

MICHIGAN DEPARTMENT OF ENVIRONMENT, GREAT LAKES, AND ENERGY  
WATER RESOURCES DIVISION  
STUDY GUIDE OF TYPICAL EXAM CONTENT FOR WASTEWATER TREATMENT OPERATOR  
CLASS B  
CERTIFICATION EXAMINATION

## Written Examination

Exams are offered twice per year in May and November. Education and experience requirements for each of the classifications are described in the Certification Board Policy. The semester hour credits required at the A and B classifications may be earned from colleges and universities or by successfully completing the appropriate courses from the list of Board Approved Semester Hour Equivalent courses. The Board Policy and course list can be found by going to [Michigan.gov/WWCertification](http://Michigan.gov/WWCertification) and clicking on "Municipal Wastewater Treatment Plant Operator Certification."

Applications for the written examinations are accepted not less than 45 days before the examination date. The exam announcements can be found on our website. The written examinations for Class A certification are developed from need-to-know/essay style exam questions. The design of the questions has been selected so that they are clear and not misleading or tricky. Each question has been reviewed by a panel of Subject Matter Experts who are experienced in wastewater treatment operations and are Class A certified.

No programmable calculators, electronic data storage devices, or communications devices will be allowed to be used during the examination.

No informational material (reference books, formula lists, etc.) is allowed into the examination. Examinees are expected to know the formulas for the common calculations such as circumference, area, and volume. Examinees are expected to, without reference material, perform calculations in treatment process control, hydraulics, maintenance, and sludge/biosolids. Examinees may be expected to perform calculations using more complex and less commonly required formulas. These would be provided on the examination.

Examinees are expected to know the details of operation, control, and troubleshooting all the various processes involved with wastewater treatment. These would include, but are not limited to, activated sludge process and its modifications, trickling filters, RBCs, sludge digestion/solids handling, nitrification/de-nitrification, phosphorus removal, etc.

Examinees are expected to know and apply the principles of supervision that is required of a superintendent of a Class B facility. This knowledge is tested using essay style questions. The organization and clarity of answers given for these questions is considered in the grading process.

## General Exam Makeup

The Class B written examination is divided into two sections. The first section consists of “fill-in the blank”, short answer, and mathematical calculations questions. Examinees have 2.5 hours to complete this section, and this makes up 40% of the exam. The second section consists of short answer, mathematical calculations, and one or two essay questions. Examinees have 5.0 hours to complete this section, and this makes up 60% of the exam. The style of questions and number of questions may change without notice.

The composition of the exam is in four general areas with the approximate proportions as follows:

30% Operations, 30% Management, 20% Maintenance, and 20% Laboratory

### Exam Content

Subject areas to be covered under each area may include, but are not limited to:

#### OPERATION

- Process Operation and Theory
- Treatment Unit Operation
- Control and Application of Data
- Related Mathematics
- Related Chemistry
- Related Safety
- Flow Measurement
- Related Hydraulics
- Biosolids Disposal
- Odor Control

#### LABORATORY

- Basic Principles of All Routine Analyses
- Related Calculations
- Lab Safety
- Basic Biological and Chemical Reactions
- Interpretation of Lab Data
- Quality Assurance/ Quality Control Procedures

#### MAINTENANCE

- Maintenance of Piping, Valves, and Pumps
- Maintenance of Drive Components
- Maintenance of Motor Control Equipment
- Maintenance of Flow Meters
- Maintenance of Chemical Feed Equipment

#### MANAGEMENT

- Record Keeping
- Reports
- Legal Regulations (State and Federal)
- Employee Training
- Public Relations
- Planning of Work
- Security/Emergency/Safety Regulations and Procedures
- Industrial Discharge Control

**More information is available on our website at [Michigan.gov/WWCertification](http://Michigan.gov/WWCertification). Please contact [EGLE-WRD-OpCert@Michigan.gov](mailto:EGLE-WRD-OpCert@Michigan.gov) if you have any questions.**

For information or assistance on this publication, please contact the Water Resources Division through EGLE Environmental Assistance Center at 800-662-9278. This publication is available in alternative formats upon request.

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