



CSAWWA



WWOA



CWEA

**SIXTY FIRST ANNUAL
SHORT COURSES
FOR
WATER & WASTEWATER
OPERATORS
June 6 – June 11, 2010**

HELD
AT

WASHINGTON COLLEGE
300 WASHINGTON AVE,
CHESTERTOWN, MARYLAND

*Sponsored
By*

Chesapeake Section, American Water Works Association

Chesapeake Water Environment Association

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

61st SHORT COURSE PROGRAM & SCHEDULE

Sunday, June 6, 2010

- 4:00 p.m. to 6:00 p.m. Organization Check-in and Signup
Registration and Room Assignments
- 6:00 p.m. to 10:00 p.m. The Short Course will begin with a Dinner at 6pm in the
Dining Facility located in Hodson Hall followed by a
Meet and Greet beginning at 7:30.

Monday, June 7 through Thursday, June 10, 2010

- 7:00 a.m. to 8:00 a.m. Breakfast for Non-commuters
- 8:00 a.m. to Noon p.m. Training Sessions
- Noon p.m. to 1:00 p.m. Lunch for all Attendees and Trainers
- 1:00 p.m. to 5:00 p.m. Training Sessions
- 5:00 p.m. to 6:00 p.m. Dinner for Non-commuters

Friday, June 11, 2010

- 7:00 a.m. to 8:00 a.m. Breakfast for Non-commuters
- 8:00 a.m. to 11:30 a.m. Final Short Course Exam - All sessions
or
- 9:00 a.m. to Noon p.m. Maryland Board of Water and Waste Systems Operators
Certification Exams for those scheduled*

Short Course Training Certificates will be mailed to all participants after confirmation of payment. Those who need early confirmation of credits earned should follow up with your Accounts Payable Departments

Directions to Washington College

Washington College is located in historic Chestertown, Maryland on Maryland's Eastern Shore north of Centreville on US 213. The College is on the west side of the highway and is well marked. Directional signs to the Short Course will be provided.

Purpose

The Short Course for Water and Wastewater Operators offers training, information, and insights that will enable the water and wastewater systems personnel to operate their facilities in a more effective, safe, and economical manner. The courses offer new ideas and serve as a "refresher" for existing operators.

Questions/Problems

If there are any questions not answered in this brochure or problems encountered prior to registration, you can contact Don Sprinkle (410) 313-4970 or Jim Timmons (410) 396-9607, Monday through Friday 6:00 a.m. until 2 p.m.

Washington College

The College's only function is to provide facilities for the courses. The College should not be contacted regarding registration or arrangements. All questions should be directed to the above named individuals or Short Committee members.

Course Registration

Please take your time in completely filling out the Registration/Invoice form. Advanced full-week registration is due by May 1, 2010, and is \$225.00 for members of the WWOA, CWEA-PWOD, or CSAWWA. Non-members registration fees are \$275.00, which includes membership in one of the three organizations you need to select on your form. Please note on your form which organization you wish to join. Single and multiple day registrations are noted on the registration form and subject to membership discounts.

After May 1, 2010, on-site registration prices are in effect and the costs increase to \$250.00 for existing members and \$300.00 for non-members. In order to qualify for the **member** price you must include your organization's individual membership number on the registration form. The course fees include all instruction, course materials, lunches and refreshments at the breaks Monday through Thursday and the Sunday evening dinner for early arrivals.

To register for the Short Course, please read and complete the Registration/Invoice form and mail it with a check or money order, or copy of the purchase order with students names made payable to:

WWO Short Course
PO Box 582
Jarrettsville, MD 21084

Those organizations paying by Purchase Order number please include the PO number on the registration form and send a copy of the registration form to your Accounts Payable Department for payment. **Please note: Your registration form is your invoice. You will not be invoiced. Payments not made within 45 days of the course (July 26, 2010) will be charged an additional processing fee of \$ 50.00. Cancellations will be assessed a fee of \$ 10.00.**

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

On-Site Help

If you are a single day or late registrant, an instructor, or if you have any questions/problems during the week, you can find help in the Short Courses Staff Room located in Room 108 in the Daly Building from 7 a.m. to 5 p.m. The phone number is (410) 810-5090, during class hours 7 a.m. to 5 p.m. or you can ask any Short Course Committee member to assist you. After hours you can try (410) 810-8308 or (410) 810-8303. Should someone need to reach you in an emergency the Public Safety Office phone number is (410) 778-7810.

Maryland State Operator Certification Exam

This year the Maryland Board of Water and Waste Systems Operators will hold operator certification exams for all classes at the conclusion of the Short Course on Friday, June 11, 2010, from 9 a.m. to Noon. This exam is separate from the TRE credit exam given by each session of the Short Course.

*** You must apply separately to the Maryland Board to sit for the Maryland Certification Exam.** The Board must receive the application for those wishing to take the Certification Exam at the Short Course site by May 15, 2010. Mail completed application to:

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

Any questions regarding the Certification Exam may be referred to Mr. Lee Haskins or Mr. Lawrence Robinson at 1(800) 633-6101, ext. 3167 or (410) 537-3167. **Note: The State exam will be held at 9:00 a.m. in a room to be announced during the Short Course. Payment for the Short Course does not include the cost of nor entitle you to take the Certification Exam!**

Sponsorship/Scholarships

The Annual Water and Wastewater Operators Short Course is sponsored by the Short Course Committee, a group made up of representatives from the Water and Wastewater Operators of Maryland, Delaware, and the District of Columbia (WWOA), the Chesapeake Section, American Water Works Association (CSAWWA), and the Chesapeake Water Environment Association (CWEA). This training effort is sponsored by the professional membership organizations and the employers of the water and wastewater operating professionals. It is a volunteer organization. Should you wish to become a member please contact one of the Short Course Staff.

Scholarships may be offered through each organization to attend the Short Course. Members of each organization are eligible per the selection process of the organization.

Overnight Room Accommodations

Overnight accommodations will be available at Washington College at a cost of \$35.00 per person per night. This fee includes an air conditioned room with a limited linen package. The rooms will be available from 4:00 p.m. Sunday, June 6 and must be vacated by 8 a.m. on Friday,

June 11. **A refundable \$10.00 key deposit will be collected at the time of registration.** Room and board cost includes the standard all-you-can-eat cafeteria meals (breakfast and dinner) served in the temporary dining facility. Monday – Thursday’s lunch is included in the registration cost. Room and board for the week is \$275.00.

Meals for on-site accommodations begin with the Sunday evening Meet & Greet, June 6, and end with breakfast on Friday morning, June 11. The serving times are:

Breakfast – 7 a.m. to 8 a.m.
Lunch – Noon to 1 p.m.
Dinner – 5 p.m. to 6 p.m.

Should you prefer to stay off campus, there are several motels nearby at your cost. Arrangements must be made by you with the motel. If you wish to eat on campus, you must purchase the meal plan. The cost for breakfast and dinner on campus is \$120 for the week or \$30 per day.

Emergencies

If there is an **emergency** at home or work while you are staying at the College and you must be reached, the 24-hour Public Safety number is (410) 778-7810. A message will be taken and every attempt will be made to contact you.

Conduct of Participants

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

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

Attendance and Training Credit Hours Earned

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

If you are taking a State Certification exam on Friday, June 11 and you are also interested in taking the Short Course final exam, you may do so Thursday evening. Only individuals taking the State Certification exam will be eligible for this option. You must make arrangements with the course coordinator by Tuesday, June 8.

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

Disclaimer

The Introductory Water, Introductory and Intermediate Wastewater Sessions are designed for those persons just entering the field and temporary certified operators. Attendance at this course in no way implies a guarantee that those participating in the sessions are assured of passing the State Certification exam. However, the information covered in the sessions should be helpful with some parts of the certification exam. Fully certified operators should take the more advanced sessions for re-certification credit however all sessions are submitted for TRE credits.

Sunday Evening Meet & Greet

On Sunday, June 6, 2010, the Short Course will begin with a Dinner at 6pm in the Dining Facility located in Hodson Hall followed by a Meet and Greet beginning at 7:30.

Evening Recreational Activities

Monday	7:00 - 11 p.m.	Pizza Night, DJ (@ Hodson Hall)
Tuesday	7:00 - 11 p.m.	Wing Night, Karaoke (@ Hodson Hall)
Wednesday	7:00 - 11 p.m.	Taco Night, Karaoke (@ Hodson Hall)
Thursday	Study Night	No Activities Scheduled

Parking

Please observe the parking restrictions at the College. All vehicles improperly parked on the grass or other prohibited areas will be ticketed. You are encouraged to park in Lot "A" or the Harford Lot.

Session Highlights

Superintendents

The Superintendents Course is designed for certified water and wastewater superintendents and experienced operators who have taken basic and advanced courses. Each session for this course has been submitted separately for Maryland Board/TRE approval. This course was designed to meet the needs of a superintendent's re-certification and although some sessions have been approved for other operators' certification, it may not satisfy all of the requirements.

Maryland Board of Waterworks and Waste Systems Operators Superintendent Certification Course:

This year one of the Boards Superintendents Certification Courses will be conducted at the WWO Short Course location on Monday, June 7, 2010 at Washington College. This course satisfies the requirement of the Superintendent Certification process, and is available by invitation only by the Board, for Superintendent holding a Superintendent's certification for a minimum of one year. Information about being invited to the course by the Board may be obtained from Pat Kratochvil (pkratochvil@mde.state.md.us) at 410 537-3167. Once invited to attend the course you must register for the course through MCET:

(<http://www.mcet.org/Technical/Training/environment/et%20schedule2010.html>) at 301 934-7519 or 301 934-7500. There is a cost of \$109 for the course payable to MCET. Lunch at the Short Course is included with the course.

Participants of the Superintendent Certification Course are encouraged to participate in other Short Course activities throughout the week, such as TRE approved training classes, over night accommodations and other meals. All other activities must be registered for through the Short Course and all applicable fees must be pay to the Short Course. Information about Short Course activities and payment may be obtained at: (http://www.wwoa-cwea.org/short_course/short_course.html) or Questions Don Sprinkle at 410 313-4970.

Introductory Water

The Introductory Water Course is provided for those who work at any class water treatment plant but is primarily designed for those who operate Class 1 & 2 plants with disinfection/chlorination, pH control, and fluoridation. Generally these are small surface water and groundwater plants. The curriculum involves applied mathematics; basic concepts in water production and treatment, as well as maintenance and safety aspects associated with water treatment systems. Course is Maryland Board/TRE # 4717-10-02.

Water – Classes 3 & 4

The Water Class 3 & 4 is designed for those who operate plants with chlorination, pH control, flocculation, fluoridation, filtration, and iron removal utilizing ion exchange or contact oxidation processes (Class 3): and chlorination, pH control, fluoridation, aeration, coagulation, sedimentation, and filtration for both surface water treatment and complex iron removal (Class 4). Generally these are larger water plants. A person taking this course will have at least two or three years of operating experience and/or have completed a basic/introductory water course. Course is Maryland Board/TRE # 4718-10-02.

Advanced Water Topics

The Advanced Water Topics curriculum is designed for water treatment plant operators. The course work is designed to investigate water treatment subjects and issues in greater detail than would be covered in introductory classes. A person taking this course should be a certified operator and have approximately four years or more experience in water treatment technology, and have completed basic introductory water courses. Course is Maryland Board/TRE # 4719-10-02.

Water Distribution Systems

The Water Distribution Systems Courses are designed for those who operate and maintain a water distribution system. They are for both the beginner and seasoned operator, and will cover basic and advanced concepts. Course is Maryland Board/TRE # 4724-10-02.

Introductory / Intermediate Wastewater

These sessions have been combined this year. In recent years, a decline in new operator registration and a desire by attendees for more certification related information for novice operators, made it apparent that a blending of the classes is appropriate. The course is designed for the temporary certified operator with basic wastewater skills. The operator taking this course will generally have one to three years of operating experience. Information covered in this session should be helpful with some parts of the certification exams, but in no way assures one of passing. Due to a large majority of operators at this experience level taking the State certification exams, no final exam has been given for this session in previous years. This year we will again offer an exam for those not taking the State Certification test. This will limit the session to 32 TRE credit hours for those taking certification, but will allow for 32 plus 1.5x (16) credit hours for those passing the short course exam (for a total of 48 credit hours). Attendees have the option to take the State certification exam to be given on Friday, June 11. Pre-registration for the State certification exam is mandatory and is the sole responsibility of each operator. This course is Maryland Board/TRE # 4720-10-02. This course will make use of instructor hand outs and note taking by the attendee.

Advanced Wastewater

This session is designed for certified wastewater operators. The person taking this class will have two or more years of experience and have completed a basic or introductory wastewater course. In addition, it serves as a refresher course for the seasoned veteran operator. **Experienced operators taking the certification exam should enroll for the Introductory/Intermediate Wastewater course. Although some of these sessions are designed to review standard advanced wastewater process control, many of the sessions will discuss recent advancements in technology in an effort to expand the veteran operator's knowledge beyond his/her own facility.** The course is Maryland Board/TRE # 4721-10-02.

Wastewater Collection Systems

The Wastewater Collection Systems Courses are designed for those who operate and maintain a wastewater collection system. They are for both the beginner and seasoned operator, and will cover basic and advanced concepts. Course is Maryland Board/TRE # 4725-10-02.

Industrial Waste Treatment

The Industrial Waste Treatment Course is designed to cover a broad range of topics in the field. Review sessions for safety and chemistry are provided. The technology discussed will apply for both direct industrial waste dischargers and indirect dischargers to Publicly Owned Treatment Works (POTWs). The sessions during the first three days concentrate on chemical/physical processes and topics of general applicability. The 3-day session is Maryland Board/TRE # 4722-10-02 for 24 hours.

The class on Thursday focuses on biological treatment processes to address training requirements for Industrial Wastewater Works and Pretreatment Plants of Class 4, Biological Lagoons, and Class 5, Activated Sludge. The biological treatment class is approved Maryland Board/TRE # 4723-10-02 for 8 hours.

Treatment Facility Maintenance

This course is designed for an operator or flexible worker at any water, wastewater or biosolids facility to understand the why and when of equipment maintenance. With the industry shift toward combining operational and maintenance duties, operators are now expected to perform general maintenance on the equipment they are operating. The student will be exposed to equipment maintenance basics and safety training as well. This course is Maryland Board/TRE # 4726-10-02.

Delaware Operator License Holders

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

Session Listings

Introductory Water

Course Coordinator – Larry Richardson

MONDAY

8:00 – 8:30 a.m. **Overview** – Instructor, Larry Richardson, Anne Arundel County DPW

An overview of the Introductory Water program will be presented and course objectives discussed. Textbooks will be distributed and the TRE requirements will be outlined. This course will cover the materials, which will be helpful to students new to the water industry as well as those who will be taking the Class 1 or 2 State Certification Exam for Water Treatment.

8:30 – Noon **Centrifugal Pumps** – Instructor, Tiffany Bain – Geiger Pumps

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

Noon – 1:00 p.m. **LUNCH**

1:00 – 5:00 p.m. **Water Treatment Processes** – Instructor, Eddie Cope – Anne Arundel County DPW

This session will cover various water treatment processes including coagulation, sedimentation, disinfection, fluoridation, iron and manganese removal, softening, taste and odor control, and corrosion control. Water sources, chemicals used in water treatment and plant operations will also be discussed.

5:00 – 6:00 p.m. **DINNER**

TUESDAY

8:00 – Noon **Basic Instrumentation** – Instructor, Gary Anderson – Sherwood Logan and Associates, Inc.

This course is offered as a basic overview of the concepts and techniques for four of the most often encountered measurements found in water treatment plants; temperature, pressure, level, and flow. The class will learn the theory behind each measurement and become familiar with the diversity of instrumentation available.

Noon – 1:00 p.m. **LUNCH**

1:00 – 5:00 p.m. **Water Sampler Class** – Instructor, Alfred Richardson – Maryland Rural Water

To help samplers assure the reliability of the Safe Drinking Water Act compliance submitted to State certified laboratories. Performing the required sampling and testing of public water systems is the primary means of evaluating compliance with the standards and the safety of the drinking water supply. The following items will be covered; location and collection procedures for bacteriological, inorganic, metal, volatile organic and pesticide samples along with a few exercises.

5:00 – 6:00 p.m. **DINNER**

WEDNESDAY

8:00 – Noon **Applied Mathematics** – Instructor, Larry Richardson – Anne Arundel County DPW

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

Noon – 1:00 p.m. **LUNCH**

1:00 – 5:00 p.m. **Chlorination Technology** – Instructor, Terry Bradley – Anne Arundel County DPW

Session will cover the review of various disinfection technologies and discussion of the main types of chlorine application systems. Additional course topics are safety procedures for storage and use of chlorine tanks, current disinfection technologies, and the major physical and chemical characteristics of disinfection chlorine.

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

THURSDAY

8:00 – Noon **Distribution Systems** – Instructor, Billy Dove - WSSC

The class will discuss water distribution systems. Among the topics discussed will be various types of water storage, hydraulic concepts of pressure and force, pressure reducing valves, booster pumps, and the importance of tank turnover, chlorination, and disinfection byproducts.

Noon – 1:00 p.m. **LUNCH**

1:00 – 5:00 p.m. **Applied Mathematics (continued)** – Instructor, Larry Richardson – Anne Arundel County DPW

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

Or

1:00 – 5:00 p.m. **State Water Examination Review** – Instructors, Eddie Cope - Anne Arundel County DPW & Jay Price - WSSC

This session is designed to review topics that may help those taking any of the State Water exams.

Note: This is a fast paced review that is open only to those registered for the June 11, 2010 State exam.

5:00 – 6:00 p.m. **DINNER**

FRIDAY

8:00 – 11:30 a.m. **Final Short Course Exam**

WATER CLASSES 3 & 4

Course Coordinator – Jay Price

MONDAY

8:00 – 8:30 a.m. **Overview** - Course Coordinator, Jay Price, WSSC
An overview of the Water 3 & 4 program will be presented and course objectives discussed.

8:30 a.m. – Noon **Chlorine Use & Safe Handling** – Instructor, Terry Bradley - Anne Arundel County DPW

This session will cover the use and safe handling of chlorine. Included in this discussion will be waterborne diseases, water-chlorine chemistry, disinfection methods, and operational factors that affect the disinfection process. Also included will be inspection of equipment, personal safety, health precautions, and emergency procedures.

Noon – 1:00 p.m. **LUNCH**

1:00 – 5:00 p.m. **Water Treatment Processes** – Instructor, Eddie Cope - Anne Arundel County DPW

This session will cover various water treatment processes including coagulation, sedimentation, disinfection, fluoridation, iron and manganese removal, softening, taste and odor control, and corrosion control. Water sources, chemicals used in water treatment and plant operations will also be discussed.

5:00 – 6:00 p.m. **DINNER**

TUESDAY

8:00 – Noon **Chemical Feed Pumps** – Brian Cummings – WSSC

The class will focus on the most common types of chemical metering pumps and feed systems equipment and will include: installation, calibration, maintenance, and troubleshooting of Chemical Metering Pumps and Feed Systems.

Noon – 1:00 p.m. **LUNCH**

1:00 – 5:00 p.m. **Applied Mathematics** – Instructor, Jay Price - WSSC

This session will focus on basic mathematics and applications fundamental to the water treatment. Upon completion of this course, personnel should be able to perform calculations needed to verify various plant processes. Examples include chemical dosing, detention time, pressure calculations, backwash flow rates, and temperature conversions.

5:00 – 6:00 p.m. **DINNER**

WEDNESDAY

8:00 – Noon **Coagulation, Flocculation & Sedimentation** – Instructor, Scott Harmon - Anne Arundel County DPW

Session will cover the first three steps of the water treatment process; including rapid mixing, types of flocculation, and sedimentation will be discussed.

Noon – 1:00 p.m. **LUNCH**

1:00 – 3:00 p.m. **Filtration Processes** - Instructor, Perry Violet - WSSC

This session will give the participant an introduction to operation and maintenance of various types of filters, including granular media and gravity filtration. In addition, design and operation of gravity and pressure filters will be discussed.

3:00 – 5:00 p.m. **Hazardous Material Right-to-Know** – Instructor, Michael Lewis - WSSC

This session will provide the participant with safety and health information in regards to typical chemicals used in the treatment of water/wastewater, and the proper use of a MSDS.

5:00 – 6:00 p.m. **DINNER**

THURSDAY

8:00 – Noon **Distribution Systems** – Instructor, Billy Dove – WSSC

The class will discuss water distribution systems. Among the topics discussed will be various types of water storage, hydraulic concepts of pressure and force, pressure reducing valves, booster pumps, and the importance of tank turnover, chlorination, and disinfection byproducts.

Noon – 1:00 p.m. **LUNCH**

1:00 – 5:00 p.m. **Water 3&4 State Examination Review** – Instructors, Eddie Cope - Anne Arundel County DPW & Jay Price - WSSC

This session is designed to review topics that may help those taking the Water 3 or 4 State examinations.

Note: This is a fast paced review that is open only to those registered for the June 11, 2010 State exam.

OR

1:00 – 5:00 p.m. **Basic Electricity Using Analogies to Water** – Instructor, Tom Rock - WSSC

This session will provide basic electrical knowledge using analogies to water. Also covered will be basic electrical terms, Ohm's Law, measuring electricity, series/parallel circuits, and electrical safety.

5:00 – 6:00 p.m. **DINNER**

FRIDAY

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

Advanced Water Topics

Course Coordinator – Scott Harmon

MONDAY

8:00 – 9:00 a.m. **Overview** - Instructor, Scott Harmon - Anne Arundel County

An overview of the Advanced Water program will be presented and course objectives discussed including TRE requirements.

9:00 - Noon **Water Lab Techniques** – Instructor, TBA

Standard lab practices including standards and calibrations. Advanced instrumentation for water quality with regard to precision and accuracy.

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

1:00 – 5:00 p.m. **Preparing for and responding to a terrorism incident from a Public Works perspective** – Instructor, TBA

What is terrorism? What is a PTE? What is a CBRNE incident? This course answers these questions and others. Topics discussed in this session will pertain to weapons of mass destruction, how to perform a vulnerability assessment of your facility and more.

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

TUESDAY

8:00 – 10:00 a.m. **Ultraviolet Disinfection Treatment Process** – Instructor, TBA

This class is designed to introduce Operational and Maintenance personnel to the concept of using ultraviolet light to disinfect water. Attendees will be informed to why UV is gaining popularity in water treatment. The entire UV disinfection process will be discussed, including how to determine the amount of light needed to meet disinfection requirements, how UV light is measured, the process of selecting the appropriate equipment, and the disinfection validation process. Various components of an UV process will be identified, as well as operation and maintenance of the UV process.

10:00 - Noon **Chloramination Disinfection Treatment Process** – Instructor, TBA

This session will begin with a discussion of the chemistry of chloramines, its use for primary disinfection, advantages and disadvantages. This background discussion will be followed by a description of physical facilities required for chloramine treatment, controls and operational requirements. Finally, the class will provide discussion of important points to be aware for the successful use of chloramines.

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

1:00 – 5:00 p.m. **Advanced Filtration Processes: Theory and Practices** – Instructor, TBA

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

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

WEDNESDAY

8:00 - Noon **Pumps** – Instructor, TBA

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

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

1:00 – 5:00 p.m. **Membrane Filtration and Reverse Osmosis Treatment Technologies** - Instructor, TBA

The theory and application behind operation and maintenance of Membrane Filtration and Reverse Osmosis Treatment systems. Problems associated with Membrane and Reverse Osmosis units will be discussed along with lab demonstrations which will be conducted.

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

THURSDAY

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

Operators sometimes aren't involved in the project development process until they have to operate a new facility. That is typically too late to get the product that you want - and that is where operations staff make field modifications to suit their needs. This class will discuss the planning and

document creation that leads to a desired construction. Language for special provisions, reading specifications, how to read project plans and the understanding of “or equal” will be highlighted. Other components that will be presented are training (how much and by whom), warranties, operation and maintenance manuals, acceptance/performance, project and construction management by engineers. .

Noon – 1:00 p.m.

LUNCH

1:00 – 5:00 p.m.

Instrumentation and Controls for the Operator – Instructor, TBA
This class introduces the fundamentals of measuring, displaying and controlling important plant operating parameters such as levels, pressures, flows and dosages. Class discussions will center on automatic systems that actuate and adjust valve positions, motor speeds and chemical feeder output.

5:00 - 6:00 p.m.

DINNER

FRIDAY

8:00-11:30 a.m.

Final Short Course Examination

Water Distribution

Coordinator – Joe Crandall

MONDAY

8:00 – 9:00 a.m.

Orientation – Instructor, Joe Crandall – Anne Arundel County DPW
An overview of the Water Distribution program will be presented and course objective discussed, and TRE requirements will be discussed.

9:00 – Noon.

Construction Safety – Instructor, Pete Steps - Anne Arundel County DPW Training Division

This course will emphasize construction safety. Topics will include confined space entry, trenching safety and Right to Know.

Noon – 1:00 p.m.

LUNCH

1:00 – 5:00 p.m.

Water Treatment Processes – Instructor, Eddie Cope – Anne Arundel County DPW

This session will cover various water treatment processes including coagulation, sedimentation, disinfection, fluoridation, iron and manganese removal, softening, taste and odor control, and corrosion control. Water sources, chemicals used in water treatment and plant operations will also be discussed.

5:00 – 6:00 p.m. **DINNER**

TUESDAY

8:00 – Noon **Distribution Math** - Instructor, Larry Richardson – Anne Arundel County DPW

The purpose of this course is to refresh and/or improve your math skills in the area of distribution math as it relates to water calculations. You will learn how to compare ratios and proportions, solve for the unknown, and explore linear measurements, area measurements and volume measurements.

Noon – 1:00 p.m. **LUNCH**

1:00 – 5:00p.m. **Distribution Systems** – Instructor, Billy Dove - WSSC

The class will discuss water distribution systems. Among the topics discussed will be various types of water storage, hydraulic concepts of pressure and force, pressure reducing valves, booster pumps, and the importance of tank turnover, chlorination, and disinfection byproducts.

5:00 – 6:00 p.m. **DINNER**

WEDNESDAY

8:00 – Noon **Centrifugal Pumps and Components** – Instructor, Steve Elder

Topics presented in this session include hydraulics of pumps as applied to the waterworks industry, pump operation and routine maintenance.

Noon – 1:00 p.m. **LUNCH**

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

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

THURSDAY

8:00 – Noon **Valves and Hydrants** – Instructors, Mark Snyder and Mike Schakowsky – Mueller Co

The course will cover the safe operation and maintenance of fire hydrants and valves. Instruction will include a detailed description of parts and repairs to include the disassembly and assembly of valves and fire hydrants.

- Noon – 1:00 p.m. **LUNCH**
- 1:00 – 3:00 p.m. **Valves and Hydrants** – (continued)
- 3:00 – 5:00 p.m. **Session Review & Test Taking Techniques** – Instructors, Joe Crandall - Anne Arundel County DPW and Don Sprinkle- Howard County
- This session will be a review of the week’s material in preparation for short course and/or the State test, along with some techniques on how to take a test.
- 5:00 – 6:00 p.m. **DINNER**

FRIDAY

- 8:00 – 11:30 a.m. **Final Short Course Exam**

Wastewater Collection

Coordinators – Tom Newquist Sr. and Wayne Reed

MONDAY

- 8:00 – 9:00 a.m. **Overview** – Instructor, Tom Newquist Sr. – City of Annapolis, Wayne Reed - DCWASA
An overview of the wastewater collection program will be presented and course objective discussed, and TRE requirements will be discussed.
- 9:00 - 9:30 a.m. **Collections System Basic Hydraulics** – Instructor, Carlos Espinosa - CWEA Collections Committee
- 9:30 – 10:30 a.m. **CCTV**-Instructor, Ted DeBoda - CWEA Collections Committee
- 10:30- Noon **Pipe and Manhole Rehabilitation** – Instructors, Marilyn Baron & Ted DeBoda - CWEA Collections Committee
- Noon – 1:00 p.m. **LUNCH**
- 1:00 – 2:00 p.m. **Flow Monitoring**- Instructor, Kraig Moody - CWEA Collections Committee

Elements of open channel flow measurements (area and velocity, flumes, weirs) and flows through force mains (magnetic meters, pumps running timers) will be presented as a basis to establish baseline infiltration and peak wet weather flows.
- 2:00 – 3:00 p.m. **SSO Rule** – Instructor, Glen Diaz – CWEA Collections Committee

The current regulatory environment with regards to Sanitary Sewer Overflows, SSOs, at a state and federal level will be covered. The prohibition against unauthorized discharges, Capacity, Management, Operation and Maintenance, CMOM, and what operators can do to minimize the impacts and potential regulatory exposure regarding SSOs will be discussed. The reporting requirements for the 24 hour verbal and 5 day written reports will be included.

3:00 – 4:00 p.m. **SSS/Private Property I/I** – Instructors, Jeff Cantwell & Paul Sayan - CWEA Collections Committee

4:00 – 5:00 p.m. **Preventative Maintenance** –John Fletcher & Dick Eubank - CWEA Collections Committee

5:00 – 6:00 p.m. **DINNER**

TUESDAY

8:00 – Noon **Disinfection & Chemical Feed Applications** – Instructor, Paula Martin, Water Treatment Plant Superintendent (ret.)

Effective chemical application is essential to the treatment of water and wastewater. This course will start with an open discussion of chemical feed applications in both the water and wastewater treatment fields.

Noon – 1:00 p.m. **LUNCH**

1:00 – 5:00 p.m. **Math Application** – Instructor, Paula Martin, Water Treatment Plant Superintendent, ret.

A workshop focusing on calculating chemical feed dosages will follow. The workshop includes calculating the capacity of tanks, flow rates, and chemical dosages for disinfection, de-chlorination, odor control, coagulation, and corrosion control. Students will progress at their own pace through multiple and progressively more difficult quizzes.

5:00 – 6:00 p.m. **DINNER**

WEDNESDAY

8:00 – Noon **Centrifugal Pumps and Components** – Instructor, Steve Elder

Topics presented in this session include hydraulics of pumps as applied to the waterworks industry, pump operation and routine maintenance.

Noon – 1:00 p.m. **LUNCH**

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

5:00 – 6:00 p.m. **DINNER**

THURSDAY

8:00 – Noon **Basic Chlorine and Chlorine Cylinder Program** – Instructor, Susan McCauley - Maryland Environmental Services

OSHA permit required confined space; lock out tag out, basic chlorine, chlorine cylinder program, excavation and trench in safety.

Noon – 1:00 p.m. **LUNCH**

1:00 – 3:00 p.m. **OSHA Permit Required Confined Space; Lock out Tag out and Excavation and Trench in Safety** – Instructor, Susan McCauley - Maryland Environmental Services

3:00 - 5:00 p.m. **Exam Review** - Instructor, Don Sprinkle

5:00 – 6:00 p.m. **DINNER**

FRIDAY

8:00 – 11:30 a.m. **Final Short Course Exam**

Industrial Waste Treatment - Physical

Coordinators: Ed Williams and Dennis Mounsey

MONDAY

8:00 – 9:00 a.m. **Course Objectives & Orientation** – Instructor, Ed Williams – Harford County DPW, Dennis Mounsey - Consultant

This session will provide an introduction to the course with an explanation of its objectives and attendance requirements. Textbooks will be distributed during this session. Each session covered in this course will be discussed along with resources available for review of course materials, and the examination format.

9:00 – 10:00 a.m. **Overview of Municipal/Industrial Pretreatment, Local Limit Development, Monitoring Requirements and Compliance Enforcement** – Instructor, Ed Williams - Harford County DPW

This session will provide a brief overview of the regulations governing treatment and how pretreatment is implemented in the State of Maryland. Discussions will include general and specific prohibitions, standards, and consequence of being classified as an SIU and reporting requirements.

10:00 – Noon **Overview of the Operator Certification Program Requirements –**
Instructors, Lee Haskins, Lawrence Robinson – Maryland Department of
the Environment (MDE)

This session will provide an overview of the operator certification requirements for waste treatment and pretreatment facilities with special emphasis on recent updates. Course participants will be provided an opportunity to participate in a question and answer session.

Noon – 1:00 p.m. **LUNCH**

1:00 – 2:00 p.m. **Overview of Municipal/Industrial Pretreatment, Local Limit
Development, Monitoring Requirements and Compliance
Enforcement** (continued)

2:00 – 4:00 p.m. **Prevention & Response to Violations –** Instructor, Ed Williams –
Harford DPW

This class will discuss the most common causes of violations, investigative methods to develop a plausible response and plan of corrective measures as well as preventive methods. Proper Planning Prevents Poor Performance.

4:00 – 5:00 p.m. **Review of Days Topics –** Instructor, Ed Williams– Harford County DPW

5:00 – 6:00 p.m. **DINNER**

TUESDAY

8:00 – 10:00 a.m. **Filtration Processes –** Instructor, Joel Caudill – Harford County DPW

This session covers the history, design, maintenance and operation of filters to include multi – media filters. Math will be focused on in this session as it pertains to Process Filtration calculations.

10:00 – Noon **Chemical Feed –** Instructor, Joel Caudill – Harford County DPW

This session covers use of chemicals in the treatment of wastewater. Topics will include the chemicals used, application points and calculating chemical feed rates.

Noon – 1:00 p.m. **LUNCH**

1:00 – 3:00 p.m. **Pumps –** Instructor, Chris Brown – Geiger Pumps Inc.

Topic will cover the role of pumps in wastewater, routine maintenance and trouble shooting.

3:00 – 5:00 p.m. **Disinfection** – Instructor, Earl Ludy – Somerset County Sanitary

This course will identify and discuss different types of disinfection, including advantages and disadvantages of each method.

5:00 – 6:00 p.m. **DINNER**

WEDNESDAY

8:00 – Noon **Metals Precipitation** – Instructor, Dennis Mounsey – Consultant

This course is designed to provide operations-oriented personnel with metals treatment responsibility, the opportunity to interact with similar personnel and to receive training in the theories, methods and practices of treating metals via precipitation in wastewater. The class will cover: 1) Sources of metals, (Contamination by metals of streams & sludges). 2) Chemical Concepts (pH theory & practice), (Coagulation & precipitation). 3) Treatment Facilities, (Pollution prevention/waste minimization), (Typical chemical processes, instrumentation & Process control & operation). 4) Interactive activities, (description of student facilities).

Noon – 1:00 p.m. **LUNCH**

1:00 – 3:00 p.m. **Safety – MSDS and LOTO** – Instructor, Sorin Schwartz – DC WASA

MSDS, Right to Know Law OSHA (29 CFR 1910.1200) and MOSH (COMR 09.12.33.04) will be discussed. LOTO – having a successful Lock-Out/ Tag-Out program.

3:00 – 4:00 p.m. **Course Review** – Instructor, Ed Williams – Harford Co DPW

4:00 – 5:00 p.m. **Final Exam** – Physical/Chemical Treatment

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

THURSDAY

8:00 – 9:00 a.m. **Principles of Biological Treatment** – Instructor, Bob Sipes, Chestertown Utilities Commission

This section will cover the wastewater characterization, an introduction to biological treatment systems, and basic microbiology.

9:00 – 10:00 a.m. **Anaerobic Treatment Processes** – Instructor, Dennis Mounsey – Consultant

The principles of anaerobic treatment will be reviewed. This session will include a discussion of the different types of anaerobic systems, selection criteria, and the advantages and disadvantages of each type. Basic

calculations specific to these systems will be covered. An overview of equipment and layouts associated with anaerobic systems will be presented along with a discussion of system O&M issues.

10:00 – 11:00 a.m. **Aerobic Treatment I** – Instructor, Dennis Mounsey – Consultant

The principles of aerobic treatment will be reviewed. This session will include a discussion of the activated sludge theory, and reactor configurations; complete mix, plug flow and batch. Basic calculations specific to these systems will be covered.

11:00 – Noon **Fixed Film Systems** – Instructor, Ed Williams - Harford County DPW

The application of fixed film systems for treatment will be reviewed. This session will include a discussion of the different types of fixed film treatment systems, selection criteria, and the advantages and disadvantages of each type. An overview of equipment and layouts associated with fixed film systems will be presented along with a discussion of system O&M issues.

Noon –1:00 p.m. **LUNCH**

1:00 – 2:00 p.m. **Fixed Film Systems** – (continued)

2:00 – 3:00 p.m. **Sludge Handling & Disposal** – Instructor, Instructor, Dennis Mounsey – Consultant

Topics included in this session will be sludge thickening stabilization, dewatering, storage and disposal. Chemicals used as aids in these processes will be discussed.

3:00 – 4:00 p.m. **Course Review** – Instructor, Ed Williams – Harford Co DPW

4:00 – 5:00 p.m. **Final Exam** – Biological Treatment

5:00 – 6:00 p.m. **DINNER**

Introductory/Intermediate Wastewater

Coordinator – Jim Timmons and Jim Hynes

MONDAY

8:00 – 9:00 a.m. **Orientation** – Instructor, Jim Timmons – City of Baltimore, Instructor, Jim Hynes – Harford County DPW

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

- 9:00 – Noon **Advanced Treatment** – Instructor, William Shreve – Maryland Environmental Service
- Methods of nutrient removal, sand filtration, and other advanced treatment processes will be discussed.
- Noon – 1:00 p.m. **LUNCH**
- 1:00 – 5:00 p.m. **Activated Sludge Process Control** – Instructor, Lenny Gold – Gold & Associates
- This session will teach specific techniques for monitoring and controlling activated sludge processes. Trend charting, microscope examination of biomass, and other process control techniques will be taught. Case study analysis of activated sludge process problems will be undertaken on a time-available basis.
- 5:00 – 6:00 p.m. **DINNER**

TUESDAY

- 8:00 – Noon. **Intermediate Math** - Instructor, Don Sprinkle – Howard County
- Computation of typical wastewater problems will be emphasized. Detention times, flow rates, dosage rates, loading rates, and other typical wastewater formulas will be covered.
- Noon – 1:00 p.m. **LUNCH**
- 1:00 – 3:00 p.m. **Disinfection** – Instructor, Earl Ludy – Somerset County Sanitary Distribution
- This course will identify and discuss different types of disinfection, including advantages and disadvantages of each method.
- 3:00 – 5:00 p.m. **Safety** – Instructor, Burt Sklar – Chugach at Ft. Meade
- Proper use of safety equipment, working in confined spaces, lockout programs, chlorine handling and chemical safety will be covered.
- 5:00 – 6:00 p.m. **DINNER**

WEDNESDAY

- 8:00 – Noon **Pumps** – Instructor, John Weis – MM Engineering
- Topics to be covered include pumps and their role in wastewater, as well as routine maintenance and trouble shooting.

Noon – 1:00 p.m.

LUNCH

1:00 – 5:00 p.m.

Solids Handling – Instructor, Randy Bradford – City of Ocean City, MD

This course provides an introduction to various methods of conditioning, dewatering and disposal of sludge. Advantages and disadvantages will be discussed.

5:00 - 6:00 p.m.

DINNER

THURSDAY

8:00 – Noon

Sludge Thickening & Digestion – Instructor, Bill Farrell – MEI/RTS/Prostart

Aerobic and anaerobic digestion will be discussed, including advantages and disadvantages of each. Process monitoring and troubleshooting will be emphasized.

Noon – 1:00 p.m.

LUNCH

1:00 –5:00 p.m.

Wastewater Lab – Instructor, Dale Baker – Garrett County

Lecture, demonstration and hands-on training on pH, temperature, DO using meters and Winkler method, chlorine using amperometric titration, and DPD-FS end spectrophotometer.

5:00 –6:00 p.m.

DINNER

FRIDAY

9:00 – 12:00 a.m.

State Certification Examination

Advanced Wastewater

Coordinators – Bill Graves and Noelle Anuskiewicz

MONDAY

8:00- 9:00 a.m.

Overview – Instructors, Bill Graves - Harford County, and Noelle Anuskiewicz – Anne Arundel County

An overview of the Advanced Wastewater program will be presented and course objectives discussed. Course logistics and TRE requirements will be discussed.

9:00 – Noon

Ten Best Kept Wastewater Process Management Secrets – Instructor, Mike Harrington, C. M. Harrington Co. and USA Blue Book.

This program explores ten unique, little known tools which can be used to achieve better process operations. Learn what these tools can tell you about the effectiveness of treatment and how they can be used to evaluate process control strategies

Noon - 1:00 p.m.

LUNCH

1:00 - 5:00 p.m.

Wastewater Plant Start-Up – Instructor, Bill Farrell – Pro Start
This course will discuss what operators need to know to start-up/re-start wastewater treatment plants. Monitoring equipment, supplemental chemicals, plant seeding, loading calculations, and process control options will be discussed. Case studies will be provided.

5:00 - 6:00 p.m.

DINNER

TUESDAY

8:00 – Noon

Introduction to Membrane Technology for Water and Wastewater Applications.

This course will introduce students to the application and function of membranes in water and wastewater processes and will discuss process control strategies as well as operation and maintenance.

Noon - 1:00 p.m.

LUNCH

1:00 - 5:00 p.m.

Wastewater Laboratory for Operators – Instructor, Jim Stevenson, Harford County.

This course will cover tests performed in the laboratory and the relationship of the results to plant operation and facility permit. Quality control practices will be presented with emphasis on proper execution. Sample handling, including sampling procedures, holding times, preservation and transport of samples will also be discussed.

5:00 - 6:00 p.m.

DINNER

WEDNESDAY

8:00 – Noon

An In-Depth Look at ENR – Instructor, Marty Johnson - Anne Arundel County

This 2-day course is designed to give the operator highly-detailed training on the biology and chemistry behind Enhanced Nutrient Removal. Operation and control of various treatment plant processes will be discussed. Training will also include diagnosing the plant performance and optimization through monitoring, testing, equipment changes, and chemical addition. Interpretation of data and operational problems/remedies will be presented.

Noon - 1:00 p.m.

LUNCH

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

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

THURSDAY

8:00 – Noon **An In-Depth Look at ENR (continued)** – Instructor, Marty Johnson - Anne Arundel County

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

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

4:00 - 5:00 p.m. **Course Review**

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

FRIDAY

8:00 – 11:30 a.m. **Final Short Course Examination**

Treatment Facility Maintenance

Coordinators – J.C. Langley and Conrad Shows

MONDAY

8:00 - 8:30 a.m. **Course Overview** – Instructor, J.C. Langley – WSSC, Conrad Shows – DCWASA (retired)

An overview of the maintenance programs in the workplace is presented and course objectives and TRE requirements will be discussed.

8:30 - Noon **Electrical Prints and Diagrams**– Instructor, Larry Cecil – WSSC

This course will introduce and explain the electrical symbols and legends used in electrical prints and drawings. Students will develop the skills necessary to read, draw, and understand electrical floor plans, lighting layouts, schematics, wiring diagrams, ladder diagrams, and single line diagrams.

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

1:00 – 5:00 p.m. **Instrumentation Maintenance Practices** – Instructor, Gary Anderson – Sherwood Logan and Associates, Inc

This course is offered as a basic overview of the concepts and techniques for four of the most often encountered measurements found in water treatment plants; temperature, pressure, level, and flow. The class will learn the theory behind each measurement and become familiar with the diversity of instrumentation available.

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

TUESDAY

8:00 - Noon **Pump Maintenance** – Instructor, Steve Justice - Geiger Pumps

An overview of mechanical maintenance on motors and pumps in the workplace is provided. Packing pumps, motor replacements and other topics will be discussed thoroughly.

OR

8:00 - Noon **Chemical Feed Pumps** – Brian Cummings – WSSC

The class will focus on the most common types of chemical metering pumps and feed systems equipment and will include: installation, calibration, maintenance, and troubleshooting of Chemical Metering Pumps and Feed Systems.

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

1:00 - 3:00 p.m. **Confined Space Entry/Rescue Retrieval** – Instructor, Michael Lewis - WSSC

Instruction will be given on OSHA regulations and equipment needed for entering confined spaces along with procedures for safe entry and rescue from confined spaces.

3:30 – 5:00 p.m. **Asbestos Awareness** – Instructor, Michael Lewis - WSSC

This course will discuss the hazards of asbestos in the workplace. Health effects, exposure limits, safety guidelines as well as asbestos inspection and abatement guidelines will be discussed.

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

WEDNESDAY

8:00 - Noon **Utility Damage Prevention** – Wayne Gilmer – Utiliquist

This class will explain the current partnership that has been enjoyed by all the stake holders in the utility excavation areas. There are safe digging practices, OSHA concerns, Insurance provider issues, photos depicting

some damages, and how excavation contractors can minimize their exposure, and keep there workers from harm, and protect the citizens, and businesses that serve our State.

Noon - 1:00 p.m.

LUNCH

1:00 – 5:00 p.m.

Electrical Maintenance – Instructor, Larry Cecil – WSSC

This course will cover electrical maintenance, understanding electrical terms, using electrical measuring instruments, and troubleshooting electrical circuits. Students will also receive hands-on training in wiring a single pole and three-way switch. Course will also provide an overview of industrial electrical hazards including Arc Flash and Lock Out Tag Out.

5:00 - 6:00 p.m.

DINNER

THURSDAY

8:00 - Noon

Electrical Maintenance (continued) – Instructor, Larry Cecil – WSSC

Noon - 1:00 p.m.

LUNCH

1:00 – 5:00 p.m.

Trades Maintenance – Instructors, James Daniel, Walter VanAlstine, Barry Arter - WSSC

This course will review the maintenance role of a multi-skilled Trades shop within the water and wastewater industry. Typical machining, welding, and carpentry projects will be reviewed along with demonstrations of advanced trades capabilities and equipment.

5:00 - 6:00 p.m.

DINNER

FRIDAY

8:00 – 11:30 a.m.

Final Short Course Examination

Superintendents

Coordinator – Winfield McKell

MONDAY

Maryland Board of Waterworks and Waste Systems Operators Superintendent Certification Course:

This year one of the Boards Superintendents Certification Courses will be conducted at the WWO Short Course location on Monday, June 7, 2010 at Washington College. This course satisfies the requirement of the Superintendent Certification process, and is available by invitation only by the Board, for Superintendent holding a Superintendent's certification for a minimum of one year. Information about being invited to the course by the Board may be obtained from Pat Kratochvil (pkratochvil@mde.state.md.us) at 410 537-3167. Once invited to attend the course you must register for the course through MCET:

(<http://www.mcet.org/Technical/Training/environment/et%20schedule2010.html>) at 301 934-7519 or 301 934-7500. There is a cost of \$109 for the course payable to MCET. Lunch at the Short Course is included with the course.

Participants of the Superintendent Certification Course are encouraged to participate in other Short Course activities throughout the week, such as TRE approved training classes, over night accommodations and other meals. All other activities must be registered for through the Short Course and all applicable fees must be pay to the Short Course. Information about Short Course activities and payment may be obtained at: (http://www.wwoa-cwea.org/short_course/short_course.html) or Questions Don Sprinkle at 410 313-4970.

TUESDAY

8:00 – Noon **Preparing for and responding to a terrorism incident from a Public Works perspective** – Instructor, Pete Steps - Anne Arundel County DPW
MD Board TRE # 4728-10-02

This course answers these questions and others. Topics discussed in this session will pertain to weapons of mass destruction, how to perform a vulnerability assessment of your facility and more.

What is terrorism? What is a PTE? What is a CBRNE incident?

Noon – 1:00 p.m. **LUNCH**

1:00 – 5:00 p.m. **Managing Automation for Water and Wastewater**
Instructor: Jake Brodsky (Process control Specialist WSSC)
MDE Board TRE # 4729-10-02

As plants and distribution systems get more complex, and labor costs continue to rise, the clear solution is more automation. However, there are

assumed risks that often escape notice, and assumed rewards that frequently are not used to their fullest advantage. This seminar will outline the goals of automation, how to manage automation in design phase, how to manage the automation you already have, and identifying areas for future industrial automation.

Introduction: Videos from CSB: 70 min

Texas City Oil Refinery Fire

Methanol Explosion at Waste-Water Treatment plant

1. Elements of a control loop: 15 min

- a. Process variable
- b. Set point
- c. Control
- d. Feedback

2. Elements of an alarm: 15 min

- a. Normal range
- b. Hi, Hi Hi, and over range
- c. Lo, Lo Lo and under range
- d. Rate of Change

3. Elements of a Control System: 20 min

- a. Analog, Continuous
- b. Digital, periodic report
- c. Digital, Report by exception
- d. Dead banding

4. Operator Training: 15 minutes

- a. What good is a cruise control if you don't know what it does?
- b. How do you know a cruise control is broken?
- c. What alarms are appropriate for a cruise control?

5. Self Induced problems: 15 minutes

- a. Information overload
 - i. Poor presentation
 - ii. Too many alarms
 - iii. Too many tasks at once
- b. Lack of self integrity monitoring
 - i. How long will it take to figure out that something is broken?
 - ii. How well does that cruise control hold your speed?
- c. Forgetting how stuff works
 - i. How quickly can we diagnose what is broken?
 - ii. How quickly can it be fixed?
 - iii. How can you be certain it was fixed?

6. Design problems: 15 min

- a. Big Project Disease
 - i. Avoiding unnecessary complexity

- ii. Strategies for incremental upgrades
- b. Technology transfer problems
 - i. Assumed knowledge
 - ii. Late, Over-budget: documentation often suffers
- c. Dream Weaving
 - i. Beware of glossy magazine articles
 - ii. Where is the ROI?

7. Reporting: 20 min

- a. Interfacing with IT
 - i. Hazards to avoid (security and performance)
 - ii. Dealing with Data Hounds (Explaining what the data is from)
- b. Data Archival
- c. Rolled up Data and why it is better

8. Finding areas for improvement: 10 min

- a. How to look within your system to find justification for what needs to be done
- b. Dealing with new regulations

9. The Engineering Side of things: 15 min

- a. Retaining an engineering firm to work more closely with you
- b. Larger firms: Staffing issues
- c. Engineers often assume smart people are working on the system at all times of day and night...

10. Safety and Security: 15 min

- a. Safety Integrity Levels
- b. Security Assurance Layers

11. Summary 10 minutes

5:00 – 6:00 p.m.

DINNER

WEDNESDAY

8:00 – 5:00 p.m.

Optimizing the ENR Process – Instructor, Bob Wimmer
MDE Board TRE # 4730-10-02

This course will provide Superintendents and Chief Operators with the knowledge and experience to optimize ENR processes. The course will focus on changes to operating conditions, including SRT, RAS rate, nitrate recycle rate, chemical feed dosage and others, along with interpreting and reacting (or not reacting) to real time process monitoring data and long term operating trends. The course will use actual plant data sets and output from on-line monitoring systems to provide examples to the class.

1. Introduction and definition of Terms (20 minutes)

- a. Equate different terminology for equivalent processes
 - b. Typical design parameters
 - c. Sample Process Layouts
- 2. Define typical design parameters (30 minutes)**
 - a. SRT and impacts of changes
 - b. Nitrate Recycle Rate and impacts of changes
 - c. MLSS values and impacts of changes
 - d. Chemical Feed stoichiometry and impacts of changes
 - e. Filter Feed rates and impacts of changes
 - f. RAS rates and impacts of changes
 - 3. Reacting to NO_x-N data (2 x 50 minute section)**
 - a. Why values would changes
 - b. Typical NO_x-N profiles
 - c. Adapting nitrate recycle rates
 - d. Adapting chemical feed rates
 - e. Adapting SRT
 - 4. Reacting to P data (2 x 50 minutes sections)**
 - a. Why values would changes
 - b. Typical P profiles
 - c. Adapting nitrate recycle rates
 - d. Adapting chemical feed rates
 - e. Adapting SRT
 - f. Adapting fermentation
 - 5. Impacts of solid processing on process (2 x 50 minutes sections)**
 - a. Monitoring solids recycles
 - b. Adjusting solids processing to optimize process
 - 6. Open Discussion (50 minutes)**

5:00 – 6:00 p.m.

DINNER

THURSDAY

8:00 – 5:00 p.m.

Management's Role in Safety – Instructor, Michael Lewis - WSSC
MD Board TRE # 4731-10-02

Module 1: Behavior-Based Safety Training for Supervisors (3 hours)

- Define behavior-based safety and how it can be implemented
- Discuss training and retraining
- Discuss managements role in the program
- Discuss the direct supervisors role and responsibilities in the program
- Discuss the employees role in the program
- Discuss the elements of a worksite analysis
- Discuss behavior principals, behavior analysis and behavior observation

- Discuss behavior reinforcement, motivational techniques and the importance of attitude
- Discuss how to investigate an accident and proper accident reporting procedures
- Discuss the human element and its effect on behavior-based safety
- Discuss accident causation and analyze several real life cases

Module 2: Case Study -- Valero's McKee Refinery Propane Fire/Explosion (30 minutes)

Module 3: Substance Abuse in the Workplace, Supervisor Training for Alcohol and Drug Awareness (2 hours)

Module 4: How to Investigate an Accident (30 minutes)

Module 5: Supervisor's Guide to Accident Prevention (30 minutes)

Module 6: Case Study -- Formosa Chemical Company Case Study (1 hour)

- Vinyl Chloride Monomer Explosion, Illiopolis, Illinois
- Propylene Fire/Explosion, Port Comfort TX

Module 7: Case Study -- BP Petroleum Plant Fire/Explosion, Texas City, Texas (30 minutes)

5:00 – 6:00 p.m.

DINNER

2010 Water & Wastewater Operators Short Course Committee Members

Chairperson

Marshall Phillips (WWOA), Baltimore City

Chairperson-Elect

James (J.C.) Langley (CSAWWA) WSSC

Treasurer

William H. Farrell (CWEA/WWOA, CSAWWA), MEI/RTS/Prostart

Secretary/Assistant Treasurer

Donald Sprinkle (WWOA, CSAWWA), Howard County Bureau of Utilities

Water Committee

Scott Harmon (CSAWWA, CWEA), Anne Arundel County DPW

Jay Price (CSAWWA), WSSC

Larry Richardson (CSAWWA), Anne Arundel County DPW

Wastewater Committee

Noelle Anuskiewicz (CWEA) Anne Arundel County

Bill Graves (WWOA) Harford County

James Hynes (WWOA), Harford County

James Timmons (WWOA), Baltimore City

Water Distribution & Collection Systems Committee

Joe Crandall (CSAWWA), Anne Arundel County DPW

Tom Newquist (WWOA), City of Annapolis

Wayne Reed (CWEA), DC WASA

Industrial Waste Committee

Ed Williams (CWEA), Harford County

Treatment Facility Maintenance

Conrad Shows (WWOA), DC WASA (Retired)

Superintendents

Winfield McKell (WWOA), WSSC

Administrative Coordinators

Erskine Hopkins (WWOA), DC WASA (Retired)

Dennis Mounsey (WWOA) WSSC (Retired)

Rob Swann (AWWA), Anne Arundel County DPW

David Wilkins (CSAWWA), WSSC

Short Course Instructors

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