



Maryland  
Center for  
Environmental  
Training

at the  
COLLEGE of SOUTHERN MARYLAND

## A GUIDE TO

- Training • Compliance
- Technical Assistance
- Regulatory Understanding

REALIZE *your* POTENTIAL

w w w . m c e t . o r g



## Introduction

This is a guide of all of the courses offered by the Maryland Center for Environmental Training (MCET) for educational opportunities in training, compliance, technical assistance, and regulatory understanding.

MCET strives to offer educational opportunities and assist in the creation of innovative environmental solutions and professional training for agencies, businesses and organizations throughout Maryland, Pennsylvania, Virginia, Washington, DC, and the Mid-Atlantic.

The courses, certifications, regulatory compliance, and technical assistance, as well as media production and specialized course development options, help to instruct, change behavior, and raise awareness of personnel on environmental, health, and safety topics and issues facing communities.

This booklet<sup>1</sup> provides potential students, employers, and the public with information on MCET course and certification offerings, MCET's service, regulatory compliance, and technical assistance programs, as well as details on how teaming with MCET can benefit treatment facilities and the communities served.

For more information on MCET contact us:

Maryland Center for Environmental Training

[www.mcet.org](http://www.mcet.org)

E-mail: [info@mcet.org](mailto:info@mcet.org)

Phone: 301-934-7500

<sup>1</sup>Booklet does not constitute an EPA, federal or state statute, regulation, policy, or guidance document and does not substitute for, or, in any way, supplement any of these authorities and or its materials. This booklet is intended for informational purposes only and should not be used in making operational decisions at a facility.

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# MCET's History

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Established in 1982, the Maryland Center for Environmental Training (MCET) provides environmental, safety, and health training, and compliance assistance through courses, site-specific instruction, and activities that encourage operators and managers to apply best management practices within the confines of real working conditions, duties, and facility environments.

MCET's technical staff review, analyze, and recommend environmental, health, and safety programs to meet the needs, goals, and site requirements of clients as diverse as businesses, municipalities, and even government entities.

MCET's technical assistance for water and wastewater systems in Maryland and surrounding states seeks to optimize existing facilities and to achieve and maintain compliance while reducing and preventing pollution. By encouraging energy conservation, facility upgrades, and the adoption of new technology, MCET is able to help managers reduce operational costs while addressing environmental concerns.

MCET's pollution prevention outreach and compliance assistance helps public and private entities in Maryland integrate Best Management Practices (BMPs) with nonpoint source pollution prevention plans. The staff also provide training in rate-setting, assist in rate studies, and help municipalities establish realistic rate structures and financial management strategies.

MCET's work is funded by grants, contracts, and student tuition. We have been awarded federal grants in support of our outreach activities from the Environmental Protection Agency (EPA), the Occupational Safety and Health Administration (OSHA), and the Mine Safety and Health Administration (MSHA). Local efforts are supported through state funding from the Maryland Department of the Environment (MDE).

The Maryland Center for Environmental Training is located on the College of Southern Maryland's La Plata Campus in beautiful Southern Maryland.



# Training and Certification

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The Maryland Center for Environmental Training (MCET) provides training for certification in environmental, health, and safety topics throughout Maryland, Pennsylvania, Virginia, Washington, DC, and the Mid-Atlantic at community colleges, businesses, and other designated sites, including operational facilities. Sanitary Survey Training for State Public Water System (PWS) Inspectors is delivered nationally upon request.

## Maryland's 50% Process Certification Rule

MCET reminds you that the process of certifying operators in Maryland is governed by regulations and standards which you need to meet in order to maintain your certification and be in compliance.

The Maryland Board of Waterworks and Waste Systems Operators requires that a minimum of half the training used for certification application and renewal hours must be process-related courses. Courses with materials that cover 50% or more process control approved topics will be designated as a "process" class. All others will be designated as "non-process." Again, operators must have at least 50% of their credits in process-related courses to renew or gain their certifications.

To see which MCET courses meet the 50% rule, see the course chart on page 13 or visit [www.mcet.org](http://www.mcet.org).

## MCET Training Programs

- Water and Wastewater Training
- Small Water System Operators<sup>2</sup>
- Sanitary Survey Training for State Public Water System (PWS) Inspectors
- Mine Safety and Health Administration State Grants Program – Mining Safety and Health
- Occupational Safety and Health
- Asset Management

## MCET Specialty Courses

- Maryland Department of the Environment (MDE) Superintendent Certification
- Wastewater Process and Non-Process Certification courses
- Water - Process and Non-Process Certification courses
- Process and Non-Process Specific Offerings (See Chart, Page 13)
- Pennsylvania Department of Environmental Protection (DEP) Courses<sup>3</sup>
- AED (Automated External Defibrillator), CPR, and First Aid Certification

Current MCET course offerings are available at [www.mcet.org](http://www.mcet.org).

<sup>2</sup>Operators of small public water systems serving 3,300 or fewer Maryland customers may qualify for free water training.

<sup>3</sup>Pennsylvania Department of Environmental Protection (DEP) water and wastewater operator training must be provided by an approved DEP training sponsor such as MCET. DEP approved courses are notated with the Pennsylvania ID number (e.g., PA ID #0000 (W, WW)).



## To Register

1. Obtain a registration forms from the course location at least two weeks in advance.
2. Verify the course location, building number, and costs, including fees.
3. Submit completed registration form and payment to the course location for each student being enrolled.

Since many courses have limited space availability, and fill up quickly, we recommend registering early.

## Course Cancellations

MCET reserves the right to cancel a course due to insufficient enrollment. However if a class is cancelled, enrollees will be notified seven days prior to the original class start date and will be given the opportunity to reregister or receive a refund.

## Contract Training/ Course Development

MCET can develop individualized courses for clients and audiences wishing to address specific topics, working conditions, or issues for delivery by you, your employees, or our staff. For more information on course development, see the MCET Course and Training Development on page 18 or contact MCET at 301-934-7500.

## Water and Wastewater Technical Assistance

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MCET professionals provide technical assistance, services, and regulatory compliance advice to operators, superintendents, owners/managers, state regulatory personnel, and elected officials responsible for managing and operating wastewater and potable water treatment, collection, storage and distribution systems, and facilities in Maryland, Pennsylvania, and the Mid-Atlantic.

MCET can help you determine if you need upgrades and or whether you are meeting current EPA, federal, state, and local guidelines and regulations on topics including, drinking water, wastewater, effluent loads, employee certifications and training, the Clean Water Act, and the Safe Drinking Water Act. If your operation is not meeting a specific regulation, we can help you develop a plan, training sessions, and equipment upgrades to bring your facility and staff into compliance.

Wastewater treatment plants that are preparing to or are currently going through an upgrade and would like assistance can contact us at 301-934-7500, e-mail [info@mcet.org](mailto:info@mcet.org), or visit our web site at [www.mcet.org](http://www.mcet.org) to complete the assistance request form.



*This program is funded by the Maryland  
Department of the Environment.*

## Need Technical Assistance With Your ENR Upgrade?

MCET has helped 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 would like assistance, contact us at [info@mcet.org](mailto:info@mcet.org) or visit our web site at [www.mcet.org](http://www.mcet.org) to complete the assistance request forms.

Note: The Maryland Department of the Environment provides funding to wastewater treatment plants upgrading to ENR.

## Types of Technical Assistance

Whether it is an on-site evaluation, phone, or e-mail consultation, MCET provides guidance to operators, superintendents, managers, and business owners regarding state and federal environmental guidelines, regulations, and topics including:

- MDE's Support of ENR Upgrades to Maryland Wastewater Treatment Facilities
- Capacity Development—helping system providers improve their finances, management, infrastructure, and operations in order to meet Maryland Department of the Environment capacity<sup>4</sup> development guidelines and provide safe drinking water in a consistent, reliable, and cost-effective manner
- Setting Small Drinking Water Systems Rates and Sustainable Water and Wastewater Pricing
- Rate Studies for Wastewater Treatment Facilities

<sup>4</sup>In order to have sufficient "capacity," a water system must have the managerial skills as well as the technical and financial resources needed to meet current and future state and federal drinking water regulations.

Our technical assistance experts and trainers work with small community wastewater treatment system operators to solve both general and specific on-site problems. MCET will help operators with:

- Wastewater Treatment Plant Capacity
- Operations Training
- Process Control
- Maintenance
- Administrative Management
- Financial Management
- Laboratory Operations
- Vulnerability Assessments
- Security Enhancements
- Emergency Response Planning



## Facility Benefits

- Identifies facility repairs or upgrades needed to meet permit regulations
- Reviews plans and specifications for plant upgrades
- Recommends improvements on preventative maintenance of equipment and structures
- Provides suggestions on how to reduce energy and chemical costs
- Provides guidance on ways to improve cost and labor efficiency
- Updates operators and staff about changing environmental guidelines and regulations
- Encourages plant operating staff and local officials to communicate and work together to improve community water quality

## Community Benefits

- Improved Compliance
- Cost Savings
- Enhanced Operator Knowledge
- Improved Operations, Maintenance and Safety
- Enhanced Security
- Identification and Elimination of Facility Vulnerabilities
- Better Emergency Response

## Apply

To see if your facility qualifies for assistance, please complete the wastewater technical assistance request form available at [www.mcet.org/pdfs/wwrefform.pdf](http://www.mcet.org/pdfs/wwrefform.pdf) and return it to the Maryland Center for Environmental Training.



# Sanitary Survey Training for State PWS Inspectors and Technical Assistance

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In affiliation with the EPA Drinking Water Academy, MCET offers a comprehensive training program entitled “How to Conduct a Sanitary Survey of a Small Water System” to State regulatory staff and local health officials in Maryland and across the United States.

MCET seeks to help state inspectors maintain or improve their skills in conducting comprehensive sanitary surveys consistent with EPA guidelines. Using the EPA Drinking Water Academy’s training materials, MCET sanitary survey training ensures that inspectors have a working knowledge of water system fundamentals including:

1. Water Source
2. Treatment
3. Distribution Systems
4. Finished Water Storage
5. Pumps, Pump Facilities, and Controls
6. Monitoring, Reporting, and Data Verification
7. Water System Management and Operations
8. Operator Compliance with State Regulations

## Training Materials Include:

- “Learner’s Guide Drinking Water Instructor’s Field Reference Guide for Surface Water Systems”
  - Covers: organizing the sanitary survey, drinking water regulations, water sources, water supply pumps and pumping, storage facilities, water treatment processes, distribution systems, cross-connections, monitoring and laboratory testing, and water system management. Guide includes graphics of key water system components.
- “Drinking Water Instructor’s Field Reference Guide for Ground Water Systems”
  - Provides: comprehensive checklists for use during a small system sanitary survey. Checklists include graphics to help inspectors identify and understand water system components and procedures.
- DVD: “Cross Connections Storage Facilities, Hypochlorination, Gas Chlorination, Distribution Systems, Sampling and Monitoring GWUDI”
- DVD: “Small Systems and Emergency Response”
- CD: “Sanitary Survey Fundamentals Prep Course”

For information on MCET’s Sanitary Survey Training for State PWS Inspectors, call 301-934-7500 or e-mail [info@mcet.org](mailto:info@mcet.org).



## Small Water System Operator Training

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MCET has partnered with the Maryland Department of the Environment to support small water systems and facilities in obtaining, training, and retaining certified operators.

MCET will provide training and assist with operator certification and examination costs for applicant operators employed at a Maryland public drinking water system serving 3,300 or fewer residents.

Courses are based on the Association of Boards of Certification Need-to-Know criteria for water treatment and distribution system operators and will provide Maryland operators with an understanding of the principles and practices involved with collecting, treating, storing, and distributing safe drinking water.

### Applicants Requirements:

- Hold a temporary/permanent water operator certification
  - Or have a certification application on file while taking program courses (can be applied for through MCET)
- Provide proof of employment at a water/distribution system serving 3,300 or fewer residents by submitting a PWSID number
  - Note: If operators work at more than one water system and one of those systems serves 3,000 or fewer residents, the operator is eligible for assistance.

For information on the Small Water System Operator's Training Program, call 301-934-7500 or e-mail [info@mcet.org](mailto:info@mcet.org)

## Asset Management Train-the-Trainer Program

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Asset management<sup>5</sup> is a way of managing the use, upkeep, and disposal of infrastructure capital assets in order to maximize performance while minimizing the costs associated with facility operations.

MCET can assist wastewater facilities in the development and implementation of asset management plans. These plans not only help facility operators meet new National Pollutant Discharge Elimination System (NPDES) permit regulations under the EPA's Clean Water Act, but also the Governmental Accounting Standards Bureau's General Accounting and Standards Board Statement 34 (GASB 34) which requires that all public, non-federal, agencies report depreciation on their assets or implement an asset management system to report the actual cost of maintaining their infrastructure assets.

MCET can help utility managers and local officials develop an asset management plan that shows them how, when, and where to expend their valuable, and often limited, infrastructure resources.

### MCET's Train-the-Trainer Program Includes:

- Major Asset Inventory and Condition Assessment
- Determination of Long-Range Asset Replacement/Refurbishment/Maintenance
- Capital Improvement Planning
- Management Team Development
- Development of Objectives
- Asset Management Program Administration

MCET's Asset Management Train-the-Trainer Program toolkit facilitates flexible instruction. It can be delivered to a class by a MCET trainer, a trained facility instructor or as a self-paced interactive presentation for individual use. The modular format allows the principle and corresponding sections to be learned sequentially or as separate offerings. The module components include a PowerPoint presentation and a trainer's guide.

The asset management train-the-trainer toolkit can be downloaded at [www.mcet.org/am/assetmgmt.html](http://www.mcet.org/am/assetmgmt.html).

<sup>5</sup>Development of MCET's Asset Management Train-the-Trainer Program was funded through a grant from the U.S. Environmental Protection Agency (EPA).

# Mining Safety Training

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At MCET, we believe that training improves safety and leads to greater job satisfaction, so our mining safety program has been designed to incorporate real-work experiences and knowledge to reduce the health and safety issues faced by miners and mining operations.

MCET's mining courses meet the Mine Safety and Health Administration's (MSHA) yearly training requirements and regulations and ensure that experienced and new miners perform their work in a safe and healthful manner.

Our trainers work with mining industry operators and workers to gather input and feedback about course topics, needs, and industry-specific concerns. MCET delivers OSHA and industry-specific safety training courses, as well as industry-topic programs which are designed to reduce injury, illness, and mining accidents. Our programs are geared to the employees: surface miners, coal miners, the Metal and Nonmetal industry, and the Maryland Surface Coal Mining industry.

## Helping You

At MCET, we believe a well-delivered, individualized training program is necessary to prevent injuries and illness. So we work with you to develop and deliver training that compliments your existing Part 46 or Part 48 training programs. Moreover, MCET training incorporates information from regional and state advisory boards and feedback from previous participants.

## MCET Mining Courses - Surface Mining Metal/Nonmetal

- Part 46 – 8 Hour Annual Refresher  
Covers: hazard recognition and prevention, health and safety standards, fall protection, mobile equipment hazards, and first aid
- Part 46 – New Miner (Above Ground) 16 Hours  
Introduces: mining safety and health topics relevant to mining operations
- Part 48 – 8 Hour Annual Refresher  
Covers: mandatory health and safety standards, transportation controls, communication systems, electrical hazards, first aid, explosives, escape and emergency evacuation plans, firefighting/warning systems, and self rescue/respiratory devices
- Part 48 – New Miner (Surface Mines)  
Covers: mine safety and health topics such as introduction to the work environment, hazard recognition, and health and safety aspects of the tasks new miners are often assigned
- Ergonomics for Drivers and Equipment Operators
- Mine Safety and Health Administration (MSHA) Safety and Health Law  
Includes: 2006 Congressional amendment to the Mine Act "Miner Act," Part 50 Immediate Notification final rule and Part 100 Final Penalty rule as well as current statutes and recent changes to mining regulations
- AED, CPR and First Aid Certification
- Developing a Part 46 Training Plan

MCET also holds yearly updates covering changes in Maryland and federal mining regulations and safety standards.

# Occupational Safety and Health Outreach

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MCET provides site-specific occupational safety and health training and assistance services to industries, employers, and local and state government agencies. We believe that employees understand your facility and operations, its conditions, and workplace practices, like no one else can. So we include them whenever possible in the identification of workplace hazards and the development and implementation of training programs.

## MCET Offers Assistance In:

- On-site Workplace Hazard and Risk Assessments
- Writing of Safety and Health Plans
- Ergonomic Assessments
- Job Safety Analysis
- Development and Integration of a Health and Safety Program
- Development of Hazard Communications Plans
- Injury Prevention
- Compliance with OSHA Construction Standards
- Prevention of Workplace Violence
- Security Conscious Thinking

## MCET Offers Specific Training and Courses In:

- Standard First Aid, CPR, and AED
- Bloodborne Pathogens
- Electrical Hazards and Safety
- Confined Space Entry
- Lockout/Tagout
- Powered Industrial Trucks
- Equipment Use and Safety
- Excavation Safety
- Slips, Trips and Fall Protection

MCET's goal is to provide the training and support you need to help prevent and reduce the frequency and severity of accidents while minimizing your employees' exposure to hazardous agents and conditions.

For more information on developing an occupational safety and health outreach training program for your workplace, contact MCET at 301-934-7500 or e-mail [info@mcet.org](mailto:info@mcet.org).

## Site Specific Assistance

MCET provides industry, employers, and local and state agencies with site-specific occupational safety, health training, and assistance services including:

- General and Specialized Training Courses
- Hazard and Risk Assessments
- Ergonomics Training and Assessment
- Consulting and Strategy Development

Our goal is to assist you in determining your site's specific needs, develop training programs geared towards the prevention of accidents in your work environment, and minimize employee exposure to hazardous agents and conditions.

For more information on compliance and technical assistance visit our web site, [www.mcet.org](http://www.mcet.org), or contact us at [info@mcet.org](mailto:info@mcet.org).



# MCET Course Chart

Water and Wastewater Courses	Process	Non-Process	Superintendent
21st Century Drinking Water Corrosion Control	•		
21st Century Principles of Water/Wastewater Chlorination and De-Chlorination	•		
5 Common-Sense Practices of Well-Run Water/Wastewater Facilities	•		
Activated Sludge Process Control	•		
Alternative Energy Sources for Water and Wastewater Facilities		•	
Annual Refresher - The Safe Operator		•	•
Assessing Your Industrial Wastewater Vulnerabilities		•	•
Asset Management for Water and Sewer Utilities		•	•
Backflow Prevention Techniques		•	
Basic and Enhanced Nutrient Removal	•		
Basic Electricity I		•	
Basic Electricity II		•	
Basic Microscopy for Wastewater Operators	•		
Best Management Practices: Concrete, Sand, and Gravel Industries			
Biochemical Oxygen Demand and Solids		•	
Biological Nutrient Removal Process Control	•		
Certification Examination Preparation - Mathematics		•	
Certification Examination Preparation for Wastewater		•	
Certification Examination Preparation for Water		•	
Certification Examination Preparation for Water Distribution and Wastewater Collection		•	
Chemical Awareness and Emergency Response		•	
Chemical Feed Applications and Mathematics		•	
Chemistry for the Non-Chemist		•	
Chief Plant Operator as a Leader		•	•
Chlorination Disinfection Science for Water and Wastewater Operations	•		
Chlorination Technology	•		
Clarification and Filtration Processes	•		
CMOM Compliance Techniques		•	•
Coaching for the Environmental Supervisor		•	•
Coagulation, Flocculation, Sedimentation, and Filtration	•		
Collection System Troubleshooting		•	
Combined Sewer Overflows		•	
Concepts of Drinking Water Treatment	•		
Concepts of Wastewater Treatment	•		
Conflict Resolution		•	•
Conversion or Removal of Nitrogen from Sewage	•		
Crisis Management for Public Utilities		•	•
Disinfection and pH Adjustment	•		

# MCET Course Chart (continued)

Water and Wastewater Courses	Process	Non-Process	Superintendent
Disinfection for Water and Wastewater Systems	•		
Disinfection Operations for Water and Wastewater Systems	•		
Electrical Safety and the NFPA 70E		•	
Enhanced Nutrient Removal (ENR) - Process Control	•		
Establishing and Maintaining an Effective Safety and Health Program for your Utility		•	•
Evaluating Water System Processes to Eliminate Sanitary Risks	•		•
Excavation Safety (Trenching and Shoring Practices)		•	•
Financial Management for Water and Sewer Utilities		•	•
First Line Supervisor		•	•
From Wire to Water: Documenting and Conserving Energy Use in Water and Wastewater Facilities		•	•
Fundamental Principles of Wastewater Treatment Processes	•		
General Laboratory Concepts		•	
Grant and Financial Assistance Proposal Writing		•	•
High Performance Utilities		•	•
Hydrology Source and Water Conservation	•		
Industrial Wastewater Treatment Basics	•		
Industrial Wastewater Treatment Fundamentals	•		
Inspection of On-Site Sewage Disposal Systems During Property Transfers			
Instrumentation and Controls		•	
Introduction to MS Excel for Water and Wastewater Operations		•	
Introduction to Pump Maintenance		•	
Introduction to SCADA		•	
Introduction to Small System Water Treatment	•		
Introduction to Water Hydraulics		•	
Jar Testing		•	
Leadership Development for Utility Operators and Managers		•	•
Leadership vs. Supervision		•	•
Lift Stations		•	
Lookout/Tagout		•	
Maintaining SDWA Compliance and Preparing for the State Water Operator's Examination		•	
Maintaining Water Distribution Systems		•	
Management's Role in Safety		•	•
Managing Diversity and Resolving Conflicts in the Workplace		•	

# MCET Course Chart (continued)

Water and Wastewater Courses	Process	Non-Process	Superintendent
Managing Off-Site Employees		•	•
Mathematics for Operators		•	
Mathematics for Small Water System Operators		•	
Mathematics for Wastewater Operators		•	
Mathematics for Water and Wastewater Operators		•	
Mathematics for Water Operators		•	
Mathematics Skill Building I		•	
Mathematics Skill Building II		•	
Mathematics Skill Building III (Problem Solving Mathematics for Operations)		•	
Membrane Filtration and Fluoridation Technologies	•		
MS Excel for BNR/ENR Reporting		•	•
National Pollutant Discharge Elimination System (NPDES) Permit Reporting		•	•
NPDES Permit Reporting		•	
Nuts and Bolts of Security Vulnerability Assessments and Emergency Response Plans		•	•
Open Channel Flow Metering for Collection Systems		•	
Oxidation Reduction Potential (ORP): 21st Century Wastewater Monitoring		•	
Performing Effective On-the Job Training		•	•
Phosphorous Removal	•		
Power and Pumps		•	
PPE and Respiratory Protection Training		•	
Preliminary Treatment Processes	•		•
Preparing for the State Operator's Exam: Pumps and Support Systems		•	
Preventive Maintenance Management		•	•
Prevention of Sexual Harassment and Discrimination in a Public Utilities Environment		•	•
Proactive Water Works Operator		•	•
Process and Performance Troubleshooting	•		
Process Control for Operators	•		
Process Management through Chemical Resource Conservation	•		
Pump Hydraulics		•	
Pumps, Motors and Controls		•	
Reading Blueprints and Plans		•	
Reading Blueprints and Plans for the Water and Wastewater Industry		•	
Reading Electric Blueprints		•	
Reading Technical Diagrams		•	•
Respiratory Protection Training		•	
Safe Drinking Water Act		•	•

# MCET Course Chart (continued)

Water and Wastewater Courses	Process	Non-Process	Superintendent
Safe Drinking Water Act - Federal Regulations	•		•
Safety and Health in the Water and Wastewater Industry		•	•
SDWA Compliance - Operators Exam Preparation		•	
Security Assessment and Emergency Response Plans for Small Utilities		•	•
Sludge Management	•		•
Small Drinking Water System Superintendent and Manager Course		•	•
Small Water Systems	•		
Solids Handling	•		
Statistical Analysis for Utilities		•	•
Superintendent and Operator Liability		•	•
Superintendent Certification Training			•
Supervisory Techniques for Utility Managers		•	•
Surface Water Treatment	•		
Taking the Mystery Out of BNR	•		
Teams, Teamwork and Team Building		•	•
Technical Writing for Utility Managers		•	•
Technical Writing for Water and Wastewater Operators		•	
The Water Utility and the Sanitary Survey		•	•
Thermal Controls in Water and Wastewater Processes	•		
Tips and Tools for 21st Century Water/Wastewater Process Monitoring	•		
Treatment of Metal Waterstreams and Other Physical/Chemical Processes	•		
Treatment Processes for Small Water Systems	•		
Ultraviolet Disinfection	•		
Unidirectional Flushing Program Design		•	
Utility Customer Service		•	
Verifying the Water and Wastewater Process	•		
Wastewater Advanced Math Certification Preparation		•	
Wastewater Class 5 and 5A Certification Review		•	
Wastewater Treatment and the New Employee	•		
Wastewater Treatment Concepts	•		
Water and Wastewater Disinfection Alternatives	•		
Water and Wastewater Operator Math Review		•	
Water and Wastewater Regulations		•	
Water Treatment and the New Employee	•		
Water Treatment-Chlorine Use and Safety	•		
Water/Wastewater Process Applications of Chlorine Dioxide	•		
Well System Operation and Maintenance	•		



# Course and Training Development

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Need training for a new or existing facility process? Want to learn the best way to address operational or regulatory issues and topics? MCET can help.

MCET develops customized courses, programs, and technical assistance for treatment facilities, operators, sanitarians, businesses, and industries looking to supplement or enhance their existing in-house training and employee development programs.

MCET trainers are practitioners in the industry. They understand not only the processes and tasks but the culture, the business, and the inner workings of your operation from employee and operation management to federal oversight. We work closely with the Maryland Department of the Environment and other agencies so we can offer insight into field operations and help you identify facility problems and solutions.

MCET monitors regional and national industry changes and develops classes focusing on the latest technology in response. For example, when the Maryland Department of the Environment adopted the Chesapeake Bay 2000 Agreement, which requires that water and wastewater facilities move from a Biological Nutrient Removal (BNR) to Enhanced Nutrient Removal (ENR) system, thereby putting Maryland on the cutting edge of technology, MCET responded by developing courses including:

## **Enhanced Nutrient Removal (ENR) – Process Control**

*TRE 4087-07-09: WW All; IW All (Process), 16 hours*

Upgrading sewage treatment plants for nutrient removal is one of Maryland's top environmental priorities. This two-day course addresses the implications of upgrading from Biological Nutrient Removal (BNR) to Enhanced Nutrient Removal (ENR). Training sessions will review the basics of nitrification, denitrification, and phosphorus removal first. Various process configurations will be discussed to accomplish the required levels of nutrient removal. Process control testing and adjustments will also be examined to optimize ENR plant performance. In addition, there will be two field exercises at new ENR facilities. The facilities have utilized different process configurations to accomplish the same level of treatment. Following the field exercises, classroom discussions will focus on the operations and maintenance similarities and differences between the two facilities.

MCET courses are continually evaluated and enhanced to meet MDE, federal, and local training standards and regulations. Our classes are approved by the Maryland Department of the Environment's Board of Waterworks and Waste Systems Operators and provide continuing education units meeting certification requirements.

## MCET Course and Training Development Helps You:

- Assess operations – gather data, interview
- Identify and address topics, problems and regulations
- Develop and deliver training for new, existing, and/or complicated processes
- Enhance employee skills, knowledge, and understanding
- Improve your certification rates
- Generally, students completing a 14-week, 3-hour-per-week MCET program are 30% more likely to pass their certification exams.

## MCET Course and Training Development Offers:

- On-site, phone, and e-mail assistance, depending on need
- Industry-based site and skill assessments
- Single and multiple course packages
- Course delivery options – MCET delivered, train-the-trainer and self-taught
- Instructional materials – print and electronic media
- Contract work for technical assistance not covered by grants
- Speakers for school, business and community lectures on environmental, health, and safety topics
- Specialty overview programs for mining and local officials

MCET training courses can be developed in as little as two weeks! For more information on course development, contact MCET at 301-934-7500.

# Media Production

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At MCET, we know that training courses are not the only way to learn, so we offer video and publication development services to businesses, organizations, and government divisions to help solidify client and customer relations, provide customized training solutions, and address specific compliance or safety/health topics.

Our trainers and instructional designers will work with you to assess your publication and electronic media needs and create the right solution to help you educate, connect with and transform your audience.

## MCET Can Help You Address:

- Water Quality Issues
- EPA and State Regulations/Compliance
- OSHA Compliance
- Training Demonstration Videos
- Workplace Safety
- Slip, Trip, and Fall Prevention
- Employee Conflict Resolution
- Harassment or Violence Prevention
- Educational Topics

Our staff will work directly with you from copy writing and layout through post production to ensure the accuracy and consistency of your final product.

## MCET Offers:

- Video/DVDs
- Mobile Learning – Online Training PDFs, Videos
- Print Materials – Handbooks, Brochures
- Kiosk Materials

## MCET Videos

Since 1983, MCET has been developing training and educational videos for companies and facilities. MCET is a regular recipient of the prestigious Aegis Award for educational videos including: “Environmentally Sound Practices in the Ready Mix Industry,” “Environmentally Sound Practices in the Homebuilding Industry,” “Uncovering the Mystery in Your Backyard: A Homeowners Guide to Septic Systems,” and “Onsite Sewage Disposal Systems: Protecting Your System, Preserving the Bay.”

### Bay Restoration Fund Videos

In addition, MCET often partners with government agencies to produce videos on regional and state topics. An example of this can be found in MCET’s Aegis winning partnership with the Maryland Department of the Environment (MDE). MCET worked with the MDE and Bay Restoration Fund staff and volunteers to develop a video series to educate the public about home sewage disposal systems, the Bay Restoration Fund, and the newest advances in removing nitrogen from wastewater flowing to the bay.

For copies of this and other MCET videos, e-mail [info@mcet.org](mailto:info@mcet.org) or call 301-934-7500.



## MCET Publications

MCET regularly develops and publishes print materials on a wide-range of subject matter for use by companies, government officials, employers, and their staff, as well as the community.

From training resources and process descriptions to public education pieces, MCET offers you the knowledge and resources you need to make complicated topics understandable.

Here are just some of the publications MCET has produced.

- “Drinking Water and Wastewater Handbook for Local Officials”
- “A Primer for Local Governments on Environmental Liability”
- “Self-Evaluation Toolkit for Drinking Water Systems”
- “Ensuring a Sustainable Future: An Energy Management Guidebook for Wastewater and Water Utilities”
- “A Guide to Maryland Certification for Water and Wastewater Operators and Superintendents”
- “A Handbook for Maryland Certification Examinations”

To read these and other MCET publications visit, [www.mcet.org](http://www.mcet.org).

## MCET Executive Director, Faculty, and Staff Profiles

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### MCET Executive Director

#### **KAREN L. BRANDT**

##### **Executive Director**

For 15 years, Karen has directed and managed all aspects of MCET’s programs in environmental, health, and safety workforce training. From development to coordination and delivery, Karen is dedicated to delivering quality education, training and technical outreach, and compliance assistance to professionals in Maryland, Pennsylvania, and the Mid-Atlantic.

Karen Brandt holds a Bachelor of Science in Management degree from the University of Maryland. In addition to her duties at MCET, Karen serves on the State of Maryland Board of Environmental Sanitarians and has served on the Maryland Department of the Environment’s Drinking Water Capacity Development Committee, the EPA’s National Advisory Council for Environmental Policy and Technology’s (NACEPT) Compliance Assistance Advisory Committee (CAAC), and was sub chair of Maryland’s Water Security and Sewerage Advisory Council’s Interagency Technical Assistance Committee. She also works closely with organizations such as the Water and Waste Operators Association, the Maryland Rural Water Association, and the Maryland Municipal League.



## MCET Faculty and Staff

### **DOUG ABBOTT**

#### **Senior Technical Assistance Advisor and Trainer**

**Certifications:** Maryland Wastewater Treatment Superintendent, Maryland Wastewater Treatment Class 5, A; Maryland Water Treatment Class 3

**Member:** American Water Works Association; Water Environmental Federation; Water and Waste Operators Association

**Publications:** Presented/co-authored several papers for presentation at professional conferences

**Awards:** EPA Region III, Operation and Maintenance Excellence – Easton WWTF – Superintendent, October 2008; W. McLean Bingley Award for Distinguished Service in Wastewater Treatment – WOA, 2002; Trainer of the Year, National Environmental Training Association (NETA), 2001

**Other:** Thirty-three years of experience in water/wastewater systems in the United States (all 50 states and commonwealths of Puerto Rico and Guam), Germany, Bulgaria, Romania, Egypt, Morocco, Jordan, and Palestine (West Bank and Gaza)

### **SAMUEL E. ALLEN**

#### **Trainer**

**Degrees:** Master of Arts in Education, University of Phoenix; Master of Science and Bachelor of Science in Electronic Engineering, Northwestern International University; Bachelor of Science in Occupational Education, Kennedy-Western University

**Certifications:** Electrical, Plumbing, HVAC, and Energy Management Trainer; Energy Management

**Licenses:** Master Electrician in Delaware, Maryland, and Virginia; Level 4 Wastewater, Delaware; Water Operator, Delaware

**Member:** Delaware Trustee, Water Waste Operators Association; National Association of Power Engineers; Association of Energy Engineers; Military Officers Association

### **RICHARD ALPER, ESQUIRE**

#### **Trainer**

**Degrees:** Juris Doctor, Georgetown University Law Center; Bachelor of Arts, Kenyon College; post-graduate courses in pollution control and natural resources law (18 hrs), George Washington University Law School

**Licenses:** Admitted to the Bar of the District of Columbia 1975 and Maryland 1975

**Member:** Governor's Solid Waste Task Force, Maryland; Environmental and Land Use Section, Maryland State Bar; Environment and Natural Resources Section, American Bar Association

### **CYNTHIA M. BLAND, REM, CEP**

#### **Trainer**

**Degrees:** Master of Science in Environmental Engineering Technology Management, University of Maryland; Bachelor of Science in Chemistry, Eastern Nazarene College

**Certifications:** Maryland Wastewater Treatment Class 5; 40-hour Hazardous Site Worker Health and Safety Certification (EPA-29 Code of Federal Regulation 1910) and Project Management Institute Certification; Registered Environmental Manager; Certified Environmental Professional

**Member:** Waste and Waterworks Operator Association; Sanitary Survey Training for State PWS Inspectors & Technical Assistance; American Water Works Association; National Safety Council; Project Management Institutes; American Chemical Engineer Institute

**Awards:** Stanley Kappe Training Award – Water and Waste Operators of Maryland, Delaware, District of Columbia, and Virginia

### **TERENCE BRADLEY, CSP, CET, CUSA, OHST**

#### **Senior Training Specialist**

**Degrees:** Bachelor of Science in Information Systems Management and Communication Studies, University of Maryland; Associate of Arts Degrees in Environmental Science, Anne Arundel Community College

**Certifications:** Maryland Water Treatment Superintendent; Maryland Water Treatment Class 4; Certified Safety Professional, Certified Environmental Trainer; Occupational Health & Safety Technologist; Certified Utility Safety Administrator; Certified OSHA 10 & 30 Hour Outreach Trainer

**Member:** American Water Works Association; American Society of Safety Engineers; National Safety Council; Water and Waste Water Operators Association

**Awards:** Stanley Kappe Training Award, 2010

### **ROBERT CHREST, CST, CET**

#### **Trainer**

**Degrees:** Master of Public Administration, University of Baltimore; Bachelor of Science, Towson University

**Certifications:** US EPA Lead Safety for RRP Trainer; OSHA 10 and 30 Hour Construction Outreach Trainer; FEMA – Emergency Management Institute Instructor – Incident Command System and Terrorism Planning; NASHP – Certified Safety Trainer; NESHTA – Certified Environmental Trainer

**Member:** National Environment Safety and Health Training Association; Delmarva Safety Association; Maryland Rural Water Association; Coastal Conservation Association

### **EDWARD COPE, JR.**

#### **Trainer**

**Certifications:** Maryland Water Treatment Class 4; Maryland Water Treatment Superintendent

**Member:** American Waterworks Association; Water and Wastewater Operators Association

**Other:** Certified Environmental Trainer for the Delaware Technical Institute; Anne Arundel County Department of Public Works and the Annual WWO Short Course, Anne Arundel County Public Schools; Presentations at 2003 and 2009 American Membrane Technology Association Conferences

## **SCOTT CROSSWELL, PE**

### **Trainer**

**Degrees:** Master of Science in Environmental Engineering; Bachelor of Science in Civil Engineering, Virginia Polytechnic Institute and State University

**Certifications:** Professional Engineer; Board Certified Environmental Engineer

**Member:** Water Environment Federation; American Academy of Environmental Engineers

## **STEPHEN ELDER**

### **Senior Training Specialist**

**Degrees:** Associate of Arts in Pollution Abatement Technology, Charles County Community College

**Certifications:** Maryland Wastewater Treatment Superintendent; Maryland Wastewater Treatment Class 4, 5, S, A; Maryland Water Treatment Superintendent and Maryland Water Treatment Class 4; National Environmental Safety and Health Training Association Certified Environmental Trainer

**Member:** Water Environment Federation; Water & Waste Operators Association

**Awards:** Water and Waste Operators Association 1995 "Trainer of the Year"; Maryland Rural Water Association 1995, Wastewater System of the Year; Water and Waste Operators Association 1997 and 2003 "Outstanding Service Awards"

## **CHARLES (CHUCK) G. FARLEY**

### **Trainer**

**Degrees:** Bachelor of Arts, University of the State of New York; Associate of Science, St. Petersburg Junior College

**Certifications:** Maryland Wastewater Treatment Class 5 A; Pennsylvania Wastewater A (Master) and Waterworks A (Master); Florida A Wastewater

**Member:** American Water Works Association; Pennsylvania Water Works Association

**Publications:** C. Farley and B. Harner, "City of Lancaster WWTP Pilot Testing ORP Control for Chlorination and Dechlorination," WEFTEC, 1998; C. Farley and Dr. C. Strehl, "The Effects of Hardness and Zinc on a Trickling Filter Wastewater Treatment Plant," WEFTEC, 1999

## **SCOTT GETCHELL**

### **Senior Environmental Technologies Specialist**

**Certifications:** Maryland Wastewater Superintendent; Maryland Wastewater Treatment Class 1, 5, A; Maryland Water Treatment Superintendent; Maryland Water Treatment Class 1

**Member:** Water & Waste Operators Association of Maryland, Delaware and District of Columbia; Maryland Municipal Public Works Officials Association

**Other:** 25 years experience in water and wastewater systems, and SCADA control implementation and management; development and management of regulatory compliance spreadsheets; construction and management of water and wastewater treatment plants, wells, and distribution systems; construction management of wastewater pump stations and collection systems

**Awards:** Wastewater Operator of the Year; Maryland Rural Water Association 2001; Operations and Maintenance Excellence USEPA 2005

## **MICHAEL H. GERARDI**

### **Trainer**

**Degrees:** Master of Science in Biology, James Madison University; Bachelor of Arts in Biology, Susquehanna University

**Certifications:** Teaching Certificate, Commonwealth of Pennsylvania Biology and General Science; Educator Certificate, State of South Carolina, Biology and Science; Wastewater Operator's Certificate, Commonwealth of Pennsylvania, Class A, Type 1

**Publications:** "Troubleshooting the Sequencing Batch Reactor," "Microscopic Examination of the Activated Sludge Process," "Wastewater Bacteria," "The Microbiology of Anaerobic Digesters," "Settleability Problems and Loss of Solids in the Activated Sludge Process," and "Nitrification and Denitrification in the Activated Sludge Process," Wiley-Interscience. New York

## **LENNY GOLD**

### **Senior Operations Specialist and Trainer**

**Degrees:** Masters in Education, Goucher College; Bachelor of Science, City College of New York

**Certifications:** Maryland Wastewater Treatment Class 5

**Member:** Water Environment Federation; American Water Works Association; Water and Waste Operators Association

**Publications:** EPA Funded Manual – "Innovative and/or Alternative Wastewater Treatment Technologies for Small Systems: A Guide for Managers and Community Leaders"

**Awards:** Chesapeake Section Water and Waste Operators Association Kappe Award for Distinguished Service in the Training of Environmental Systems Operators; EPA Award for O&M Excellence – Technical Assistance – Town of Easton's new ENR WWTP, 2008

## **MIKE HARRINGTON**

### **Trainer**

**Degrees:** Bachelor of Science, Columbia Union College; Diploma in Wastewater Treatment, Crowder College; Associate's in General Studies, Chesapeake College  
**Certifications:** Maryland Wastewater Superintendent, Maryland Wastewater Treatment Class B, Maryland Industrial Wastewater Treatment Class A, Oklahoma Class B (water and wastewater), Texas, Class C (water and wastewater)

**Publications:** "Choosing the Right to Field Test for Water Quality Testing," "How to Treat Water Disinfected with Chloramines," Water Technology Magazine

## **EDGAR R. JONES, PE**

### **Senior Financial Analyst and Trainer**

**Degrees:** Master of Science in Civil Engineering, West Virginia University; Bachelor of Science in Physics, Davis & Elkins College and in Civil Engineering, West Virginia University

**Certifications:** Professional Engineer, Virginia

**Member:** Water Environment Federation; American Water Works Association; American Society of Civil Engineers

**Other:** 40 years of experience in the water and wastewater industries including time with the military, Blue Plains AWT Facility and the Washington Suburban Sanitation Commission

**PETER C. KARALEKAS JR., PE****Senior Training Specialist**

**Degrees:** Masters in Public Health, Harvard University; Master of Science, University of Massachusetts; Bachelor of Science, Tufts University

**Member:** Massachusetts Board of Certification of Drinking Water Operators; New England Water Works Association; American Water Works Association

**Other:** Registered Professional Engineer; Retired U.S. Public Health Service Officer; Diplomat of the American Academy of Environmental Engineers; Editor of the "Journal of New England Water Works Association"

**WAYNE H. LUDWIG, JR.****Trainer**

**Degrees:** Master of Science in Environmental Engineering, Johns Hopkins University; Bachelor of Science in Chemistry, Towson University; Associate of Arts in Science Lab Technology, Harford Community College

**Certifications:** Maryland Wastewater Treatment Class 5, A; Maryland Wastewater Treatment Superintendent; Maryland Water Treatment Superintendent

**Member:** Water Environment Federation; American Water Works Association – Chesapeake Sections of these organizations

**Publications:** "WEF Journal – Workforce Development," "AWWA OpFlow – Workforce Training," "WEF Manual of Practice – Septage Handling," "2010 WEF Biosolids Conference – Biosolids Management"

**Other:** Water Environment Federation (WEF) Collection Systems Committee and Fats, Oils, and Grease Group; American Water Works Association Workforce Strategies Committee

**EARL LUDY****Trainer**

**Degrees:** Bachelor of Science in Agriculture, University of Maryland

**Certifications:** Maryland Wastewater Treatment Classes 4, S, A; Maryland Wastewater Treatment Superintendent; Maryland Water Treatment Class 1, 2; Maryland Water Treatment Superintendent

**Member:** Water and Waste Operators of Maryland, Delaware and District of Columbia

**Awards:** Water and Waste Operators of Maryland, Delaware, and District of Columbia – Trainer of the Year, 2000; Maryland Rural Water Association – Trainer of the Year, 2001

**PAULA MARTIN****Trainer**

**Degrees:** Bachelor of Science in Animal Science, University of Maryland

**Certifications:** Maryland Wastewater Treatment 4, 5, S, A; Maryland Wastewater Treatment Superintendent; Maryland Water Treatment Class 4

**Member:** Water and Waste Operators Association of Maryland

**Other:** Former President of the Water and Waste Operators Association of Maryland, Delaware and District of Columbia, former Chair of the Maryland Advisory Committee for the Training of Environmental Operators

**DIPANKAR SEN, PhD, PE****Process Technology Developer and Trainer**

**Degrees:** PhD in Civil Engineering, Virginia Tech; Master's in Business Administration, Wharton School of Business, University of Pennsylvania

**Certifications:** Profession Engineer, California

**Member:** Water Environment Foundations; International Water Association

**Publications:** "Aquifas – User Manual Parts I and II, 2010," "RFID for Energy and Utility Industries, Jan 2009," "Investigation of Hybrid Systems for Enhanced Nutrient Control," Water Environment Fed, Dec. 2000.

**GLYNN STOFFEL, CET, CIT****Technical Assistance Provider and Trainer**

**Degrees:** Bachelor of Science in Business Administration, University of Baltimore

**Certifications:** Maryland Wastewater Collection Superintendent; Maryland Water Distribution Superintendent; Maryland Water Distribution and Maryland Wastewater Collection; National Environmental Safety Health and Training Association Certified Environmental Trainer (CET); Certified Instructional Technologist (CIT)

**Member:** Water Environment Federation; American Water Works Association; Water and Wastewater Operator's Association of Maryland, Delaware and District of Columbia

**MARK A. WILLIAMS****Trainer**

**Degrees:** Bachelor of Science in Engineering, University of Arkansas

**Licenses:** Well Driller, Delaware

**Member:** National Ground Water Association, American Water Works Association, National Society of Professional Engineers

**KEN WOOD, PE****Trainer**

**Degrees:** Master of Science, Civil Engineering, Ohio University; Master of Arts in Statistical Ecology, Truman State; Bachelor of Arts in Biology, Wabash College.

**Licenses:** Maryland Wastewater Treatment Classes 4, 5, S, A; Wastewater treatment operator, Pennsylvania and Virginia; Professional Civil Engineer, Maryland and Ohio

**Member:** Water Environment Federation and Water and Waste Operators Association

**Other:** Former President of the Water and Waste Operators Association of Maryland, Delaware and District of Columbia

**GUY WOODARD****Trainer**

**Degrees:** Bachelor of Science in Technical and Industrial Administration, Metropolitan State College of Denver; Associate of Applied Sciences in Water and Wastewater Technology, Industrial and Commercial Electricity and Solar Energy Technology, Red Rocks Community College

**Certifications:** Pennsylvania Water Works Certification, Subclasses 1-14

**Member:** Water Works Operators Association of Pennsylvania; American Water Works Association (AWWA); AWWA Partnership for Safe Water Representative

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