

Drinking Water Operator Certification and Training Information Guide

(Visit us on the Web)

www.michigan.gov/deqoperatortraining

2005 Edition

Presented By:
Environmental Science and Services Division
and the
Water Bureau
Michigan Department of Environmental Quality
in conjunction with the
Michigan Section, American Water Works Association

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The Michigan Department of Environmental Quality (MDEQ) will not discriminate against any individual or group on the basis of race, sex, religion, age, national origin, color, marital status, disability, or political beliefs. Questions or concerns should be directed to the Office of Personnel Services, P.O. Box 30473, Lansing, MI 48909

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DEQ Michigan Department of Environmental Quality



How to Use this Booklet

This booklet contains course and registration information for many of the drinking water operator training programs annually offered by the Michigan Department of Environmental Quality (MDEQ) or the Michigan Section, American Water Works Association (AWWA). *We annually mail a copy of this booklet to all certified drinking water operators and community public water supplies.* You should keep **and use** your booklet.

What courses are being offered?

To find out what training programs are scheduled, consult the **Course Calendar** (pgs. 4-5). We have provided the calendar in chronological order. If the course you are looking for is not listed, either we do not offer the course or it is not scheduled to be offered in the near future. Some courses may be scheduled after the printing of this booklet. If you believe a course you know of is one we will be offering, you can find out about it by filling out and returning the **Course Request** form (pg. 23). The most current training calendar can also be found on our website at:

<http://www.michigan.gov/deqoperatortraining>

Continuing Education Credit

Upon successful completion of training courses, students may be awarded Continuing Education Credits (CEC's). For seminars and the like, full attendance is required for any course credit. For other courses, full credit requires attendance and passing a course-ending quiz. The course descriptions on the following pages discuss how many CEC's may be awarded for each course.

Courses are offered at various locations, including hotels and conference centers. Short courses are typically offered at Higgins Lake and/or Gull Lake. These two conference centers provide classrooms, overnight (double occupancy) and meal accommodations, and an excellent opportunity for learning. "Higgins Lake" is the Ralph A. MacMullan Conference Center located on the north shore of Higgins Lake, south of Grayling. "Gull Lake" is the W.K. Kellogg Biological Station Conference Center located on Gull Lake, about 15 minutes northeast of Kalamazoo.

If you need an explanation of certification renewal status, please see **Certification Renewal Status** (pg. 25). If you have any questions about continuing education credit, successful course completion, repeat credit, credit for course instructors, in-service training, college courses or any other credit, please see **Continuing Education Credit** (pgs. 26-27).

How to register for training

Once you have found a course you would like to register for, turn to the **Registration Form** (pg. 6). You will need a separate form for each course you plan to attend (photocopy the registration form as necessary). Copies of this form can be shared with others in your organization who are not on our mailing list.

Determine the appropriate course information (date, location, registration fee, etc.) from the Course Calendar. Complete the registration form (or forms if you are registering for more than one course), and mail it with your check or money order to reach us by the registration deadline. **Registration forms will be processed on a first-come, first-served basis; but payment with the form is necessary to give your registration priority.** Please note that some courses are very popular, and they might be full even if we have received your registration form and payment prior to the registration deadline. **It is never too early to register for a course!** Should a course you are registering for be full or canceled, you will be notified. Your registration fee may then be returned in full or you may register for another course.

Other registration forms

Some courses offered require a different registration form than the one in this booklet. Enrollment materials for these courses will be mailed out as discussed on pages 19-22. If you are not on the mailing list to receive these materials, you may request additional information using the Request Form (pg. 23).

Comments are welcome!

We hope you will find this booklet and this way to register for training courses useful, convenient, and easy. For more information on Operator Training and Certification, forms available for registrations, exam applications, and course approval applications, please visit our web site. Starting spring 2005, check your CEC's on our website.

Exam Applications

Exam applications have been revised for all three exam categories. To download the latest version of exam applications and study guides at:

<http://www.michigan.gov/deqoperatortraining>

Note: If you would like to receive certification exam applications, use the **Request Form** (page 23).

Free Training Opportunities Available for Small Systems

If you are a certified drinking water operator employed by a public water supply that serves 3,300 people or less, you may be eligible to attend approved ERG drinking water training sessions, free of charge provided you have not already met your renewal requirement.

Approved ERG Training Providers:

Michigan Rural Water Association
Phone: (989)539-4111
Website: www.mrwa.net

Ronald J. Holben
Phone: (517) 663-6530
Email: holbenr@acd.net

2005 Certification and Training Calendar (Chronological Order)

Drinking Water Operator Training Courses and Activities
Environmental Science and Services Division and Water Bureau
Michigan Department of Environmental Quality
and the Michigan Section, AWWA

<u>Activity Name</u>	<u>Info on Page</u>	<u>Registration Fee</u>	<u>Registration Deadline</u>
Applied Hydraulics January 2005 Several statewide locations	19	Varies with location	12/22/04
Basic Electricity Short Courses January 11-13 Gull Lake	7	\$395.00	2 weeks prior to course
Joint Expo 2005 February 8-9 Lansing Center, Lansing	14	No Charge	Not Required
Operators' Day 2005 February 8-9 Lansing Center, Lansing	14	\$50.00/per day	January 18
Level 5 Certification Examination February 3		N/A	Postmarked by January 11
Borchardt Conference One day conference February 23-25 Ann Arbor Full conference	20	\$125.00 \$250.00	February 14
Cross Connection Seminar – Basic March 3 Holiday Inn West, Lansing	9	\$45.00	2 weeks prior to course
MSU Short Course in Water Chemistry March 7-9 Michigan State University	13	\$225.00	4 weeks prior to course
Satellite Conference March 10 Several Locations	19	\$60.00	February 18
Basic Math & Hydraulics Short Course March 15-17 Gull Lake	8	\$250.00	4 weeks prior to course
Water Treatment Short Course I March 15-17 Gull Lake	17	\$250.00	4 weeks prior to course
Limited Treatment Short Course March 21-23 Higgins Lake	11	\$250.00	4 weeks prior to course
Water Treatment Short Course II March 21-23 Higgins Lake	17	\$250.00	4 weeks prior to course
Distribution System Committee Seminar March 29 Holiday Inn West, Lansing		\$50.00	2 weeks prior to meeting
Regional Meeting – Spring April 13 Kalamazoo, Fetzer Center April 14 Lansing, Holiday Inn West April 20 Gaylord, Treetops Resort April 21 Troy, Hilton	22	\$50.00	2 weeks prior to meeting
Drinking Water Advisory Board Meeting April 26 Lansing		N/A	N/A
U.P. Water Works Institute May 3-4 Terrace Bay, Escanaba	22	T.B.A.	T.B.A.
Drinking Water Certification Exams May 5 Allen Park, Ann Arbor, Kalamazoo, Grayling Area, Lansing, Escanaba, Oakland County, Port Huron, Saginaw, Wyoming area (Holland)		N/A	Postmarked by March 17
MSU Short Course in Water Bacteriology May 10-13 Michigan State University	12	\$225.00	4 weeks prior to course
RTP Seminar May 17 Lansing		\$90.00	2 weeks prior to course
Wastewater Certification Exams May 26 Municipal		N/A	March 28 (new applicants) April 11

T.B.A.-To Be Announced N/A – Not Applicable

2005 Certification and Training Calendar (Chronological Order)

Drinking Water Operator Training Courses and Activities Environmental Science and Services Division and Water Bureau Michigan Department of Environmental Quality and the Michigan Section, AWWA

<u>Activity Name</u>	<u>Info on Page</u>	<u>Registration Fee</u>	<u>Registration Deadline</u>
Level 5 Certification Exam August 4		N/A	Postmarked by July 12
Plankton Course Short Course August 22-26 Beaver Island	15	\$375.00	July 11
Basic Electricity Short Course August 23-25 Gull Lake	7	\$395.00	2 weeks prior to course
Basic Math & Hydraulics Short Course August 23-25 Gull Lake	8	\$250.00	4 weeks prior to course
Fall Distribution Operation & Maintenance September 2005 Several statewide locations	20	Varies with location	August 5
Cross Connection Seminar – Advanced September 8 Holiday Inn West, Lansing	9	\$45.00	2 weeks prior to course
MI Section, AWWA Pre Conference September 13 Boyne Highlands Resort	21	T.B.A.	T.B.A.
MI Section, AWWA Annual Conference September 13-16 Boyne Highlands Resort	21	T.B.A.	T.B.A.
Distribution System Short Course September 26-28 Higgins Lake	10	\$250.00	4 weeks prior to course
Basic Math & Hydraulics Short Course September 26-28 Higgins Lake	8	\$250.00	4 weeks prior to course
Water Security Seminar September 29 Lansing		\$50.00	2 weeks prior to course
Regional Meetings-Fall October 4 Troy, Hilton October 5 Kalamazoo, Fetzer Center October 19 Gaylord, Treetops Resort October 20 Lansing, Holiday Inn West	22	\$50.00	2 weeks prior to meeting
Distribution System Short Course October 11-13 Gull Lake	10	\$250.00	4 weeks prior to course
Limited Treatment Short Course October 11-13 Gull Lake	11	\$250.00	4 weeks prior to course
Drinking Water Advisory Board Meeting October 18 Lansing		N/A	N/A
U.P. Distribution Seminar October 25-26 Marquette, Ramada Inn	22	T.B.A.	T.B.A.
RTP Distribution Seminar October 27 Lansing		\$60.00	2 weeks prior to course
Wastewater Certification Exams November 3 Industrial		N/A	October 4
Drinking Water Certification Exams November 2 Allen Park, Ann Arbor Marquette, Kalamazoo, Grayling Area, Lansing, Oakland County, Port Huron, Saginaw, Wyoming area (Holland)	<u>EXAMS OFFERED</u> S-1, S-2, S-3, S-4, F-3, F-4, D-3, D-4	N/A	Postmarked by September 14
Satellite Conference November 3 Several Locations	19	\$60.00	October 17
Applied Mathematics January 2006 Several statewide locations	19	Varies with location	T.B.A.
Basic Chemistry January 2007 Several statewide locations	19	Varies with Location	T.B.A.

Reminder: Please **do not** use the **Registration Form** for the Michigan Section Annual Conference; the U.P. Meetings (Institute & Distribution Seminar); the Fall Distribution O & M Course; or the Applied Courses (Applied Mathematics, Basic Chemistry, Applied Hydraulics).

Registration Form

Drinking Water Operator Training Courses & Activities
Environmental Science & Services Division
and Water Bureau
Michigan Department of Environmental Quality
and the
Michigan Section, AWWA

Return this registration form and your check made payable to:
Michigan Section, AWWA, P.O. Box 16337, Lansing, MI 48901-6337

Please fill out one registration form per person per activity. If more than one registration form is needed, this form can be photocopied. Registration forms and payment are requested prior to the registration deadline. If the activity is full, you will be notified and your registration fee may then be returned in full or you may register for another course.

Cancellation Policy If you cannot attend the seminar for which you are registered, please send a substitute. Fax information about a substitute to (517) 241-0325. If no one from your organization can attend, you will be entitled to a refund according to the following schedule.

If cancelled:

14 days or more before the seminar date	75% Refund
13 days before and through the date of the seminar/no show	No Refund

Please do not use this registration form for Drinking Water or Wastewater Exams
Please type or print legibly

Name: _____ Operator ID # _____
Last First

Organization: _____ WSSN: _____

Mailing Address: _____

Telephone () _____ FAX () _____

Name of activity you wish to attend: _____

Location of activity: _____

Date you would like to attend this activity: _____

Registration fee enclosed: _____

The course date, location, registration fee, and registration deadline are listed on the Course Calendar page of this booklet. Registration fees are per person unless otherwise noted. Confirmations with a map to the facility or suitable directions will be sent or made available to those registering by the deadline. When provided, name tags and registration materials, meal tickets, etc. may be picked up at the registration desk the day of the meeting.

For office use only:

Amount Paid: _____ Date Paid: _____ Payment Reference: _____

Basic Electricity Short Course

Sponsored by:

Michigan Section, AWWA

In conjunction with

Michigan Department of Environmental Quality

Course Information

This course is designed to enhance fundamental knowledge of basic electricity, electrical components, electrical and instrumentation measurement, Ohm's Law, and electrical and instrumentation troubleshooting.

Class size will be limited to approximately 30 individuals to ensure that all questions, discussions, and hands-on training are adequately provided for. Each student should bring an appropriate test meter to measure volts, amps, and ohms.

Continuing Education Credits

Students satisfactorily completing this course may be awarded 2.5 continuing education credits of MDEQ advisory board-approved continuing education credit. Students meeting the course attendance requirement, but failing or not taking the course-ending quiz may be awarded 2.0 continuing education credits. Certified municipal wastewater operators may be awarded 2.0 continuing education credits in the "Technical" category.

Course Topics

- Methods of producing electricity
- Describing basic electrical theory
- Understanding AC and DC principles
- Describing and using electrical test meters
- Identifying components, symbols, and schematics

Class Hours

Day One: 8:30 am - 5:30 pm

Registration
Course Introduction
Symbols and Schematics
Basic Electrical Theory

Day Two: 8:30 am - 5:30 pm

Electrical Components
Electrical Motors
Electrical Control Panels
Using Electrical Meters

Day Three: 8:30 am - 12:30 pm

Electrical Safety
Electrical Lockout
Troubleshooting
Common Failures

Registration

The registration fee for this course includes all meals from lunch on the day of arrival through lunch on the day of departure, mid-morning and afternoon coffee service, two nights lodging in a double room (roommates will be assigned), reference materials, workbooks, and the like.

Basic Math and Hydraulics

Short Course

Sponsored by:

Michigan Department of Environmental Quality

In conjunction with

Michigan Section, AWWA

Course Information

This course is being offered to allow water utility personnel an opportunity to acquire basic information in the subjects of math and hydraulics.

Continuing Education Credits

Students satisfactorily completing this course may be awarded up to 2.5 continuing education credits of MDEQ advisory board-approved continuing education credit. Students meeting the attendance requirement but failing or not taking the course-ending quiz may be awarded 2.0 continuing education credits. Certified municipal wastewater operators may be awarded 2.0 continuing education credits in the "Other" category.

Course Topics

Course topics will include the following:

- Use of a calculator
- Operational math
- Calculation of areas and volumes
- Velocity and rates
- Basic hydraulics
- Weight, density, specific gravity
- Pressure calculations
- Friction and head loss
- Hydraulic gradient or slope
- Continuity equation
- Chlorination calculations

Class Hours

Day One: 9:30 am - 5:30 pm

Day Two: 8:00 am - 5:30 pm

Day Three: 8:00 am - 12:00 noon

Registration

The registration fee for this course includes all meals from lunch on the day of arrival through lunch on the day of departure, mid-morning and afternoon coffee service, two nights lodging in a double room (roommates will be assigned), reference materials, workbooks, and the like. One and one-half hour evening sessions for catch-up, discussion, and a question/answer period are planned. These sessions are optional.

Cross Connection Control Seminars

Sponsored by:

Michigan Department of Environmental Quality
Michigan Section, AWWA

Seminar Information

The purpose of these seminars is to teach principles of cross connection control as they relate to public water supply systems. The need for continued training in the field of cross connection control in Michigan is readily apparent given that major incidents of backflow have occurred in water utilities in recent years.

Since the passage of the cross connection control rules in April 1972, much effort has been spent by many water utilities to maintain effective cross connection control programs. However, cross connections on public water supply distribution systems continue to pose a distinct threat to the potability of the water supply. All water utilities must continue to strive toward eliminating and preventing cross connections within the public water supply system. The goal of the seminar is to assist water utilities in this endeavor. Certified drinking water operators can receive 0.5 CEC's for each class.

Seminar Contents – Basic

This one-day seminar begins at 8:30 AM with registration, coffee and rolls. The topics for the day will include each of the following and adjourn at 3:30 p.m.

- Introduction
- MDEQ rules
- Instructional video
- Discussion: Cross connections, what are they? Where to look? How to eliminate them?
- Case histories
- Lunch, followed by vendor displays
- Continued discussion of cross connections
- Second instructional video
- Question and answer session

Seminar Contents – Advanced

This one-day seminar begins at 8:30 AM with registration, coffee and rolls. The topics for the day will include each of the following and adjourn at 3:30 p.m.

- Introduction
- MDEQ Rules Refresher
- Michigan Plumbing Code 2003
- Guest Speakers (talking on a variety of cross connection issues)
- Lunch
- Vendor Displays (devices, information, etc.)
- Slide Shows
- More Guest Speakers
- Question and answer session

Distribution System

Short Course

Sponsored by:

Michigan Department of Environmental Quality

In conjunction with

Michigan Section, AWWA

Course Information

This course is being offered to allow water utility personnel an opportunity to acquire basic information in subjects important to distribution systems.

Continuing Education Credits

Students satisfactorily completing this course may be awarded 2.5 continuing education credits of MDEQ advisory board-approved continuing education credit. Students meeting the attendance requirement, but failing or not taking the course-ending quiz may be awarded 2.0 continuing education credits.

Course Topics

Course topics will include the following:

- Water mains
- Bacti sampling and analysis
- Pipeline appurtenances
- Safety
- Distribution system rules
- Tapping, service lines and meters
- Cross connections
- System operation
- Maintenance and special problems
- Winter maintenance
- Pumps, motors and well houses
- Chlorination

Class Hours

Day One: 9:30 am - 5:30 pm

Day Two: 8:00 am - 5:30 pm

Day Three: 8:00 am - 12:00 noon

Registration

The registration fee for this course includes all meals from lunch on the day of arrival through lunch on the day of departure, mid-morning and afternoon coffee service, two nights lodging in a double room (roommates will be assigned), reference materials, workbooks, and the like. One and one-half hour evening sessions for catch-up, discussion, and a question/answer period are planned. These sessions are optional.

Limited Treatment Short Course

Sponsored by:
Michigan Department of Environmental Quality
In conjunction with
Michigan Section, AWWA

Course Information

This course is being offered to allow water utility personnel an opportunity to acquire basic information in the subjects important to limited treatment systems.

Continuing Education Credits

Students satisfactorily completing this course may be awarded 2.5 continuing education credits of MDEQ advisory board-approved continuing education credit. Students meeting the attendance requirement, but failing or not taking the course-ending quiz may be awarded 2.0 continuing education credits.

Course Topics

Course topics will include the following.

- Basic math (review)
- Rules
- Safety
- Phosphate/corrosion control
- Iron removal
- Ion exchange softening
- Operation
- Miscellaneous treatment
- Wells
- Hydraulics and pumps

Class Hours

Day One: 9:30 am - 5:30 pm
Day Two: 8:00 am - 5:30 pm
Day Three: 8:00 am - 12:00 noon

Registration

The registration fee for this course includes all meals from lunch on the day of arrival through lunch on the day of departure, mid-morning and afternoon coffee service, two nights lodging in a double room (roommates will be assigned), reference materials, workbooks, and the like. One and one-half hour evening sessions for catch-up, discussion, and a question/answer period are planned. These sessions are optional.

Michigan State University Short Course Water Bacteriology

Sponsored by:
Michigan Section, AWWA
In conjunction with

Michigan Department of Environmental Quality

Course Information

Operators who have duties associated with complete water treatment plants and/or water laboratories are urged to attend this course. The course is designed to give background information regarding each procedure and to give practical experience with the demonstrated techniques. The course will be valuable to employees new in the field and will serve as a refresher to those who have been doing work for some time.

Continuing Education Credit

Students satisfactorily completing this course may be awarded 3.5 continuing education credits of MDEQ advisory board-approved continuing education credit. Students meeting the attendance requirement, but failing or not taking the course-ending quiz may be awarded 2.8 continuing education credits.

Housing

Several hotels serve the MSU Campus area. Listed below are telephone numbers for a few of these. Please call the hotels directly to inquire about room rates.

- Marriott Hotel 300 M.A.C. Avenue 517-337-4440
- Quality Inn 3121 E. Grand River 517-351-1440
- Residence Inn 1600 E. Grand River 517-332-7711

Course Schedule

Day One: Introduction & Basic Bacteriology, Standard Methods Procedures: Presumptive Test, The Coliform Group, “Philosophy” of Using the Coliform Test, Heterotrophic Plate Counts, Streptococcus Index, Standard Methods Procedures: Confirmed and Completed Tests.

Day Two: Membrane Filter Method, Stressed Organisms, Application of Standard Methods, P-A Test, ONPG-MUG; MMO-MUG, Development of Media.

Day Three: Fecal Coliform Test, Fecal Streptococcus Test, Fecal Streptococcus (Enterococcus) Test, E. Coli, Quality Control Principles and Procedures.

Day Four: Media Preparation, Sterilization Methods, Sampling Procedures, Chlorination, MPN Calculations, Reporting Results.

Sessions run daily from 8:30 am to 4:00 pm. Each lecture session has an accompanying lab session.

Michigan State University Short Course Water Chemistry

Sponsored by:
Michigan Section, AWWA
In conjunction with
Michigan Department of Environmental Quality

Course Information

Operators who have duties associated with limited or complete water treatment plants and/or water laboratories are urged to attend this course. This course is designed to give background information regarding each procedure and to give practical experience with the demonstrated techniques. The course will be valuable to employees new in the field and will serve as a refresher to those who have been doing the work for some time.

Continuing Education Credits

Students satisfactorily completing this course may be awarded 3.0 continuing education credits of MDEQ advisory board-approved continuing education credit. Students meeting the attendance requirement, but failing or not taking the course-ending quiz may be awarded 2.4 continuing education credits.

Housing

Several hotels serve the MSU Campus area. Listed below are telephone numbers for a few of these. Please call hotels directly to inquire about room rates.

- Marriott Hotel 300 M.A.C. Avenue 517-337-4440
- Quality Inn 3121 E. Grand River 517-351-1440
- Residence Inn 1600 E. Grand River 517-332-7711

Course Schedule

Day One: General Terminology, Laboratory Safety, Solutions/Dilutions, Spectrophotometry and Chlorine.

Day Two: pH, Fluoride, Turbidimetry, and Alkalinity.

Day Three: Hardness, Sampling, and QA/QC.

Sessions run daily from 8:00 am to 5:00 pm. Each lecture session has an accompanying lab session.

Operators' Day and Joint Expo

Sponsored by:

Michigan Section, AWWA

Michigan Water Environment Association

In conjunction with

Michigan Department of Environmental Quality

Operators' Day

Each morning, a three-hour technical session featuring topics unique to the interests of water and wastewater works personnel will be conducted. Attendees may register for either or both days. Participation at Operators' Day allows communities to send employees to a training session as well as attend Joint Expo. Participants will be given a ticket for the exhibit area lunch buffet. Operators' Day programs end at noon so there will be ample time for attendees to view the exhibits. There is a registration fee for each day's training session to help defray the costs of lunch and the program. Individuals may enroll for either or both days.

The program agenda for **Operators' Day** changes annually and is mailed to members of the MS-AWWA and MWEA approximately 6 weeks prior to **Joint Expo**. If you are not a member of either of these associations and would like to receive agenda information about the next scheduled **Operators' Day** program, fill out and return the **Request Form** at the end of this booklet.

Joint Expo

Joint Expo is an exposition for utility personnel by equipment suppliers, manufacturers, and consulting engineers who want an effective method to exhibit their products and services to water and wastewater professionals. Joint Expo provides the opportunity to research problems experienced on a day-to-day basis with manufacturers and industry professionals and to explore solutions to those problems. There is no charge to attend Joint Expo.

Joint Expo is a day to collect product information, see and evaluate new equipment, collect business cards from new contacts, see old friends, learn, share, network, shop, compare, and evaluate where your facility or your business is compared to where you will need to be in the future. Joint Expo offers a buffet lunch (nominal charge), and complimentary soft beverages will be available in the exhibit area, and space for over 250 booths. Exhibitors with large equipment can be accommodated in multiple booths.

Continuing Education Credits

Certified waterworks operators may receive up to 0.2 CECs annually for attending Joint Expo and up to 0.3 CECs for attending each of the Operators' Day three-hour technical sessions. Certified municipal wastewater operators may be awarded the same amount of credit in the "Other" category.

Plankton Short Course At Beaver Island

Sponsored by:
Michigan Department of Environmental Quality
In conjunction with
Michigan Section, AWWA

Course Information

This course is being offered to allow water utility personnel the chance to acquire basic information about identifying plankton important to water treatment. The Plankton Course offers a unique training opportunity. Enrollment in the course is limited to 20 students.

Registration

The registration fee for the course is \$375 which includes all meals and lodging, travel costs, reference materials, workbooks, and the like. The main mode of transportation to the island (included in the registration fee) is the ferry boat (Beaver Island Boat Company at 231-547-2311 or www.bibco.com.)

Participants have the option of bringing their families with them to the island at additional cost. There are other facilities available for lodging also at an increased cost. In addition, Island airways also provides daily flights to Beaver island. You can contact them at (800) 524-6895 or www.islandairways.com. If you are interested in bringing your family or in a different mode of transportation to the island, please contact our office at 517-241-7199.

Continuing Education Credits

Students satisfactorily completing this course will receive 2.8 continuing education credits. Complete information, including a map to the ferry/airport in Charlevoix, arrival and departure times for the ferry/airplane and other information will be sent after registration form and fee have been received.

Class Hours

Mon, Aug 22	Day One	(AM):	Arrive at Charlevoix dock by 1:30 pm. Ferry departs for the island at 2:30 pm.
		(PM):	Orientation session—Historical speaker
Tues, Aug 23	Day Two	(AM):	Session will deal with methods of collection, analysis, the taxonomy of plankton. Audiotutorial portions will be introduced for use during the evening when the group is not in formal session
		(PM):	Diatoms (Evening): Tour of the island
Wed, Aug 24	Day Three	(AM):	Diatoms continued; Blue-green algae
		(PM):	Chrysophytes
Thurs, Aug 25	Day Four	(AM):	Green algae
		(PM):	Xanthophytes and wrap-up
Fri, Aug 26	Day Five	(AM):	Depart by 10:00 AM. Ferry leaves at 11:30 AM.

Water Treatment Short Course I

Sponsored by:

Michigan Department of Environmental Quality

In conjunction with

Michigan Section, AWWA

Course Information

This course is being offered to allow water utility personnel an opportunity to acquire basic information in subjects important in the operation of a water filtration plant. It is recommended that students taking this course have a good general understanding of mathematics and basic chemistry.

Continuing Education Credits

Students satisfactorily completing this course may be awarded 2.5 continuing education credits of MDEQ advisory board-approved continuing education credit. Students meeting the attendance requirement, but failing or not taking the course-ending quiz may be awarded 2.0 continuing education credits.

Course Topics

The topics of the course will be as follows:

- Basic math and hydraulics (review)
- System operation
- Chlorination
- Fluoridation
- pH, alkalinity, hardness
- Coagulation and flocculation
- Sedimentation and filtration
- Bacteriology
- Cross connections
- Safety
- Rules and regulations

Class Hours

Day One: 9:30 am - 5:30 pm

Day Two: 8:00 am - 5:30 pm

Day Three: 8:00 am - 12:00 noon

Registration

The registration fee for this course includes all meals from lunch on the day of arrival through lunch on the day of departure, mid-morning and afternoon coffee service, two nights lodging in a double room (roommates will be assigned), reference materials, workbooks, and the like. One and one-half hour evening sessions for catch-up, discussion, and a question/answer period are planned. These sessions are optional.

Water Treatment Short Course II

Sponsored by:

Michigan Department of Environmental Quality

In conjunction with

Michigan Section, AWWA

Course Information

This course is being offered to allow water utility personnel an opportunity to acquire advanced information in subjects important in the operation of a water filtration plant. It is recommended that students taking this course have a good general understanding of mathematics and chemistry, or have previously completed Water Treatment Short Course I.

Continuing Education Credits

Students satisfactorily completing this course may be awarded 2.5 continuing education credits of MDEQ advisory board-approved continuing education credits. Students meeting the attendance requirement, but failing or not taking the course-ending quiz may be awarded 2.0 continuing education credits.

Course Topics

The topics covered in this course are as follows:

- System operation
- Management
- Customer relations
- Alternative disinfectants
- Chemistry and coagulation
- Lime/soda ash softening
- Bacteriology and lab QA/QC
- Water stability

Class Hours

Day One: 9:30 am - 5:30 pm

Day Two: 8:00 am - 5:30 pm

Day Three: 8:00 am - 12:00 noon

Registration

The registration fee for this course includes all meals from lunch on the day of arrival through lunch on the day of departure, mid-morning and afternoon coffee service, two nights lodging in a double room (roommates will be assigned), reference materials, workbooks, and the like. One and one-half hour evening sessions for catch-up, discussion, and a question/answer period are planned. These sessions are optional.

Home Study Courses

Two home study courses are offered through MDEQ and the Michigan Section, AWWA. Upon reading the chapters, quizzes are completed and mailed in for grading. To receive continuing education credit for these courses, students must score an average of 70% or more on the chapter quizzes. Students meeting this requirement will receive the amount of CECs noted below.

Courses are available throughout the year. To register for a home study course, please use the **book order form** contained in this booklet on **page 24**.

1. **Basic Math Home Study** - This is a course for water and wastewater operators and others interested in refreshing their knowledge of basic math concepts. Course takes approximately 30-40 hours to complete. Topics include: solving for the unknown value; fractions, decimals, and percents; averages; ratios and proportions; conversions; linear, area, and volume measurements; scales and graphs; powers, roots, and scientific notation; rounding and estimating; dimensional analysis; and more. Course fee is \$115.00. Certified drinking water operators completing this course may receive 2.4 CECs.
2. **Applied Math Home Study** - This course discusses the same material presented in the Applied Mathematics lecture course. Course takes approximately 30-40 hours to complete. Course fee is \$65.00. Certified drinking water completing this course may receive 2.4 CECs.

DEQ no longer offers CSUS Home Study Courses through this office. You may enroll directly with CSUS and receive approved continuing education credit (CECs) towards certified operator renewal. You can contact CSUS via phone (916-278-6142), email (wateroffice@csus.edu) or the internet (<http://www.owp.csus.edu>).

The number of CECs awarded by DEQ is shown below:

Courses Approved for Drinking Water Credit

Small Water System O & M	2.4 CECs
Water Distribution System O & M	2.4 CECs
Water Treatment Plant Operation, Volume I	4.0 CECs
Water Treatment Plant Operation, Volume II	4.0 CECs

Courses Approved for Wastewater Credit

Operation of Wastewater Treatment Plants, Volume I	2.0 Tech. CECs/1.0 Managerial CECs
Operation of Wastewater Treatment Plants, Volume II	2.0 Tech. CECs/1.0 Managerial CECs
Advanced Waste Treatment	2.0 Tech. CECs/1.0 Managerial CECs
O & M of Wastewater Collection Systems, Volume I	3.0 Tech. CECs
O & M of Wastewater Collection Systems, Volume II	3.0 Tech. CECs
Utility Management	1.5 Managerial CECs

Please note that when you receive your Certificate of Completion from CSUS, the number of **CEUs** awarded by CSUS will be different from the number of **CECs** approved by DEQ. DEQ will only recognize the number of CECs, as noted above. **To receive credit, provide us with a copy of your CSUS Certificate of Completion when you apply to renew your drinking water/wastewater certification.**

Additional Training Courses and Opportunities

Applied Courses

These courses are offered once every three years, beginning in January, at various locations statewide. The instructors are typically individuals active in water or wastewater works. Classes usually meet one evening a week for 2-1/2 hours for 12 weeks. The classes are offered on a repeating cycle in the order indicated below.

1. **Applied Mathematics-** Course includes: calculators, decimals, fractions and percentages, basic algebra, units and conversions, calculation of areas and volumes, calculation of rates, calculation of weight relationships, and calculation of efficiencies.
2. **Basic Chemistry-** Course includes: language of chemistry, atoms and elements, chemical bonding and stoichiometry, solutions, acids and bases, chlorination, alkalinity, coagulation & flocculation, water softening and other related topics.
3. **Applied Hydraulics-** Course includes hydraulic concepts, pressure, continuity equation, the Bernoulli equation, pipe flow with friction loss, compound pipes, minor losses in fluid flow, flow in open channels, flow measurements, pump types and characteristics, and pumping.

It is recommended that individuals have a good mathematics background prior to taking the Applied Hydraulics and Basic Chemistry courses. Taking Applied Mathematics or Math Correspondence or equivalent would be satisfactory. The program locations for **Applied Courses** change annually. Announcements are mailed to MS-AWWA and MWEA members during the month of November, prior to the next scheduled course offering. If you are not a member of either of these associations and would like to receive registration information, fill out and return the **Request Form** at the end of this booklet. Registration fee (typically \$150) depends on the location and number of participants. *The registration fee for this course is to be paid directly to the course instructor.*

Students satisfactorily completing this course may be awarded 3.8 continuing education credits of MDEQ advisory board-approved continuing education credit. Students meeting the attendance requirement, but failing or not taking the course-ending quiz may be awarded 3.0 continuing education credits. Certified municipal wastewater operators may be awarded 3.0 continuing education credits for the Applied Mathematics in the “Other” category, 3.0 continuing education credits for the Basic Chemistry in the “Technical” category, and 3.0 continuing education credits for the Applied Hydraulics in the “Technical” category.

AWWA Satellite Conferences

These teleconferences are sponsored by the American Water Works Association, Michigan Section, AWWA, and in conjunction with the Michigan Department of Environmental Quality. These educational roundtables are fed by satellite from Denver, Colorado to various spots across the country. They are put on in March and November and cover many different topics of interest to water works employees. A number of people would find interest in these **AWWA Satellite Conferences** including distribution system and water treatment plant operators, water quality managers, supervisors, engineers, inspectors, and samplers. Attendees who satisfactorily complete this course will receive 0.3 CECs of MDEQ advisory board-approved continuing education credit. Information for these conferences will be mailed to all AWWA members.

Borchardt Conference

The **Borchardt Conference** is held in January or February every three years at the Rackham Building, University of Michigan, Ann Arbor. This Conference, formerly known as the High Level Seminar, is named after the late Jack A. Borchardt, Professor of Engineering at U of M. Conference sponsors include the University of Michigan, College of Engineering, Michigan Section, AWWA; Michigan Water Environment Association, in conjunction with the Michigan Department of Environmental Quality. The program planning committee prides itself in preparing an agenda mixed with drinking water and municipal wastewater topics, presented by nationally renowned speakers discussing advancements in these industries. The program agenda for the **Borchardt Conference** changes annually and is mailed to MS-AWWA members, MWEA members, and Michigan water and wastewater utilities approximately 8 weeks prior to the conference. If you believe you will not be receiving the registration materials from this mailing, and would like to receive agenda information about the next program, fill out and return the **Request Form** on page 23 of this booklet.

Attendees, who satisfactorily complete this course, may be awarded 0.5 continuing education credits of MDEQ advisory board-approved continuing education credit for each day of the conference. The full conference is a 3 day event. Certified municipal wastewater operators may be awarded 0.5 continuing education credits for each day of the conference in the "Other" category.

Fall Distribution Operation & Maintenance Course

This annual fall course for water distribution system personnel uses the textbook, "Water Distribution System Operation & Maintenance" and includes information on:

- Storage facilities
- Distribution system facilities
- Water quality considerations
- Distribution system operation and maintenance
- Disinfection
- Safety

Generally, the course will include 30-40 classroom hours and will run from early September to early November at several locations. Classes usually meet two evenings per week for 2-1/2 hours for 8 weeks. The teaching staff will be people with experience in water distribution systems.

The program locations for the **Fall Distribution System O & M** change annually. Announcements are mailed to drinking water utilities in July. If you are not a representative of a drinking water utility and would like to receive information, fill out and return the **Request Form** at the end of this booklet. Registration fee (typically \$150) depends on the location and number of participants. *Do not mail registration fees to the MDEQ, Operator Training and Certification Unit. **Registration fees for this course are to be paid directly to the course instructor.***

Students satisfactorily completing this course may be awarded 5.0 continuing education credits of MDEQ advisory board-approved continuing education credit. Students meeting the attendance requirement, but failing or not taking the course-ending quiz may be awarded 4.0 continuing education credits.

Ground Water Conference

The **Ground Water Conference** is held in February or March, every three years at the Kellogg Center, Michigan State University, East Lansing. Conference sponsors are the Michigan Section, AWWA in conjunction with Michigan Department of Environmental Quality. The program planning is done by the MS-AWWA Groundwater Committee. As the conference title implies, the agenda pertains to some aspect of ground water. Engineering consultants for municipal or industrial water supplies, municipal, local, state, or other governmental employees working in the field of ground water; water system managers, operators, and personnel, and others interested in ground water will want to attend the **Ground Water Conference**. The program agenda changes and is mailed to MS-AWWA members and Michigan ground water utilities approximately 8 weeks prior to the conference. If you believe you will not be receiving the registration materials from this mailing and would like to receive agenda information about the next program, fill out and return the **Request Form** on page 23 of this booklet.

Attendees who satisfactorily complete this course will receive 0.5 continuing education credits of MDEQ advisory board-approved continuing education credit for each day of the conference. The full conference is a 2 day event.

Michigan Section Annual Conference, Exhibit, and Pre-Conference Seminar

The Annual Conference and Exhibit offers numerous training opportunities for water treatment plant and water distribution system operators, personnel, and managers; drinking water product suppliers; consultants; and others. An excellent technical agenda is developed annually which should be of interest to large and small water systems alike. Evening entertainment and day-long spouse/guest programs are also available. Exhibits of drinking water supply equipment and services are displayed by suppliers, manufacturers, and consulting engineers. The exhibits are held on the afternoon of the first day of the Annual Conference and serve as a great place for attendees to “Meet and Greet” friends and associates.

Also offered on the first day of the Annual Conference is the **Pre-Conference Seminar**. The pre-conference seminar is sponsored by the Michigan Section, AWWA Water For People Committee. Proceeds from the seminar will go toward the support of the Michigan Section-sponsored water project in Ecuador. Water utility staff members responsible for any aspect of operation, maintenance, and management of water facilities should be interested in this informative half-day seminar. For those not planning to attend the Annual Conference, the Pre-Conference Seminar registration fee includes admission to the Annual Conference exhibits.

The program agendas for the **Annual Conference** and the **Pre-Conference Seminar** change annually and are mailed to Michigan Section, AWWA members approximately 8 weeks prior to the conference. If you are not a member of the Michigan Section, AWWA and would like to receive agenda information about the next program, fill out and return the **Request Form**. Certified operators fully attending the Annual Conference will receive 9 hours (0.9 continuing education credits) of MDEQ advisory board-approved continuing education credit, and those who attend the Pre-Conference Seminar will receive 3 hours (0.3 continuing education credits).

Regional Meetings

Spring and Fall Regional Meetings are offered annually at several statewide locations. The Regional Meetings are excellent opportunities for individuals to get up-to-date information on happenings in the drinking water industry.

Spring and Fall Regional Meetings are one day in length at four locations in the Lower Peninsula of Michigan. Spring regional meetings focus on water treatment topics while the fall regional meetings will focus on distribution topics.

The program agendas for the **Regional Meetings** change annually and are mailed to Michigan Section, AWWA members approximately 6 weeks prior to the first meeting of the season. If you are not a member of the Michigan Section, AWWA, and would like to receive agenda information about the next program, fill out and return the **Request Form** on page 23 of this booklet.

Certified operators who attend may be awarded 0.5 continuing education credits of MDEQ advisory board-approved continuing education credit annually for a **Spring Meeting** and 0.5 continuing education credits annually for a **Fall Meeting**.

U.P. Meetings

The Michigan Section, AWWA, in conjunction with the Upper Peninsula office of the Water Division, sponsor two annual training opportunities. Program topics for the spring session will appeal most to drinking water treatment plant personnel. Distribution systems are the focus of the presentations offered at the fall session.

The program agendas for the **U.P. Meetings** change annually and are mailed to Upper Peninsula drinking water utilities approximately 4 weeks prior to the meetings. If you are not a representative of an Upper Peninsula drinking water utility and would like to receive agenda information about the next program, fill out and return the **Request Form** in this booklet.

Certified operators who attend this seminar may be awarded 0.9 continuing education credits of MDEQ advisory board-approved continuing education credit.

CERTIFICATION & TRAINING INFORMATION

Request Form

Issued under authority of Act 399, P.A. 1976. Completion of this form is voluntary.

Some training programs are not offered annually and/or have an agenda that changes with each offering. The training program descriptions contained in this booklet discuss such programs. If you want to receive additional information, please fill out this form and return it by mail or by fax. We would appreciate if you would request such information **ONLY** by mail or by fax and not by telephone. The information requested will be mailed, as soon as possible, to the address you provide at the bottom of this sheet.

Please mail or FAX requests to:

Operator Training & Certification Unit FAX Number: 517-241-0325
 MDEQ-Environmental Sciences & Service Division
 PO Box 30457
 Lansing, MI 48909-7957

Select the courses you would like information on by placing a check in the box next to the course. If the desired course is not listed, write the course name in the space provided next to "Other" and check that box. **(Please note that agendas for courses are generally not available until 6-8 weeks prior to the scheduled course date).** Requests for agendas prior to this will be saved for mailing after they have been printed.

	Title of Course	Date Offered
<input type="checkbox"/>	Operators' Day 2005	February 8-9
<input type="checkbox"/>	Borchardt Conference	February 23-25
<input type="checkbox"/>	Regional Meetings-Spring	April 13, 14, 20, 21
<input type="checkbox"/>	U.P. Institute	May 3-4
<input type="checkbox"/>	MI Section, AWWA Annual Conference	September 13-16
<input type="checkbox"/>	Regional Meetings-Fall	October 4, 5, 19, 20
<input type="checkbox"/>	U.P. Distribution Seminar	October 26-27
<input type="checkbox"/>	Other	

- | | | | |
|--|------------------------|-----------|--------------|
| | | How Many? | Study Guide? |
| <input type="checkbox"/> Send certification exam applications: | Complete Treatment (F) | _____ | _____ |
| | Limited Treatment (D) | _____ | _____ |
| | Distribution (S) | _____ | _____ |
| | Level 5 (S, D, F) | _____ | _____ |

- Send an application form so I can join the Michigan Section, AWWA.

Clearly print or type your name and the mailing address to which you want information sent.

EQP3438 (Rev. 11/04)

BOOK ORDER FORM

Issued under authority of Act 399, P.A. 1976. Completion of this form is voluntary.

These training course textbooks and manuals are available to students and instructors of Michigan Section, AWWA and Michigan Department of Environmental Quality sponsored courses, and other Michigan water department personnel. Select your book(s), send order form and a check for amount due (payable to MICHIGAN SECTION, AWWA) to:

Michigan Section, AWWA
P.O. Box 16337
Lansing, MI 48901-6337

QUANTITY	<u>General</u>	PRICE
_____	Chemistry Manual for Operators, by Fountain	\$12.00
_____	Hydraulics Manual for Operators, by Brown	\$12.00
_____	Water Distribution & Limited Chemical Treatment Review Manual	\$18.00
<hr style="border: 1px solid black;"/>		
	<u>Math</u>	
_____	Basic Math Concepts, by Price	\$36.00
_____	Basic Math Concepts Correspondence Course (includes Basic Math Concepts, by Price book & quizzes)	\$115.00
_____	Mathematics for Operators, by Way	\$12.00
_____	Applied Mathematics Correspondence Course (includes Mathematics for Operators, by Way book & quizzes)	\$65.00
<hr style="border: 1px solid black;"/>		
	<u>California State University, Sacramento (CSUS)</u>	
_____	Water Treatment Plant Operation, Volume I	\$45.00
_____	Water Treatment Plant Operation, Volume II	\$45.00
_____	Water Distribution System Operation & Maintenance	\$45.00
_____	Small Water System Operation & Maintenance	\$45.00

Total Enclosed \$ _____

Name _____ Water Dept. _____

Address _____

City _____ State _____ Zip Code _____

Signature _____ Phone Number _____

For individuals wishing to take the CSUS Homestudy courses, you must contact CSUS directly at (916) 278-6142, or email at wateroffice@csus.edu. The Department of Environmental Quality no longer administers the CSUS Homestudy courses.

EQP3439 (Rev. 01/04)

CERTIFICATION RENEWAL STATUS

*For Michigan Department of Environmental Quality,
Environmental Science & Services Division
Certified Waterworks Operators*

Individuals writing and passing a certification examination are issued certificates on the basis of a 3-year renewal cycle. This applies regardless of the number of certificates already held. The certification levels denoted on the certificate will be for the highest held within each category (F, D or S). For example, an individual passes a D-3 exam in May 2000. A D-3 certificate is issued with an expiration date of July 15, 2003. In May 2002, this individual passes a D-2 exam. A new D-2 certificate is issued with an expiration date of July 15, 2005. In November 2003, the individual passes an S-4 examination. A new D-2, S-4 certificate is issued with an expiration date of January 15, 2007. This process continues each time an individual passes a higher class examination (1, 2 or 3) in a category (s)he is already certified in and/or when they pass an exam in a category (F, D or S) that they are not already certified in. In each case, the expiration date of the certification classes already held is extended so that it coincides with the expiration date for the exam most recently passed.

Prior to the expiration of a certificate, an individual may apply for renewal. A renewal applicant who has met the continuing education requirement will be issued a new certificate. A certificate that is not renewed will expire. Those with an expired certificate will be notified by letter, provided a current address is on file with the Operator Training and Certification Unit. Persons with an expired certificate are eligible for employment at a waterworks system; however, they cannot serve as the “operator in charge” or “back-up operator” of a distribution system, a treatment system or a shift at a water treatment plant.

A certificate that has expired may be reinstated within 1-year from the expiration date of the certificate only when an individual has completed the necessary continuing education requirements as prorated from the certificate’s expiration date. If a certificate is not reinstated, the individual will no longer hold any drinking water certification and will be required to re-test for the desired certification. DEQ, Environmental Science and Services Division, will make a determination of the number of credits required to reinstate an expired certificate. An example of how this is determined is shown here to clarify. Say an individual had been issued an F-2, S-4 certificate with a 3-year renewal cycle and an expiration date of July 15, 2003. The number of contact hours (or CECs) is determined from the highest classification held; 24 hours (2.4 CECs) based on the F-2 in this case. Say this individual has not taken the required 24 hours of training and therefore cannot renew their certificate. The certificate will expire on July 15, 2003. Within 1-year of the expiration date or by July 15, 2004 in this case the individual must request reinstatement and meet the prorated continuing education requirement. The calculation of required points is 2.4 for the 2000-2003 renewal period plus 0.2 for each quarter (every 90 days) up to 1-year after the expiration date. The end date for each quarter will be October 15, 2003; January 15, 2004; April 15, 2004 and July 15, 2004. If the individual does not meet the prorated continuing education requirement by July 15, 2004, (s)he will need to re-test to remain certified.

A renewal applicant, who does not meet the continuing education requirements for the higher certification levels (1, 2 or 3) but meets the continuing education requirements for the level 4, may choose to renew at the 4 level and give up the higher certification level. The request to give up the higher level certification level and be renewed as a 4 level must be in writing. For the example in the above paragraph, if the F-2, S-4 operator as enough CECs to renew a 4 level certificate, but not enough to renew a 2 level certificate, the individual can then provide a written request to DEQ to be renewed at the F-4, S-4 levels, giving up the F-2 certification. Under this arrangement, the only way for the individual to regain the F-2 is by applying for and passing the F-2 examination. Typically, a person only elects this option when their certificate has expired and they have not met the prorated CEC requirement for reinstatement within one year of expiration. By taking this option, the individual still maintains some level of drinking water certification.

CONTINUING EDUCATION CREDIT

*For Michigan Department of Environmental Quality, Environmental Science & Services Division
Certified Waterworks Operators*

A holder of a “1”, “2”, or “3” level certificate is required to obtain not less than 24 hours (2.4 CECs) of credit during the certificate renewal period. Holders of a “4” level certificate are required to obtain not less than 12 hours (1.2 CECs) of credit during the certificate renewal period. Holders of a “5” level certificate are required to obtain not less than 9 hours (0.9 CECs) of credit during the certificate renewal period. Continuing education credit may be awarded to individuals successfully completing a course. In order for a training course to qualify for continuing education, it must be advisory board-approved. Individuals may contact Matt Tomlinson at 517-241-8913 about continuing education credit for courses not shown on this document.

Successful Course Completion - One or two day meetings and seminars require full day attendance for successful completion. Upon arrival at the meeting or seminar (within 30 minutes of the start of the meeting), individuals desiring continuing education credit must obtain a continuing education credit form. This form must be validated by a course official immediately following the conclusion of the meeting. The individual retains a copy of this form and a second copy is left with the course official. This second, validated form will be sent to the Environmental Science and Services Division, DEQ and recorded. If an individual leaves a meeting early, the form will not be validated and continuing education credit will not be given. Credit for one and two-day meetings of this type are normally assigned on the basis of contact hours with 1.0 CEC for 10 contact hours. Partial credit will not be given for one-day meetings. For courses of a longer duration, such as the 3-day courses or 12-week courses, successful completion for full credit generally requires individuals to, in addition to meeting the attendance requirement, write and pass a course-ending quiz. Individuals not passing the course ending quiz, but otherwise fulfilling the course requirements, may be awarded a lesser number of continuing education credits (partial credit).

Repeat Credit - Full credit may be awarded for repeat attendance at meetings and seminars with a changing course content or agenda, such as Regional Meetings and the Michigan Section, AWWA and Michigan Rural Water Association annual conferences. For courses that basically repeat the course content, continuing education credit may be awarded as follows. When repeating a course, full credit may be awarded to the individual for each successful repeat that occurs outside or after his or her current renewal cycle. No credit will be awarded for repeating such courses during the current certificate renewal period. This method for calculating repeat credit became effective on April 17, 2003. Courses taken prior to this date will be subject to the repeat credit considerations in effect at the time they were taken.

Credit for Course Instructors - Continuing education credit for course instructors may be awarded for certain courses of long duration. Such credit will be awarded based on the number of contact hours available to students taking the course, except that instructors may not be awarded more than one-half the number of continuing education hours required for their own level of certification. This maximum value applies to all such courses conducted by an instructor within the instructor's current renewal period.

In-Service Training & College Courses - Advisory board-approved water utility in-service training and individual college courses may be awarded continuing education credit. Water utility in-service training programs must be approved by the advisory board of examiners. Credit will be given for any college course if the course deals with the operation, maintenance or supervision of a waterworks system and the student receives a C (2.0) or better in the course. The following course categories can help provide guidance on courses that would merit credit: Math, Chemistry, Physics, Computer, Electronics, Public Administration/Management, Mechanics/Technical, General Business, Engineering, Technical Writing/Communication, and Microbiology. It is recommended that students electing to take such courses contact Matt Tomlinson at 517-241-8913 prior to enrolling in the course.

Other Credit - Continuing education credit equal to 1 hour (0.1 CEC) maximum may be awarded annually for an active individual, an active affiliate or an active organization representative membership in certain organizations, such as the American Water Works Association (AWWA) and Michigan Rural Water Association (MRWA). This credit value is based upon full year membership. Accordingly, individuals holding membership each month of the 3-year renewal period may be awarded the maximum available credit of 3 hours (0.3 CECs). This credit may also be awarded in ensuing renewal periods. Also, a maximum of 6 hours (0.6 CECs) for exhibits, such as Joint Expo or MRWA annual exhibits will be allowed in any 3-year renewal cycle.

CONTINUING EDUCATION CREDITS ALLOWED FOR VARIOUS COURSES OF STUDY

Approved Drinking Water Training Courses offered by MDEQ and Michigan Section, AWWA:

MAX. POINTS GIVEN

Applied Hydraulics	3.8
Applied Mathematics	3.8
AWWA Annual Section Meeting	0.9
AWWA Annual Section Meeting (one day)	0.2
AWWA Membership (per year)	0.1
AWWA Pre-Conference Seminar	0.3
Basic Chemistry	3.8
Basic Electricity Short Course	2.5
Basic Math & Hydraulics Short Course	2.5
Cross Connection Control Seminar	0.5
Drinking Water Lab Seminar	0.5
Fall Distribution System O & M	5.0
Fall Regional Meetings (per year)	0.5
Improving Employee Performance	1.3
Joint Expo (annually, beginning in 1999)	0.2
Limited Treatment Short Course	2.5
Local Operator Association Meetings	0.1
Manufactured Housing--Water Systems	0.5
Math Short Course	2.5
M.S.U. Ground Water Seminar	1.0
M.S.U. Water Bacteriology Course	3.5
M.S.U. Water Chemistry Course	3.0
Operators' Day (per session)	0.3
Research & Technical Practices Seminar	0.5
Spring Regional Meetings (per year)	0.5
U of M Borchardt Conference	1.5
U.P. Distribution Seminar	0.9
U.P. Institute	0.9
Various One-Day Meetings, Seminars & Workshops	0.5
Water Distribution Short Course	2.5
Water Plant Operator Meetings	0.3
Water Treatment Short Course I	2.5
Water Treatment Short Course II	2.5

Home Study Training Programs:

Applied Mathematics Correspondence Course	2.4
Basic Math Concepts Correspondence Course	2.4
Hydraulics Correspondence Course	2.4
MSU Effective Communication	3.0
MSU Maintenance Management	3.0
MSU Supervisory Management	4.0
Small Water System O & M	2.4
Water Distribution System O & M	2.4
Water Treatment Plant Operation, Volume I	4.0
Water Treatment Plant Operation, Volume II	4.0

Other Organizations Sponsoring or Conducting Michigan Advisory Board-Approved Training Courses:*

AFSCME Ohio Council 8; 419-539-6000
AIS Construction Equipment Corp.; 517-321-8000
Alexander Chemical Corporation; 219-393-5558
American Flow Control; 616-342-5706
American Groundwater Trust; 603-228-5444
APWA-Michigan Chapter; 248-524-3390
Argus Group/Enviroair Cons., Inc.; 800-873-0456
BATCO; 517-531-4455
Bay de Noc Comm. College; 906-786-5802, X 1110
Calgon Carbon Corporation; 412-787-6810
Camp, Dresser, & McKee; 517-702-1213
Consumers Energy Company; 517-791-5712
Delisle Associates LTD.; 269-373-4500
Delta Charter Township Utility Dept.; 517-323-8570
Delta College; 989-837-3502
Detroit Fire Academy; 313-898-6770
DuBric Packing and Seals; 616-784-6355
Ductile Iron Pipe Research Assoc.; 219-464-4075
East Jordan Iron Works; 616-538-2040
Eureka Educators; 734-721-7773
Ferris State University; 616-592-2680
Haz-Chem Safety Services; 517-323-3330
Hazen and Sawyer P.C.; 313-961-3050
H.S. & E. Compliance Resources; 219-923-6938
Hydro-Designs, Inc.; 248-335-3122
INVETECH; 313-963-6011 Ext. 323
ISCO Industries LLC; 248-391-4192
ITT Flygt Corporation; 262-544-1922
J.A. Garland Utilities O & M; 219-352-2017
Jack Doheny Supplies, Inc.; 248-349-0904
Jim Davies Sales; 616-942-5408
Lake Superior State University; 906-635-2431
Lawson-Fisher Assoc.; 219-234-3167
Layne-Northern Company; 517-323-4931
LBCC/NPS; 541-917-4628
Macomb Community College; 586-498-4056
MBPA-Michigan Chapter; 313-271-6507
MDEQ-Water, Groundwater Section; (517) 241-1361
Metrotech Corporation; 785-989-3655
Mich. Plumbing & Mechanical Contr.; 517-484-5500
Mich. Public Service Institute, CMU; 618-466-8450
Michigan HazMat Training Center; 517-322-1853
Michigan Municipal League; 734-669-6310
Michigan Rural Water Association; 989-539-4111

Michigan Section AWWA and MDEQ; 517-241-7199
Michigan State University; 800-356-5705
Michigan Water Environment Assn.; 517- 641-7377
Midwest Backflow Prevention; 313-532-1964
Millcreek Management Tech.; 425-337-7062
Minnesota Rural Water Assn.; 800-367-6792
MTU GEM Center for Env. Outreach; 906-487-3341
Mueller Company; 217-425-7208
National Technology Transfer; 303-957-4378
Nat'l. Utility Contractors Association; 703-358-9300
NES-Worksafe; 800-783-4626
Oden Training; 248-623-3232
OMM Engineering, Inc.; 616-957-4350
Operator Training Comm. of Ohio; 419-473-1121
Ottawa Co. Road Commission; 616-850-7218
Page Glasgow & Associates LLC; 248-362-3600
Panhandle Eastern Pipe Line Co.; 517-546-4770
Planet Underground; 877-825-8648
Premier Occupational Health; 248-338-5087
Saginaw Charter Township DPS; 517-791-9870
Saginaw Valley State University; 517-790-4310
SMW & SUA; 248-625-8222
Tank Industry Consultants, Inc.; 317-244-3221
Technical Education Services; 616-323-0300
Technical Learning College; 480-705-9315
The Gorman-Rupp Company; 419-755-1238
Tucker, Young, Jackson, Tull; 313-963-0612
Waterford Township; 248-618-7456
Water Solutions Unlimited; 317-787-6336
Waterworks Systems & Equip.; 810-231-1200 X 11
Wayne State University; 313-577-3807
West Michigan Operators Assoc.; 616-673-1988
Ypsilanti Comm. Utilities Authority; 734-484-4600
Young's Environmental Cleanup, Inc.; 810-789-7155

Approved Online Learning Organizations

<http://www.360water.com>

<http://www.awwa.org/learnonline>

<http://www.ceuplan.com>

Expense Reimbursement Providers (page 3)

Michigan Rural Water Association; 989-539-4111
Ronald J. Holben; 517-663-650

Also approved are "water related" courses sponsored by *CEU User* members and *Certified Providers* of the International Association for Continuing Education and Training (IACET) or the Accrediting Council for Continuing Education & Training (ACCET). **Look for a complete listing of all courses and providers on our website in spring 2005.** <http://www.michigan.gov/operatortraining>

**Credits awarded for these courses vary and it is likely that not every course offered by this organization has been approved. Contact respective organizations for date of next course offering and credit information. If you are unable to obtain training opportunities from any organization listed above, please notify Matt Tomlinson at 517-241-8913, or email tomlinm@michigan.gov.*

The Michigan Section of the American Water Works Association, and the Michigan Department of Environmental Quality sponsor many programs for waterworks system operators wishing to continue their education in the water supply industry. AWWA section committees continue to look for interesting topics that can be presented throughout the state to provide continuing education credits to those currently certified. Some of this training is best provided by vendors, suppliers and consulting engineers that are expert in a specific water supply field.

“HOT” Programs

The Hands On Training (HOT), which is a Subcommittee of the Education Committee has approved a list of hands-on training or “HOT” programs or courses that can provide practical experience to water system operators. Below is a list of current “HOT” courses now in place. A hot training program typically has the following characteristics:

- the training is at least **50** percent “hands on” or practical
- the training program is a minimum of 3 hours in length

Contact the appropriate contact person for the course you are interested in.

For further details on the program in general, or to propose a new course, contact:

Paul Brun Del Re at 517-241-8914 or e-mail: brundelp@michigan.gov

TITLE	MDEQ COURSE CODE:	CEC'S	CONTACT	CONTACT TELEPHONE
WATER METER TYPES AND APPLICATIONS	784	.3	John Traynor Hydro-Meter Service	248-343-6400
PRV APPLICATIONS MAINTENANCE/REPAIRS	785	.3	Bob Esvang CLA-VAL Company	800-238-7070 X-13
CHEMICAL FEED PUMPS, RATES & CALCULATIONS	743	.3	Todd Luks Elhorn Engineering	517-676-3786
CROSS CONNECTIONS	744	.3	Barry Walter Hydro-Designs	248-335-3122
HYDRANT VALVE OPERATION & MAINTENANCE	746	.3	Dave Plooster East Jordan Iron Works	616-538-2040
LEAK DETECTION/LINE LOCATING	747	.3	Barry Walter Hydro-Designs	248-335-3122
PUMP & MOTOR MAINTENANCE	748	.3	Gerry Burrows Peerless-Midwest	616-527-0050
LOCKOUT/TAGOUT	884	.3	Barry Walter Hydro-Designs	248-335-3122
HDPE FUSION TRAINING	895	.4	Mark Spelder ISCO Industries	248-391-4192
HYDRANT VALVE & MAINTENANCE	896	.3	Craig Norton American Flow Control	616-342-5706
CROSS CONNECTION BACKFLOW PREVENTION	1047	.5	Jeff Castro YCUA	734-484-4600 X-129

(11/03)

OPERATOR TRAINING AND CERTIFICATION UNIT/MFS
ENVIRONMENTAL SCIENCE AND SERVICES DIVISION
MICHIGAN DEPARTMENT OF ENVIRONMENTAL QUALITY
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