OPERATOR TRAINING AND CERTIFICATION UNIT

For More Information
Certification Schedules
Certification Requirements
Certification Renewal (Applications)
Continuing Education Credits
ETC.

www.michigan.gov/deqoperatortraining
The Operator Training & Certification Program would like to welcome you to its Home Page. The program provides rules and regulations, technical assistance, training and certification for Drinking Water and Wastewater System Operators. Whether you are new to the industry or you are a veteran Operator, this web site can answer many of your questions.

Note: Drinking Water Program is now accepting online payments for exam applications, course approval/renewal applications, and certification renewal applications. An application must still be submitted to one of the addresses provided on the application. The link to the system is posted under the drinking water tab below.

**Information**

- Stormwater, Asset Management and Wastewater (SAW) Seminars
- Operator Certification & Training Facts Fact Sheet [PDF]
- Certification Boards
- Check Your Drinking Water CECs Online
- List of Approved Courses for CECs
- Approval of Programs for Continuing Education Credit-CEC

**Drinking Water**

- Certification Renewal Information [PDF]
- Drinking Water Online Payment System
- Drinking Water Manuals and Books Order Form [PDF]
- Drinking Water Operator Training Contacts
- Drinking Water Training Materials
- Participant Roster for Drinking Water [PDF]
- Exam Applications and Study Guides
- Drinking Water Operator Certification
- Training Courses and Continuing Education Credit Information

**Wastewater**

- Wastewater Laboratory Training Manual [PDF]
- Wastewater Stabilization Lagoon Training Manual [PDF]
- Wastewater Operator Training Contacts
- Vulnerability Analysis Workshop for Water and Wastewater Facilities [PDF]
- Certification Renewal Applications
- Lists of Current Certified Operators
- Wastewater Operator Training Classes
- Storm Water Operator Certification
- Industrial/Commercial Wastewater Treatment Plant Operator Certification
- Municipal Wastewater Treatment Plant Operator Certification
Path

to

Certification
Permit

Classification

Certification
Permits Section

Based on information provided by the applicant, Permits Section determines the appropriate effluent limitations and monitoring requirements that comply with water quality and treatment technology standards.

District Offices

Field staff will then use the requirements in the NPDES permit as well as other information from the applicant and sometimes a site visit to determine the classification of the facility.
Classification of Facility

Classifications done by staff at the District Offices:

(Marquette, Gaylord, Grand Rapids, Cadillac, Saginaw Bay, Kalamazoo, Lansing, Jackson and SE Michigan District Offices.)

**POTWs** are generally classified according to population unless there are conditions that warrant a higher classification. This would generally be due to special features, such as the sensitivity of the receiving water, a more complex technology is used.

**Industrial/Commercial** facilities are classified based on the treatment technology being used. (31 Different Certifications)

In both cases, WRD staff evaluate on the information provided on the application, other available information and a review of the site. WRD reevaluates a facility’s classification at least every 5 years or when there have been changes to the treatment system.
Classifications

Treatment facilities are to be classified into seven classes: A, B, C, D, L2, L1 and SC.

The L1 and L2 classifications are used for lagoon systems and are based on the presences or absence of mechanical devices.

The Special Classification (SC) is used for small systems that require minimal operation and control such as septic tank tile fields and recirculating sand filters.

Classes A (>50,000), B (10,000-50,000), C (2,000-10,000), D (<2,000) are based primarily on population size of the service area, but may be placed in a higher classification due to the following conditions:

• Special features of design or characteristics more difficult to operate than usual
• A particular difficult type of sewage (water characteristics)
• Stream conditions (receiving waters)
Lagoons

Treatment facilities utilizing the waste stabilization lagoon process shall be classified by the department into one of the 2 following classes, designated as class L2 and L1:

**Class L2**, treatment facilities utilizing the waste stabilization lagoon process which include special mechanical devices such as aerators, chemical precipitation, disinfection, or other factors. Class L2 shall be considered a higher classification than class L1.
“Treatment” of Organics Limited by OXYGEN Availability

Dissolved Oxygen from the Atmosphere Photosynthesis

Availability can be Increased by AERATION
AERATION

Advantage:

Increased Oxygen Transfer:
Deeper Penetration
Not Related to Sunlight

Support Increased Bacteria Population

Increase Organic Loading
(Pounds BOD/day/acre)
AERATION

Advantage:
Increase Organic Loading
(Pounds BOD/day/acre)

Reduced Detention Time Required
Less Land Requirements
Less Affected by Environment
Less Affected by Ice Cover
Continuous Discharge
Lower Suspended Solids
Improved Nitrification
AERATION

Disadvantages:

Cost
Maintenance
Ice on Aerators
Erosion
Increased Sampling and Analysis
Increased Sludge Quantities
Increased Safety Considerations
Chemicals Used for Precipitation

Most Common in Michigan:

Alum
Ferric Chloride
Chemical Phosphorus Removal

Soluble Phosphate

\textit{plus}

Metal Salts

\textit{form}

Insoluble Phosphorus Compounds
Phosphorus Removal

Chemical Precipitation

- Organic and Condensed Phosphorus Compounds Must Be Converted to Ortho-P for Efficient P Removal

AFTER PRIMARY POND
Typical Lagoon System

Influent

Effluent

#1

#2

#3
**Class L1**, treatment facilities utilizing the waste stabilization lagoon process which do not include special mechanical devices such as aerators, chemical precipitation, disinfection, or other factors.
SEASONAL VARIATIONS

Spring and Fall

Transition Periods

Optimum for Discharging

Within Permit Limits

High Stream Flows - Dilution

High D.O. - Lagoon and Receiving Stream

Minimal Human Contact
1. Economical to Construct & Operate.
2. Low Monitoring & Control Requirements.
5. Low Mechanical Failure.
7. Long Life.
DISADVANTAGES OF LAGOON SYSTEMS

1. Large Land Usage.
2. Low Control Options.
3. Operations Dependant on Climate.
5. Seasonal Odors.
6. Possible Ground Water Contamination.
7. Not Good In High Loading Situations.
C-1b Aerated Lagoons – A man-made pond or lagoon with mechanical or diffused aeration intended to provide aerobic biological treatment. (Similar to L2)
Note: Includes wastewater treatment systems with a combination of aerated and non-aerated cells

C-1c Stabilization Ponds – A man-made pond or lagoon intended to provide natural biological treatment without the addition of supplemental aeration. (Similar to L1)
Lagoon Classifications (Ind/Com)

C-1b  Aerated Lagoons
C-1c  Stabilization Lagoons

**************************************************
A-1f  Land Surface Disposal
B-2a  Chemical Clarification
C-2a  Disinfection

Renewal Required - no Continuing Education
Municipal Wastewater Certifications
D → C → B → A

Must Posses Lower Classification Before Taking Next Higher Classification

L2, L1, SC  Independent Classifications
Municipal Certification

CLASS A CERTIFICATION MINIMUM REQUIREMENTS

CASE I  Four Year College Degree

Education: A four year college degree including at least 9 semester hour credits from each of the three specified educational categories (see definitions). These credits must be divided between at least 3 courses in different subject areas from each of the three general categories. (For example: General Chemistry 101, 102, and 103 would be considered one subject area, but General Chemistry, Biochemistry, and Analytical Chemistry would be considered three subject areas in the Science category.)

Experience: Four years of acceptable operational experience in a Class B or higher treatment facility, two years of which shall have been in an acceptable supervisory position or a position of major operational responsibility (MOR). The operational experience shall include at least three months (or accumulated 480 hours) in the area of secondary treatment and at least three months (or accumulated 480 hours) in each of at least two other specified areas of operational experience (see definitions).

CASE II  Two Years of College

Education: Less than a four year college degree but at least the equivalent of two years (60 semester hours) of college with the minimum course subjects as outlined for a four year college degree (Case I).

Experience: Two additional years of acceptable operational experience to those required in Case I.

CASE III  Minimum College

Education: Minimum course subjects as outlined for a four year college degree (Case I).

Experience: Four additional years of acceptable operational experience to those required in Case I.
CLASS B CERTIFICATION MINIMUM REQUIREMENTS

CASE I  One Year of College

**Education:** Completion of at least one year (30 semester hours) of college including at least 3 semester hour credits in each of the three specified educational categories (see definitions)

**Experience:** Four years of acceptable operational experience in a Class C or higher treatment facility, two years of which shall have been in an acceptable supervisory position or a position of major operational responsibility (MOR). The operational experience shall include at least three months (or accumulated 480 hours) in the area of secondary treatment and at least three months (or accumulated 480 hours) in each of at least two other specified areas of operational experience (see definitions).

CASE II  Minimum College Education

**Education:** Less than one year (30 semester hours) of college but at least the minimum course subjects as outlined for Case I and completion of at least three additional training courses acceptable to the Board, such as; hydraulics, chemistry, applied mathematics, phosphorus analysis and removal techniques, activated sludge, wastewater analysis (lab), maintenance, sludge handling, electrical maintenance, CSU-Sacramento Wastewater Treatment Course, etc. The additional courses must be a minimum of 10 contact hours in length and require passage of a course ending examination.

**Experience:** One additional year of acceptable operational experience to those required in Case I.
CLASS C CERTIFICATION MINIMUM REQUIREMENTS

**Education:** Completion of high school or its equivalent.

**Experience:** Two years (4000 hours) of acceptable operational experience in a Class D or higher wastewater treatment facility. The operational experience shall include at least one month (or accumulated 160 hours) in the area of secondary treatment and at least one month (or accumulated 160 hours) in each of at least two other specified areas of operational experience (see definitions).
CLASS D CERTIFICATION MINIMUM REQUIREMENTS

Education: Completion of high school or equivalent.
Experience: One year (2000 hours) of acceptable operation experience in a Class D or higher treatment facility. The year of acceptable operational experience shall be gained in one or more of the specified areas of operational experience (see definitions).
CLASS L2 CERTIFICATION MINIMUM REQUIREMENTS

**Education:** Completion of high school or equivalent.

**Experience:** One calendar year of verifiable experience which is achieved by actual hands-on performance, or immediate supervision, of the duties involved in the routine required monitoring, operation, and control of the equipment and processes involved in a Class L2 type wastewater stabilization lagoon system.
CLASS L1 CERTIFICATION MINIMUM REQUIREMENTS

**Education:** Completion of high school or equivalent.

**Experience:** One calendar year of verifiable experience which is achieved by actual hands-on performance, or immediate supervision, of the duties involved in the routine required monitoring, operation, and control of the equipment and processes involved in a Class L1 or a Class L2 type wastewater stabilization lagoon system.
CLASS SC CERTIFICATION MINIMUM REQUIREMENTS

**Education:** Completion of high school or equivalent.

**Experience:** One calendar year of verifiable experience which is achieved by actual hands-on performance, or immediate supervision, of the duties involved in the routine required monitoring, operation, and control of the equipment and processes involved in a Class SC type facility.
DEFINITIONS

Acceptable Operational Experience for Class A, B, and C:
This consists of actual hands-on performance, or immediate supervision, of the duties involved in the routine required monitoring, operation, and control of the equipment and processes involved in at least three of the five specified areas of wastewater treatment.

Acceptable Operational Experience for Class D:
This consists of actual hands-on performance of routine required monitoring, operation, and control of the equipment and processes involved in one or more of the five specified areas of wastewater treatment.

Acceptable Supervisory Position for Class A Certification - Immediate supervision of five or more wastewater treatment plant employees performing duties in one or more of the five specified areas of operational experience.

Acceptable Supervisory Position for Class B Certification - Immediate supervision of three or more wastewater treatment plant employees performing duties in one or more of the five specified areas of operational experience.

Position of Major Operational Responsibility (MOR) - One who is held responsible for making the major decisions for one or more of the five specified areas of operational experience.
Specified Areas of Operational Experience:

Preliminary / Primary Treatment – Preliminary treatment is the area involved in the removal of rocks, rags, sand, and similar materials from the raw wastewater that may hinder the operation of further treatment processes. Primary treatment is the first stage, physical removal of those substances in the wastewater that readily settle or float to be separated from the water being treated. Experience in these areas includes, but is not limited to, sludge pumping from clarifiers, skimming, grit handling and the routine monitoring and operation of the equipment involved in these areas.

Secondary / Advanced Treatment – The area concerned with the biological treatment of the wastewater. Experience in this area includes, but is not limited to, setting or adjusting flows between units, setting or adjusting recirculation, wasting and aeration rates.

Residuals Processing and Disposal - The area concerned with handling of the settleable solids removed from liquids during processing. Experience in this area includes, but is not limited to, sludge or bio-solids thickening, stabilization, de-watering, incineration, and/or disposal.

Laboratory Analysis / Industrial Pretreatment Program - The area concerned with the performance of routine required laboratory analysis at the wastewater treatment facility, required for control and reporting purposes; or of the industrial pretreatment program tasks. This does not include analyses done at small “satellite” or on-location labs used for routine control but not for reporting data such as, but not limited to, spot checks for chlorine residual, solids analysis for checking filter cake dryness and similar activities.

Maintenance – The area concerned with pump, mechanical, or electrical repairs and replacement, as well as preventive maintenance activities. This does not include such activities as grounds keeping, building up-keep, and/or janitorial work.
Specified Educational Categories

**Science** - This includes, but is not limited to chemistry, biology, microbiology, and physics.

**Engineering** - This includes, but is not limited to hydraulics, electricity, electronics, engineering materials, mechanics, statics, dynamics, technical drawing, and computer programming.

**Administrative** - This includes, but is not limited to English composition, technical report writing, engineering contracts, environmental law, public relations and communication, utility management, basic supervision, American government, accounting, and up to a maximum of three semester hours of acceptable computer application courses.
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How much are the fees?

Examinations:

- Drinking Water Operators
  - Levels 1, 2, 3 or 4 - $70.00 per exam
  - Level 5 - $45.00 per exam

- Municipal Wastewater Operators
  - Levels A, B, C or D - $70.00 per exam
  - L1, L2 or SC - $45.00 per exam

- Industrial Wastewater Operators
  - Level 1 or 2 - $35.00 per exam
  - Level 3 - $40.00 per exam
  - Special classification A-1a, noncontact cooling water A-1h or Storm Water Industrial A-1i - $30.00 per exam
Application Process

• Application Reviewed
• Education Checked
• Experience Checked
• References Sent Out
• References Returned to OTCU & Experience Verified
• Application Approved or Denied
• Municipal Wastewater Board Approval
• Acceptance Letters Mailed.
Renewals

Certification Renewals - $95 for all certifications issued on a single certificate.

- 3 year renewal cycle
  - Drinking Water Certifications
  - Municipal Wastewater Certifications

- 5 year renewal cycle
  - Industrial Wastewater
  - Storm water Industrial and Construction
To renew an A or B certificate, the certified operator shall have completed, during the renewal cycle, not less than 2.4 CECs of board-approved continuing education training. Not less than 0.6 CECs of the training shall be technical training and not less than 0.6 CECs of the training shall be managerial training.

To renew a Class C, D, L2, or L1 certificate, the certified operator shall have completed, during the renewal cycle, not less than 1.2 CECs of board-approved continuing education training. For Class C certification renewal, no more than 0.6 CECs of training in the non-managerial, non-technical category may be used to meet the continuing education requirement.

There are no continuing education requirements for a class "SC" certificate.

No CEC’s required to renew Industrial/Commercial Certification. Fee only.
### Renewal Form

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Total Credits by Category

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Municipal Exams:

November 3, 2016

May 4, 2017

Industrial/Commercial Exams:

August 25, 2016

February 23, 2017
Please Keep Information Current:

- Home Address
- Phone Numbers
- Name Changes
- Employer Information