

MICHIGAN DEPARTMENT OF ENVIRONMENT, GREAT LAKES, AND ENERGY  
WATER RESOURCES DIVISION  
**STUDY GUIDE OF TYPICAL EXAM CONTENT FOR WASTEWATER TREATMENT OPERATOR  
CLASS A  
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 A 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 A written examination is divided into two sections. The first section consists of short answer, mathematical calculations, and one or two essay 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:

35% Operations, 35% Management, 15% Maintenance, and 15% 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

Budget Preparation  
Record Keeping  
Reports  
Legal Regulations (State and Federal)  
Employee Training  
Public Relations  
Planning of Work  
Security/Emergency/Safety Regulations and Procedures  
Purchasing  
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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