover the description of the process; the application and use of each treatment; the operations monitoring and adjustments available for each wastewater process; pumps, motors, and controls, process and mechanical troubleshooting, instrumentation and controls; associated mathematical and laboratory processes used to monitor and control the treatment of wastewater; and safety issues related to the treatment process.

Pumps, Motors, and Controls
TRE 5026-11-12: All Operators (Non-Process)
7 hours, $129 plus fees, Elder Anne Arundel, June 10
8:30 a.m. – 4:30 p.m.

Appropriate operations of the pumps and their maintenance are critical to keeping water and wastewater systems up and running daily. This training will give the participant an introduction to the theory and operation of the various pumps used in water and wastewater systems. In addition to an overview of basic pump hydraulics and pumping systems, there will be discussions on centrifugal pump operation, components, maintenance and troubleshooting.

Reading Blueprints and Plans for the Water and Wastewater Industry
TRE 4096-07-09: All Operators (Non-Process)
7 hours, $129 plus fees, Elder MCET, May 13
8 a.m. – 4 p.m.

Water and wastewater personnel are often required to read and interpret a variety of plans, blueprints, and flow charts to aid them in performing maintenance, fine-tune treatment processes or simply to review and comment on proposed construction. Participants will become familiarized with how to use the architectural, mechanical, engineering, and electrical drawings commonly used in the water and wastewater treatment industry. In addition, the students will use engineer and architect scales, review topographical and surveying maps, interpret piping and flow diagrams, and prepare effective field sketches.
NEW!
Removing Arsenic from Drinking Water
TRE 6456-18-10; All WT; All WD (Process)
7 hours, $129 plus fees, Elder MCET, June 16
8 a.m. - 4 p.m.
Arsenic can be found in both surface water and groundwater sources, with concentrations generally higher in groundwater. The presence of arsenic (As) in nature is due mainly to natural deposits of metalloids in the earth’s crust and particularly in ancient rock formations. Arsenic enters ground water through erosion. Most notably, arsenic concentrations exceeding drinking water standards have been detected in Maryland’s Coastal Plain Province near the Chesapeake Bay. Utilities in the affected area opted for either an alternative water source (e.g., blend low-arsenic water with higher-arsenic water, use surface water or drill deeper wells) or installed inexpensive treatment methods to remove the arsenic from their water. This class provides a comprehensive discussion of all aspects of arsenic removal from drinking water. As the appropriate treatment removal process for a specific water supply depends on the characteristics of the raw water supply, topics covered will include: chronic effects of long-term exposure to arsenic; areas in Maryland most likely to have elevated concentrations of arsenic in ground waters; the two main forms of arsenic in groundwaters; arsenic removal systems from Maryland groundwater; and differences in removal approaches for As V and As III.

Safe Drinking Water Act - Federal Regulations
TRE 3830-06-09: WT 1-5 & G; WD; Superintendents WD (Process)
7 hours, $129 plus fees, Cope Carroll, March 17
8 a.m. – 4 p.m.
The Safe Drinking Water Act (SDWA) was established to protect public health by regulating the nation’s public drinking water supply. The SDWA authorizes the United States Environmental Protection Agency (U.S. EPA) to set national health-based standards for drinking water to protect against both naturally-occurring and man-made contaminants that may be found in drinking water. Working together, federal agencies, state agencies, and water system personnel make sure that these standards are met. 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 will be covered.
Solids Handling
TRE 2007-99-08: WW 2-6, S; IW 2,3,5,6,7; WT 3-5 (Process)
7 hours, $129 plus fees, Ritter
MDE, June 25
8:30 a.m. – 4:30 p.m.

Wastewater operators need to have practical knowledge for dealing with sludge thickening and dewatering. In this course, students will analyze the characteristics of primary, secondary, and chemical sludge and the types of treatment processes used for each. Topics covered will include gravity thickening, dissolved air floatation, centrifuge operation, gravity belt, and belt filter presses, and vacuum filters. Each participant should bring a calculator to this course.

Teams, Teamwork, and Team Building
TRE 4367-08-12: All Operators, All Superintendents (Non-Process)
7 hours, $129 plus fees, Clark
MCET, March 18
8 a.m. – 4 p.m.

People in our workplaces talk about building the team, working as a team, and “my team,” but do they know how to be part of a successful team? Effective Team Building will help improve your team’s communication, connection, and effectiveness. Efforts will be directed toward problem solving, task effectiveness, and maximizing the use of all members’ resources to achieve the team’s purpose.

Thermal Controls in Water/Wastewater Processes
TRE 3817-06-07: All Operators (Process)
7 hours, $129 plus fees, Harrington
Wor-Wic, April 9
8 a.m. – 4 p.m.

Chlorination, fluoridation, corrosion, chemical feed, activated sludge, BNR, laboratory/field sampling, including pumps, motors, and control centers are affected by thermal changes. This course will review the thermal controls in water and wastewater processes and the importance of calibration and traceability protocols of the thermometer.

Ultraviolet Disinfection
TRE 3889-06-11: All Operators (Process)
7 hours, $129 plus fees, Harrington
Chesapeake, February 27
8 a.m. – 4 p.m.

Ultraviolet disinfection (UV) techniques and applications are used for both potable water and wastewater systems. Operations personnel will discuss the advantages of ultraviolet disinfection systems compared to typical chemical disinfection systems like chlorine or ozone. Course topics will include: how UV is used for controlling giardia and cryptosporidium in potable waters; defining UV; how it differs from other oxidizer-based disinfection systems including the disadvantages; and why UV is a low-cost choice for installation, operation, and maintenance. The student will benefit by reviewing the appropriate applications in community and non-community potable waters and wastewater systems.
Wastewater Certification
Examination Prep
TRE 6222-17-08: All WW; IWW (Non-Process)
7 hours, $129 plus fees, Harrington Harford, June 11
8 a.m. – 4 p.m.

Operators often struggle when preparing for their certification exam. This course is designed to assist them in their effort to prepare for their wastewater certification exam and includes a basic overview on general wastewater treatment principles including regulations, nutrient removal, treatment processes, disinfection, wastewater sources, activated sludge, filtration, and pumps; and test taking strategies. Operators will take a practice examination and then break down each question to better understand test taking strategies and material. If you are preparing to take the state of Maryland wastewater certification exams class 5 or 5A, this class will equip you with the tools you need to study and get ready for those tests. Each participant must bring a calculator to this course.

Wastewater Operations, Monitoring, and Process Control at an Advanced Wastewater Treatment Plant
TRE 5436-13-10: All WW, IWW (Process)
14 hours, $258 plus fees, Elder MCET, April 28-29
8 a.m. – 4 p.m.

This two-day class provides a comprehensive discussion of all aspects of municipal wastewater treatment operations and maintenance, including a wastewater mathematics refresher. The class will address basic conversion factors and formulas used to solve treatment plant problems related to flows, grit channels, sedimentation tanks and clarifiers, trickling filters, activated sludge, chlorination, and chemical doses. All treatment operations and maintenance, laboratory sampling, and solids handling topics and provides the operators with study material and trouble-shooting guides necessary to prepare for certification exams will be addressed. Topics covered will include screening; primary clarification; biological secondary treatment-activated sludge, trickling filters, package plants, and oxidation ditches; advanced treatment for nutrient removal; media and membrane filtration; chlorination and ultraviolet light irradiation; solids thickening, digestion, dewatering, and disposal; plant safety; and good housekeeping. If you are preparing to take the state of Maryland wastewater certification exams class 5 or 5A, this class will equip you with the tools you need to study and get ready for those tests. Each participant must bring a calculator to this course.

NEW!
Wastewater Process Math Workshop for the Serious Operator
TRE Pending
7 hours, $129 plus fees, Farley Anne Arundel, May 26
8:30 a.m. – 4:30 p.m.

This wastewater process mathematics course is intended to challenge wastewater and collection system operators of all levels of experience and math ability. This course will begin with a discussion of math formulas and parameters used for making basic process control decisions. Participants will then move on to more advanced process control formulas and troubleshooting practices. The operators will discuss chemical feed applications,
proper sizing of tanks and treatment units, loading rates on clarifiers and other treatment units, and the process math used to monitor and troubleshoot the activated sludge process. Participants will be divided into groups based on their math skill levels with the less experienced working with over-the-shoulder assistance as needed. Intermediate and advanced level operators will work more independently in groups on progressively harder but realistic process control and troubleshooting word problems. The final quiz will be challenging to most of the operators in the class. Less experienced operators may not pass the final quiz, but will still receive 7 TRE credits and a lot of practical knowledge. Due to the amount of individual attention provided to students the class size will be limited to 15 students. It is important that each student brings a calculator that he/she is comfortable with using.

**Wastewater Treatment Fundamentals – Liquid Treatment**

TRE 6556-19-05: All WW; IWW (Process) 14 hours, $379 plus fees, Jones Frederick, April 1-2 8:30 a.m. – 4:30 p.m.

This fundamental wastewater treatment course focuses on domestic wastewater and treatment processes used by water recovery facilities. Participants will be introduced to the basic components of wastewater and why it should be treated. Topics will include the Clean Water Act, collection systems, wastewater characteristics, preliminary wastewater treatment, primary and secondary treatment, and related biological processes. Participants will be introduced to activated sludge, flocculation, fixed-film processes, ponds, trickling filters, rotating biological contactors, in addition to advanced treatment processes, nitrification, denitrification, enhanced biological phosphorus removal (EBPR), disinfection, and solids handling. Theory of operation and design parameters and expected performance will be discussed for each treatment process in addition to microbiology fundamentals (physical and chemical requirements). Each participant will receive a copy of the WEF book - Wastewater Treatment Fundamentals 1: Liquid Treatment

**NEW! Water and Wastewater Chemical Feed Applications and Process Control**

TRE Pending 7 hours, $129 plus fees, Farley Allegany, May 12 8 a.m. – 4 p.m.

Effective chemical application is essential to the treatment of water and wastewater. Participants will start with a review of units, constants, periodic table, and basic math formulas, used to calculate dosages for various types of chemical feed applications. Then commonly used chemicals and products will be broken down into groups such as oxidizers, sulfur compounds, metal salts, and polymers. Treatment goals, process monitoring, and process control techniques in addition to other “need to know” information will be discussed for the more commonly used products within each group.
NEW!
Water and Wastewater Utility Leaders
TRE Pending
7 hours, $129 plus fees, Clark MDE, April 30
8:30 a.m. – 4:30 p.m.

The class will address theories and styles of effective utility leadership. Leadership theories and styles discussed do not necessarily focus on who leaders are, but rather on what they do. A good leader can make a success of a weak organization, while a poor leader can ruin even the best of organizations. Good leaders constantly seek ways to better achieve whatever needs to be done. Leaders also develop a culture where employees feel they can take ownership in what they do, continually improve and inspire change within an organization. This class focuses on relationship behaviors between leaders, managers and employees as well as management tasks. Although leader traits and skills can be intertwined with leader theories and styles and can be compared/contrasted to one another, leadership styles and theories differ significantly from each other. Style leadership refers to behavior and action tendencies held by the leader that led to their individual style of leadership and how it impacted their environments. Instead of focusing on who leaders are or what qualities they possess, were born with, or skills they acquired, style leadership instead focuses on what they do/did.

Water Operations, Monitoring, and Process Control at a Water Treatment Plant
TRE 5549-14-05: WT All (Process)
14 hours, $258 plus fees, Elder Chesapeake, April 14-15
8 a.m. – 4 p.m.

This two-day class provides a comprehensive discussion of all aspects of municipal water treatment operations and maintenance, including water mathematics. The class will address basic conversion factors and formulas used for process control and used to solve treatment plant problems related to clarification, gravity filtration, chlorination, and chemical dosing. Topics covered will include: surface water treatment, groundwater treatment, and the particular parameters that dictate successful treatment of both water sources. All treatment operations and maintenance, laboratory sampling, and residuals handling topics will be discussed. Attendees will be introduced to in-depth concepts and practices related to conventional water treatment processes, basic sampling and laboratory skills, and management and supervisory skills. This is a worthwhile class for any operator looking to take the next step in their career ladder as a lead operator or plant manager, while those preparing to take the State of Maryland Drinking Water Treatment Plant Operator certification examination will also find it beneficial.
The Maryland Center for Environmental Training (MCET) offers training on environmental, health, and safety topics. Training is provided throughout Maryland, with funding from the Maryland Department of the Environment and student tuition. Classes may also be arranged for individual companies at your location on a contractual basis.

Regional Offerings:
MCET courses are held at community colleges and other designated sites in Maryland. Take a look at the list of courses to see which courses are being held at locations near you. Courses are arranged by date at each location, so you can easily check your calendar.

To Register for MCET Training:
1. Call the location where the course is being held, at least two weeks in advance, to obtain a registration form.
2. Verify the course location, building, room number, and cost, including college fees.
3. Return a fully completed registration form for each student, or register online.
4. Payment must be submitted at the time of registration.
5. Operators may drop a class up to seven days prior to it running for a full refund.
6. Online registration is available at www.mcet.org for many courses. Credit card payment is required.

Please Note:
Register early. Courses are often cancelled when students wait to register at the last minute. MCET reserves the right to cancel any course, if enrollment is insufficient, seven days prior to the course’s beginning date. Individuals on the course roster, as of that date, will be notified of the cancellation.

Fees:
Costs shown do not include fees, which may vary among the host colleges. Call the host college for the exact cost before sending in payment.

WANT TO KNOW IF A COURSE IS CONFIRMED TO RUN?
Go to www.mcet.org for up-to-date information on course confirmations and cancellations!
Board of Waterworks and Waste Systems Operators’ Exam Schedule

January 9, 2020  Maryland Department of the Environment – Baltimore, Maryland
Applications Due:  December 19, 2019
Capacity:  20 Applicants

January 23, 2020  Havre de Grace Community Center – Havre de Grace, Maryland
Applications Due:  January 2, 2020
Capacity:  50 Applicants

February 6, 2020  Wharves of Choptank – Denton, Maryland
Applications Due:  January 16, 2020
Capacity:  50 Applicants

February 27, 2020  Back River Wastewater Treatment Plant – Baltimore, Maryland
Applications Due:  February 6, 2020
Capacity:  40 Applicants

March 5, 2020  Washington Co. Division of Environmental Mgmt.
– Williamsport, Maryland
Applications Due:  February 13, 2020
Capacity:  25 Applicants

March 24, 2020  College of Southern Maryland – La Plata, Maryland
Applications Due:  March 3, 2020
Capacity:  40 Applicants

April 9, 2020  Maryland Department of the Environment – Baltimore, Maryland
WEB EXAMINATION
Applications Due:  March 19, 2020
Capacity:  20 Applicants

April 24, 2020  WSSC – Laurel, Maryland
Applications Due:  April 3, 2020
Capacity:  40 Applicants

May 7, 2020  Maryland Rural Water Association Annual Conference
– Ocean City, Maryland
Applications Due:  April 16, 2020
Capacity:  30 Applicants

May 14, 2020  Havre de Grace Community Center – Havre de Grace, Maryland
Applications Due:  April 23, 2020
Capacity:  50 Applicants

June TBD, 2019  WWOA Short Course – Chesapeake College, Wye Mills, Maryland
Applications Due:  May 15, 2020
Capacity:  200 Applicants

June 25, 2020  Back River Wastewater Treatment Plant – Baltimore, Maryland
Applications Due:  June 4, 2020
Capacity:  40 Applicants

For additional information contact the Board at 410-537-3167.
Instructors Wanted!

Are you an experienced instructor who would like to teach for MCET? Can you design and deliver effective training for water and wastewater treatment? Do you have a new course developed that you’d like MCET to offer? If you said “yes” to any of these questions, contact us today!

We are currently looking for instructors in the following areas:

• Wastewater treatment
• Water treatment
• Collection systems
• Distribution systems
• Electrical maintenance
• Pumps, motors, and controls
• Health and safety
• Leadership

If you would like to know more about how you can join the MCET Instructor Team, please contact Tara Jones at 301-934-7502.
Delivering Specialized Training for Drinking Water and Wastewater Operators, Industrial Systems Operators, Plant Superintendents, Safety Personnel, Environmental Health Specialists and Engineers, Well Drillers, and Other Environmental Professionals