

257 CMR: BOARD OF REGISTRATION OF OPERATORS OF WASTEWATER TREATMENT FACILITIES

Section

- 2.01: Purpose and Authority
- 2.02: Definitions
- 2.03: Application for Certification
- 2.04: Exemptions
- 2.05: Examinations
- 2.06: Operator Status
- 2.07: Issuance and Renewal of Certification
- 2.08: Emergency and Provisional Facility Certification
- 2.09: Renewal and Revocation Provisions
- 2.10: Education Requirements
- 2.11: Operator Descriptions
- 2.12: Grades of Wastewater Treatment Facility Operators
- 2.13: Classification of Wastewater Treatment Facilities
- 2.14: Violations and Penalties
- 2.15: Permit for Discharge
- 2.01: Purpose and Authority

The purpose 257 CMR 2.00 is to set forth a process for the evaluation and certification of operators of wastewater treatment facilities in order to insure the facilities' proper management, operation and maintenance. Authority for 257 CMR 2.00 is found in M.G.L. c. 21, §§ 34A and 34B.

2.02: Definitions

Biochemical Oxygen Demand (BOD) is an index of the amount of oxygen that will be consumed by the decomposition of the organic matter in wastewater.

Board shall mean the Board of Certification of Operators of Wastewater Treatment Facilities established in M.G.L. c. 21, § 34A.

Certificate means a certificate of competency issued by the Board stating that the holder has met the requirements for a specified grade and status of wastewater treatment plant operator through the Board's certification program. Each certification issued by the Board shall be valid only for the individual to whom it is issued and may not be transferred.

Continuing Education Unit (CEU) refers to a certain number of training contact hours. One CEU equals ten TCH's. Some seminars, workshops, training courses, and college courses have official CEU values.

Contract Operations means the operation, and/or management and/or maintenance of a wastewater treatment facility by someone other than the permittee of the facility.

Inactive Operators refers to retired operators or operators with "when and if" status.

Reciprocity means the certification of a person who has passed a written examination in another state and meets the experience requirements of Massachusetts or a person who meets the requirements of a reciprocity registry accepted by the Board.

Reciprocity Registry refers an organization which grants reciprocity to its members across state and international borders.

Training Contact Hours (TCH) refers to the hours of training an operator has had in the last calendar year. Each seminar, workshop, training course, or college course will have a specific training hour value as rated by the Board. Each CEU equals ten TCH per year.

2.02: continued

Wastewater Treatment Facility - means any and all devices, processes, and properties, real or personal, used in the storage, treatment, disposal, recycling, reclamation or reuse of waterborne pollutants, but not including any sewer system.

Wastewater Treatment Plant Operator (WTP0) means the person who is in responsible charge of operations during all working shifts of a wastewater treatment facility. A WTP0 cannot be an official who does not spend his working hours at the treatment facility. In any wastewater treatment facility requiring more than one shift, a certified operator shall be present who shall have a grade commensurate with the duties required during that shift, as determined by the Board.

2.03: Application for Certification

(1) Any person desiring to be certified as a wastewater treatment plant operator by examination shall file an application with the Board not later than 45 days preceding the date of a scheduled examination.

(2) Any person desiring to be certified by reciprocity shall file an application with the Board providing:

- (a) proof of having passed a written test in another state;
- (b) resume explaining job duties, responsibilities, and dates of employment at each facility;
- (c) flow diagrams of each facility worked at; and
- (d) copy of rules and regulations for certification in state certified; or
- (e) proof of acceptable reciprocity registration.

(3) Any person desiring to obtain emergency certification must submit a request in writing to the Board setting forth the necessity for such certification. Applications for emergency certification will be acted on by the Board pursuant to 257 CMR 2.08.

(4) Any person desiring to obtain provisional certification must submit a request in writing to the Board setting forth the necessity for such certification. Applications for provisional certification will be acted on by the Board pursuant to 257 CMR 2.08.

(5) All applications shall be signed under oath by the applicant.

#### 2.04: Exemptions

The following treatment systems are exempt from certified operator requirements:

- (a) lime chip neutralization;
- (b) neutralizing less than 100 gallons per day;
- (c) small scale silver recovery;
- (d) oil/water separators using gravity separation, also known as “MDC traps”; and
- (e) closed loop systems.

#### 2.05: Examinations

(1) The Board will prepare examinations to be used in determining the knowledge, ability, and judgment of applicants for operator certification. Examinations will be prepared for industrial, municipal and combined operator grades as set forth in 257 CMR 2.12.

(2) Examinations will be held at least twice a year at places and times established by the Board. Notice of examination will be published in newspapers of general circulation and trade, industry, or professional publications.

2.05: continued

(3) The passing score on examinations shall be the correct response to 66% of the examination questions for examination grades 1 & 2 Municipal and Industrial. The passing score on examinations for grades 3 and 4 Municipal and Industrial and 5 combined shall be the correct response to 65% of the examination questions. The passing score on examination for grade 6 combined shall be the correct response to 70% of the examination questions.

(4) All examinations shall be graded by the Board or its designees. The applicant shall be notified of the outcome in writing. Examination papers will not be returned to the applicant.

(5) Upon written request of the applicant, the applicant's examination shall be made available for review at the Boston Office, Division of Water Pollution Control.

(a) An examinee may apply in writing to review his examination within 30 days from the date of the Board's notification to the examinee of the examination results.

(b) During the review process, the examinee must declare their intention in writing for a formal appeal of specific questions. The examinee shall provide the Board with documentation in support of the appeal within 30 days after reviewing their exam. The burden of proof is on the examinee.

(c) The Board shall review properly filed appeals and shall notify the examinee in writing of the results of the appeal.

NON-TEXT PAGE

## 2.06: Operator Status

In addition to assignment of grade to operators, operators shall be assigned a status by the Board as follows:

(1) Operator-in-Training Status. Upon passing an examination, the Board shall review the applicant's experience, education and training. If the applicant is working at a wastewater treatment facility but does not meet the experience qualifications established in 257 CMR 2.12 for the grade passed, the applicant shall receive Operator-in-Training Certification. The Chief Operator of a facility cannot hold this certification unless approved by the Board.

(2) When and If Status. An applicant may take an examination for any grade. If the applicant passes the examination, is not working in the field and/or does not have experience as defined in 257 CMR 2.12(2) to qualify for full certification, the Board will issue a When and If Status (W&I). When the W&I operator gains employment at a wastewater treatment facility and notifies the Board in writing, the Board shall review the operator's status and upgrade it to Operator-in-Training or Full Operator Status.

(3) Full Operator Status. Full operator status refers to an operator who has passed a certification examination and meets all experience requirements set forth in 257 CMR 2.12 for a specified wastewater treatment facility.

## 2.07: Issuance of Certificates

(1) Upon satisfactory fulfillment of the requirements provided herein, the Board shall issue to the applicant a certificate. The certificate shall indicate the operator's grade pursuant to 257 CMR 2.12 and state the class of treatment plant which the operator is qualified to operate pursuant to 257 CMR 2.13. Changes in the grade or status of an operator shall be reflected by documentation issued by the Board.

(2) Certificates shall be valid provided renewal is made in accordance with 257 CMR 2.04 and

2.09 unless revoked for cause or replaced by a certificate of higher grade.

(3) Certificates shall be valid unless the Board determines that the holder has not used reasonable care, judgment, and application of their knowledge in the performance of their duties. No certificate shall be valid if it was obtained through fraud, deceit or the submission of inaccurate data concerning the individual's qualifications.

#### 2.08: Emergency and Provisional Facility Certification

(1) By a majority vote and for good cause shown, the Board may grant emergency certification to an operator to work at a specified facility in a position for which the operator is not otherwise certified. The Board may grant a Chief Operator an Emergency Certification only if the request for Emergency Certification is approved by the appropriate regional DEP/DWPC section chief. Emergency Certification shall not be granted to employees or managers of contract operations and maintenance firms. Emergency Certification shall be valid for no longer than six months and cannot be renewed.

(2) By a majority vote, the Board may issue a Provisional Certification to any operator who meets all of the requirements for a specified grade applied for except that the applicant has not passed the appropriate examination. A Provisional Certification shall be issued only after the applicant has failed the applicable examination and Emergency Certification previously granted has expired, shall be of no more than six months duration, and cannot be renewed. The Chief Operator of a facility may not hold Provisional Certification unless allowed by the Board.

#### 2.09: Renewal and Revocation Provision

(1) Until December 31, 1996, operator certification shall be renewed annually. Operators initially certified or renewing certification after December 31, 1995, shall renew certification by demonstrating that they have earned 10 or more Training Contact Hours during the previous calendar year. Inactive operators will not be required to obtain the necessary TCH's, but must pay the annual renewal fee. If an Inactive operator becomes Active, the operator must obtain the necessary TCH's annually thereafter. It is the responsibility of the Inactive operator to notify the Board of a change in status.

(2) Operators active during the years 1993 through 1995 shall each obtain 30 TCH's at some point during that three year period.

(3) The Board may revoke the certificate of an operator following a hearing conducted pursuant to M.G.L. c. 30A before a majority of the Board when the Board finds that the operator has practiced fraud or deception or that reasonable care and judgment and the application of knowledge and ability was not used in the performance of their duties; or that the operator is incompetent or unable to

properly perform their duties. An appeal from the decision of the Board may be made to the Superior Court.

(4) The Board may revoke the certificate of an operator who fails to pay the renewal fee or obtain the required training contact hours. Reinstatement following revocation shall be by written examination.

#### 2.10: Education Requirements

Commencing December 31, 1995, and annually thereafter, operators must demonstrate to the Board in their application for renewal that they have earned ten or more Training Contact Hours in the previous calendar year. If, during the past year, the operator has passed a certification examination which upgrades their certification, this shall equal 10 TCH's.

#### 2.11: Operator Descriptions

Assistant Chief Operator - Grade 1-4 facilities. The person in direct responsible charge during the absence of the Chief Operator. Certification required for this position may be one grade below the grade of the plant.

Assistant Chief Operator - Grade 5, 6, and 7 facilities. The person in direct responsible charge during the absence of the chief operator. Certification required is equal to the grade of the plant.

2.11: continued

Chief Operator - In all plants, the person in overall direct responsible charge of the wastewater treatment facility at all times. The certification required for this position is equal to the grade of the plant.

Shift Operator - In all plants, the person in direct responsible charge of a particular shift at a wastewater treatment facility. The certification required for this position is based upon the job duties and responsibilities assigned and determined by the points accrued on one's particular shift. Total points shall not include those for laboratory and BOD, or other units not in operation on the assigned shift.

Weekend Operator - The person in direct responsible charge of the weekend operation of a wastewater treatment facility. The certification required for this position is based upon the job duties and responsibilities assigned and determined by the points accrued on one's particular weekend shift. Total points shall not include those for laboratory and BOD or units not operational on weekends.

#### 2.12: Grades of Wastewater Treatment Facility Operators



(1) There shall be seven grades of operators to coincide with the classification of plants set forth in 257 CMR 2.13. Operator grades shall be issued which correspond to the class of facility which the operator is qualified to operate.

(2) Experience, to be acceptable, shall be the result of satisfactory accomplishment of work. Education-Experience equivalents are set forth below:

Education Experience Equivalent

Master's Degree 5 years (in one of the fields below)

Bachelor's Degree in --4 years Engineering; Chemical, Civil, Electrical, Environmental, Mechanical, or Sanitary. Environmental Science, Biology, Chemistry, Bacteriology, or Public Health

Associates Degree in the above 3 years or Wastewater Treatment Technology

Bachelor's Degree in other fields 3 years Graduation from High School or 2 years its equivalent

Short courses in wastewater treatment and related technical fields may qualify applicants for additional experience equivalents ranging from three to eighteen months as determined by the Board. Additional education experience may only be added up to the maximum per grade level.

(3) Operators shall possess experience and/or education as follows:

(a) Grade 1 Operators shall have passed a Grade 1 examination and possess at least one year of experience at a level of responsibility comparable to that of a Class I plant or higher. Education may be substituted for not more than six months of experience.

(b) Grade 2 Operators shall have passed a Grade 2 examination and possess at least three years of experience at a level of responsibility comparable to that of a Class 1 plant or higher. Education may be substituted for not more than two years of experience.

(c) Grade 3 Operators shall have passed a Grade 3 examination and possess at least five years of experience at a level of responsibility comparable to that of a Class 2 plant or higher. Education may be substituted for not more than three years of experience.

2.12: continued

(d) Grade 4 Operators shall have passed a Grade 4 examination and possess at least six years of experience at a level of responsibility comparable to that of a Class 3 plant or higher. Education may be substituted for not more than four years of experience.

(e) Grade 5 Operators shall have passed a Grade 5 examination and possess at least six years of experience at a level of responsibility comparable to that of a Class 4 plant or higher. Education may be substituted for not more than four years of experience.

(f) Grade 6 Operators shall have passed a Grade 6 examination and possess at least seven years of experience at a level of responsibility comparable to that of a Class 5 plant or higher. Education may be substituted for not more than five years of experience.

(g) Grade 7 Operators shall have passed a Grade 6 examination and possess at least eight years of experience at a level of responsibility comparable to that of a Class 6 plant or higher. Education may be substituted for not more than five years of experience.

2.13: Classification of Wastewater Treatment Facilities

(1) Each municipal wastewater treatment facility shall be classified by the Board as either 1M, 2M, 3M, 4M or 5, 6, or 7 for large or complex facilities. Each industrial wastewater treatment facility shall be classified as either 1I, 2I, 3I, 4I, or 5, 6, or 7 for large or complex facilities. The increasing numerical class indicates increasing complexity of operation and a higher level of training, knowledge, and experience required for operation.

(2) The class of a facility shall be established by adding together all rating values reflecting the complexity of operation for units which are present in the facility, as set forth below:

Rating Values for Classification of Facilities

Unit Rating

Aeration; mechanical or diffused air greater than 0.5 MGD 10 less than 0.5 MGD 6

Aeration; sludge, re-aeration 3 Aeration; pure oxygen greater than 0.5 MGD 10

BOD Removal 1 and up\*

Carbon Filter 2-5 Carbon absorption in an Industrial facility 5 Carbon reactivation 10 Centrifuge 8

Chemical addition 2 points per  
chemical

Chlorination pre, gas or liquid 2

Chlorination post, gas or liquid 2-5

Clarifier, tube settling or inclined plate 2-5

Clariflocculation 6

Coagulation and Neutralization 5

Comminution 1

Condenser 2

Cooling Tower 1-3

Dechlorination 2 Denitrification 5 Dissolved Air Flotation 5

Electrodialysis 5 Electrolytic Recovery 5

2.13: continued

Unit Rating

Equalization 2 Evaporators 2-5 Extended Aeration greater than 0.1 MGD, less than 0.5 MGD 6

Extended Aeration equal to or less than 0.1 MGD 4

Flash Mixing 1 Flow measurement 1 Flocculation 1

Grit Chamber, Aerated 2 Grit Chamber manually cleaned 1 Grit Chamber mechanical grit removal 2

Heat Exchangers 2 High rate filtration units less than

0.1 MGD 1 greater than 0.1 less than 0.5 MGD 2 greater than 0.5 less than 1.0 MGD 3 greater than 1.0 MGD 4 Hypochlorite generation 5 Hypochlorination pre and/or post 1 Hydrocyclones (grit removal) 3

Imhoff tanks 3 Incineration 10 Instrumentation 1-5 Ion Exchange 2-5

Laboratory 1-3 Land Irrigation, spraying 2 Land Irrigation, direct discharge 2

Membrane Filtration 3-5

Nitrification 10

Odor Control 2-5 Oil Separation 2 Oxidation Ditch 5 Oxygen Generation 10 Ozonation 5

Polishing Filter 2 Post-aeration (cascade) 1 Post-aeration (mechanical) 2 Pre-aeration 1 Primary Settling; airlift or manual sludge removal 3 Primary Settling; mechanical sludge removal 5 Primary sludge holding and mixing 2 Pumping (in plant) 3 Pumping stations under operator's control 1

Reaction Vessel 3 Reverse osmosis 5 Rotating Biological Contactors 4 2.13: continued

Unit Rating

Rotating Biological Contactors; multiple stage 7 Rotary Drum Dryers 5

Sand filters; multi media, automatic backwash 3-4 Sand filters; intermittent 2 Sand filters; polishing 1  
Sand filters; subsurface 1 Screens (mechanical) 1 Scum Concentrator 2 Secondary settling; airlift or  
manual sludge removal 3 Secondary settling; mechanical sludge removal 5 Septage facilities 2-5  
Sludge blending 2 Sludge composting 2-5 Sludge drying beds 2 Sludge digestion; aerobic 4 Sludge  
digestion; heated and mixed anaerobic 10 Sludge digestion; heated and unmixed, anaerobic 8 Sludge  
digestion; unheated 2 Sludge elutriation 3 Sludge incinerators 10 Sludge press; belt 8 Sludge press;  
plate and frame 2-8 Sludge storage 2 Sludge thickeners; gravity 5 Sludge thickeners; flotation 5  
Stabilization ponds; non-aerated 1 Stabilization ponds; aerated 3 Stripping Air 2-5 Steam 2-5

Trickling filters; high rate 4 Trickling filters; staged 4 Trickling filters; standard rate 2

Ultraviolet disinfection 2-5

Vacuum filter 10

Wet Air Oxidation 10

Design BOD in Pounds/Day x "f"

\* BOD Removal Rating = 1000

"f" = 0.3 for primary treatment and 0.8 for secondary or higher facilities.

2.13: continued

(3) Wastewater treatment facilities shall be classified according to the following cumulative rating value:

Class Cumulative Rating Value

Class 1 (M or I) 1-7 Class 2 (M or I) 8-20 Class 3 (M or I) 21-30 Class 4 (M or I) 31-50 Class 5 (C)  
51-65 Class 6 (C) 66-80 Class 7 (C) 81 or more

(4) Class 1 (I) and Class 2 (I) facilities which have fewer than three units or a rating of 20 or fewer points shall be considered Type I facilities for the purposes of 310 CMR 4.00.

(5) Class 1 (I) and Class 2 (I) facilities with greater than three units or a rating of more than 20 points and Class 3 (I), Class 4 (I), Class 5, Class 6, and Class 7 facilities shall be considered Type II facilities for the purposes of 310 CMR 4.00.

(6) The Board may establish a rating value for any unit not shown on the table. The Board may change the classification of a particular wastewater treatment facility when there are site-specific factors affecting the complexity of the treatment process.

#### 2.14: Violations and Penalties

No person shall manage, operate or maintain a wastewater treatment facility unless the individual in charge of the facility is in possession of a currently valid certificate issued pursuant to 257 CMR 2.07. Any person who violates any provision of 257 CMR 2.00 or any valid regulation, order or permit issued by the Board; or who knowingly makes any false representation in any application required under 257 CMR 2.03 shall be punished by a fine of not more than \$2500 per day of such violation or by imprisonment for not more than one year, or both, or shall be subject to a civil penalty of not more than \$2500 per day of such violation, which may be assessed in an action brought on behalf of the Commonwealth in any court of competent jurisdiction or an Administrative Penalty pursuant to M.G.L. c. 21A, § 16.

#### 2.15: Permit for Discharge

(1) Rating System for Permit Categories.

(a) Unit Operations is defined as any component of a process that could be utilized solely or combined to attain a specific objective. The rating system is based on the number of specified unit operations in a proposed wastewater treatment facility and the total number of points assigned to each unit operation.

(b) Type I Facility -any facility that has less than three unit operations as listed and has a rating of  $\leq 20$  points.

(c) Type II Facility -any facility that has three or more unit operations as listed or has a rating of  $> 20$  points.

(2) The following is the list of unit operations commonly used in wastewater treatment systems.

Absorption/Adsorption

-Carbon 5

- Ion Exchange 5

OF WASTEWATER TREATMENT FACILITIES

2.1

continued

5:	
Biological Wastewater Treatment	
- Activated Sludge	6
- Contact beds (anaerobic)	5
- RBC	5
- Sand Filters	4
- Trickling Filters	4
Chemical Precipitation (reaction vessel) Clarification	
- Primary	5
- Secondary	5
- Tertiary	5
Chrome Reduction	5
Cooling water (contact and non-contact)	2
Cyanide Destruction	5
Dentention basins, Swales, Infiltration trenches	2
Disinfection	5
Equalization	2
Evaporation	
- Single	2
- Multiple	5
Filtration/Sludge Dewatering	
- Cartridge	3
- Centrifuge	8
- Filter Press	8
- Membrane	5
- Vacuum Filter	1
	0
Flocculation/Mixing/Coagulation	5
Flotation	5
Neutralization/pH Adjust	
- Single	3
- Multiple	5
Oil/Water Separation	
- Gravity fed	2
- Baffled	5
Pumping (in-plant)	3
Settling	
- With manual sludge removal	3
- With mechanical sludge removal	5
Sludge Blending/Thickening	5
Sludge Drying (mechanical dryers)	5
Silver Recovery Unit	5
Stripping (Air/Steam)	5

REGULATORY AUTHORITY

257 CMR 2.00:

M.G.L. c. 21, §§ 34A and 34B.