

STATE OF VERMONT
AGENCY OF NATURAL RESOURCES
DEPARTMENT OF ENVIRONMENTAL CONSERVATION

ENVIRONMENTAL PROTECTION RULE, CHAPTER 4
WASTEWATER TREATMENT FACILITY
Operator Certification Rule
Effective Date 09/25/2014

Section 1. Authority, Purpose, and Applicability

Sections 1263 and 1265 of Title 10 of the Vermont Statutes (10 V.S.A. §§ 1263 and 1265) provide that any permit for the discharge of waste into the waters of the State shall require proper operation and maintenance of the wastewater treatment facility in the treatment or processing of waste by qualified personnel in accordance with standards established by the Secretary. The Secretary has delegated this responsibility to the Commissioner of Environmental Conservation. This Rule is established to provide minimum standards of experience and knowledge required of chief operators, assistant chief operators, and operators of wastewater treatment facilities. A certified operator shall be present at a treatment facility when any operational activity is being undertaken. This Rule is applicable to any state agency regulating activity which requires a certified wastewater treatment facility operator.

Section 2. Definitions

Advisory Board means a group of individuals appointed by the Commissioner to advise the Commissioner on addressing wastewater operator certification issues including regulatory and policy revisions, training requirements, determinations of training contact hours, application and examination reviews, and reciprocities.

Assistant chief operator means the person who performs operations duties under the supervision of the chief operator and makes operational decisions in the absence of the chief operator.

Biological wastewater treatment means the process by which metabolic activities of bacteria and other microorganisms break down complex organic materials into simple, more stable substances.

Certificate means an official document issued by the Commissioner or delegated authority, stating the operator named therein has met the minimum requirements for the classification of wastewater treatment facility specified therein.

Chief operator means an individual designated by the owner to be the certified operator who makes the process control decisions that directly impact the quality or quantity, or both, of wastewater.

Commissioner means the Commissioner of the Department of Environmental Conservation.

Continuing Education Unit (CEU) means a certain number of training contact hours. Some seminars, workshops, training courses, and college courses have official CEU values. 1.0 CEU = 10 Training Contact Hours (TCH).

Contract operations means the operation, management, and/or maintenance of a wastewater treatment facility by someone under contract or agreement other than the owner of the facility.

Department means the Vermont Department of Environmental Conservation.

Design flow means the design capacity of the wastewater treatment facility.

Direct responsible charge for a chief operator means experience as an on-site daily supervisor of the operation of a wastewater treatment facility. The person has responsibility for, without limitation, all process and control direction. Operation of individual process units alone does not constitute direct responsible charge experience.

Domestic wastewater means wastewater discharges from residences or from employee or public washrooms in institutions, businesses, or industrial establishments.

Educational substitution (in place of wastewater experience) means college level courses resulting in a degree relating to wastewater treatment.

General Equivalency Diploma (GED) means a diploma obtained by passing a general educational development test or its equivalent as recognized by the issuing state board of education.

In the field means employment at a wastewater treatment facility or employment which is directly related to the operation of a wastewater treatment facility.

Inactive means the status of a certificate due to operator retirement or certificate expiration.

Industrial wastewater means wastewater, other than domestic, discharged from institutions, businesses, or industrial establishments that is amenable to treatment by means of biological, mechanical, or chemical wastewater treatment.

Operational activity means an activity which directly affects the operations of the wastewater treatment facility (e.g. adjusting valves, performing process control tests, increasing aeration rates, etc.)

Operator means a person whose principal function (greater than 50% of working time) is operating process equipment/valves, etc., at a facility or performing laboratory testing and who is not a chief operator or assistant chief operator. An operator works under the direct supervision of a chief operator or assistant chief operator. Persons whose principal duty is maintenance or truck driving are not operators.

Owner means the discharge permit holder who is legally responsible for the operation of the wastewater treatment facility.

Reciprocity means the certification of an individual who has successfully complied with wastewater operator certification requirements in another state which are equivalent to certification standards in Vermont, as determined by the Commissioner or delegated authority.

Satisfactory evidence means certified copies of official transcripts, diplomas, course descriptions, or other documentation acceptable to the Commissioner or delegated authority.

Training Contact Hour (TCH) means one hour of instruction, approved by the Commissioner or delegated authority, on a topic related to wastewater treatment facility operation. 10 TCHs = 1.0 CEU.

Wastewater treatment facility means a pollution abatement facility permitted by the Department for the purpose of treating domestic sewage or industrial wastewaters, or both.

Section 3. General Policy and Requirements for Owners of Wastewater Treatment Facilities

(a) Owners of wastewater treatment facilities that have discharge permits issued pursuant to 10 V.S.A. §§ 1263 or 1265 or a permit or certificate of compliance issued pursuant to 10 V.S.A. § 1973¹, when such a permit or certificate requires facility operation by certified operators, shall employ chief operators, assistant chief operators, and/or operators who hold valid certifications of the grade and/or industrial type as required herein. Chief operators of wastewater treatment facilities are required to hold a certificate in the numerical grade and/or industrial type equal to the numerical class of the facility at which they are employed. Assistant chief operators of wastewater facilities are required to hold a certificate not more than two grades and/or industrial types below the numerical class of the facility at which they are employed. Employees of businesses that provide contract operations services shall be certified in accordance with this Rule.

(b) Each wastewater treatment facility must have adequate staffing by certified operators to ensure proper operations and maintenance of the facility.

(c) The owner of a wastewater treatment facility shall require each chief operator, assistant chief operator, and operator to prominently display his or her wastewater operator certificate in the office of the wastewater treatment facility.

Section 4. Certificate Grades and Basic Requirements

(a) Operator certificates will be graded in accordance with the facility type, complexity, and design flow of facilities as classified by the Department under Section 7.

(b) Applicants for all certifications shall be able to read and write the English language and have a high school diploma, General Equivalency Diploma (GED), or equivalent.

¹ The permitting requirements of 18 V.S.A. §§ 1218 and 1303 were transferred to 10 V.S.A. § 1973. Facilities covered by such permits, which require facility operation by certified operators, must also comply with this Rule.

(c) Each certificate grade shall require a certain amount of relevant experience outlined in Table 1 below. Education may be substituted for experience for up to one half of the experience requirement established in the table below. All education to be substituted for experience must be documented by a technical school completion certificate or college degree accompanied by a transcript detailing the courses completed; equivalent documented training and education provided by the military shall also be considered. All course-work resulting in a degree must be in a water quality related field. Examples include biology, chemical engineering, chemistry, civil engineering, environmental engineering, public health engineering, and sanitary engineering. All requests for educational substitution shall be reviewed by the Commissioner or delegated authority.

A list of certificates and degrees and the amount of education that may be substituted for experience is as follows:

<u>Type of Degree or Certificate</u>	<u>Educational Substitution</u>
Technical school or college certificate	up to 6 months
Two-year associate's degree	up to 1 year
Four-year bachelor's degree	up to 2 years
Master's degree	up to 3 years

(d) Chief operators of wastewater treatment facilities are required to hold a certificate in the numerical grade and/or industrial type equal to the numerical class of the facility at which they are employed. Assistant chief operators of wastewater treatment facilities are required to hold a certificate not more than two grades below the numerical class and/or industrial type of the facility at which they are employed.

TABLE 1

Wastewater Treatment Facility Classification	Successful completion of wastewater operator certification exam	Experience in the operation of a wastewater treatment facility
I Domestic or Industrial	Grade 1	2 years
II Domestic or Industrial	Grade 2	2 years
III Domestic	Grade 3	3 years
IV Domestic or Industrial	Grade 4	4 years
V Domestic	Grade 5	5 years

Section 5. General Procedure

(a) Application filing. An applicant for a wastewater operator certificate or certificate renewal shall file an application on a form approved by the Department and pay applicable fees as set by 3 V.S.A. § 2822(j)(14).

(b) Application review. The Commissioner or delegated authority shall review an applicant's application and supporting documents to determine whether or not the applicant

possesses the requirements provided herein for the grade applied for, and the Commissioner or delegated authority shall notify the applicant of the application status in writing.

(c) First time applicants. First-time applicants for certification must be employed as an operator, assistant chief operator, or chief operator at a wastewater treatment facility in Vermont at the time of application. The Commissioner or delegated authority shall consider relevant military experience.

(d) Certification examinations. Examinations shall properly reflect the knowledge and ability required of the various facility classifications. The Department shall conduct certification examinations at such times and places as they may find necessary, but not less than once annually. Applicants will be notified of the results. Anyone may take an exam when offered regardless of experience, training, and employment.

(e) Retaking the examination. Applicants who do not obtain a passing grade on a certification examination may be retested at the next scheduled examination.

(f) Reciprocity. The Commissioner or delegated authority may waive examination for applicants holding valid certificates issued by other states which the Department determines have equivalent certification standards, but reciprocity shall not be granted at the highest grade for each category, except upon examination. Applicants' job description and experience in the wastewater field will be considered. Applicants will be notified in writing of the Department's determination for certification. If the applicant is a service member, veteran, or military spouse, the applicant shall be notified within 60 days of the receipt of a complete application of the Department's determination.

(g) Waiver of certification. The Commissioner or delegated authority may waive the requirement for a certified chief operator, assistant chief operator, or operator based on the lack of complexity of the operation of the facility involved.

(h) Emergency situations. In emergency situations the Commissioner or delegated authority reserves the right to, on a case-by-case basis, suspend the certification requirement for a chief operator, assistant chief operator, or operator for up to one year. A wastewater treatment facility must provide sufficient evidence to the Department that an emergency exists at the facility and that a suspension of the certification requirement for a particular employee or employees is the only means by which the facility can continue to *safely* operate.

Section 6. Issuance of Certificates

(a) Upon satisfactory fulfillment of the requirements provided herein, the Commissioner or delegated authority shall issue a suitable certificate. Each certificate for domestic and/or industrial facility operators shall state the grade and type for which the applicant is certified.

(b) Provisional Certificates

(i) For individuals new to the wastewater field, which do not meet the minimum requirements for full certification, the Commissioner or delegated authority may issue a provisional certificate. The applicant must meet the requirements of Section 4(b) and be currently employed at a Vermont wastewater treatment facility. First-time applicants for

Domestic or Industrial Grade 3, 4, or 5 provisional certificates must also have experience in the wastewater field for a minimum of one, two, or three years respectively.

(ii) A provisional certificate shall be valid only for the period of time, not to exceed two years, necessary for the applicant to acquire the training required, as shown in the following table, and to qualify for a full certificate valid for the facility. In the event the requirements for approved training and for full certificate are not met within two years, the provisional certificate will terminate and will not be reissued.

TABLE 2
TRAINING REQUIREMENTS FOR PROVISIONALS

Grade I	10 hours
Grade II	12 hours
Grade III	15 hours
Grade IV	15 hours
Grade V	20 hours

(iii) Applicants holding provisional certificates must present evidence to the Department that demonstrates they have completed at least the above hours of training, have the requisite years of experience, and have successfully passed the certification examination in order to be eligible for a full certificate. Such pre-approved training must relate directly to the field of wastewater treatment operations and be verified by a signed affidavit.

(iv) The granting of a provisional certificate shall not be a defense for improper operation and maintenance of any wastewater treatment facility or equipment or for non-compliance with the terms and conditions of a permit issued pursuant to 10 V.S.A. §§ 1263 or 1265 or a permit or certificate of compliance issued pursuant to 10 V.S.A. § 1973², when such a permit or certificate requires facility operation by certified operators.

(c) Full Certificates and Full Certificate Renewal

(i) Once granted, full certificates shall continue in effect for a period of five years after July 1 of the year in which issued or renewed, unless upgraded or revoked prior to that time. Operators may apply for renewal 60 days prior to the expiration date of the certificate. The Commissioner or delegated authority shall review the application and promptly notify the applicant of any deficiencies. If the application is complete and the renewal requirements fulfilled, the Commissioner or delegated authority shall issue a renewed certificate.

(ii) Applicants for renewal shall present evidence to the Department that demonstrates the completion of approved training hours in amounts indicated in the table below. Within the five years preceding the application for renewal, the following number of completed hours is the minimum required to qualify the applicant for renewal:

² The permitting requirements of 18 V.S.A. §§ 1218 and 1303 were transferred to 10 V.S.A. § 1973. Facilities covered by such permits, which require facility operation by certified operators, must also comply with this Rule.

TABLE 3
RENEWAL TRAINING REQUIREMENTS

		<u>Domestic</u>		<u>Industrial</u>		
Grade I	-	20 hours		Grade I	-	10 hours
Grade II	-	25 hours		Grade II	-	15 hours
Grade III	-	30 hours		Grade IV	-	30 hours
Grade IV	-	30 hours				
Grade V	-	40 hours				

All courses to be used for renewal training must be pre-approved by the Commissioner or delegated authority. Such pre-approved training must relate directly to the field of wastewater treatment operations and be verified by a signed affidavit. Wastewater related training obtained through on-line or webinar courses shall not exceed 50% of the total renewal training hours required.

The Department assumes no responsibility to provide any training in conjunction with these training requirements.

(iii) Any wastewater operator who fails to renew their certificate within 60 days of the certificate expiration due to the lack of training, must pass a retest of a level at least equal to the level of the previously unrenewed certificate and meet the training requirements. Any reissued certificate shall terminate on the same date as would have occurred had the certificate been originally renewed. All holders of unrenewed certificates are not eligible for provisional certification.

(iv) Fully certified operators not able to meet training requirements within 60 days of the certificate's expiration may opt to downgrade their certificate to a level based on conformance with training requirements and subject to all other provisions of this Rule. Any upward change will require examination.

(d) The Department may revoke a certificate if it finds that the certificate was obtained through fraud or deceit, or evidence is presented indicating the certificate holder knowingly provided fraudulent information on any documents, reports, and communications regarding the operation of the facility submitted to the Department.

(e) If any applicant or operator is aggrieved by the decision of the Commissioner or delegated authority, the applicant or operator may request, in writing, a review of the decision by the Secretary of Natural Resources. The Secretary may call a hearing within 10 days and shall render a decision within 30 days of the written request for review. Pursuant to 10 V.S.A. § 1269, the applicant or operator may appeal the decision of the Secretary to the Environmental Division of the Vermont Superior Court in accordance with 10 V.S.A. chapter 220.

Section 7. Facility Classification

Each facility classification rating shall be established by evaluating the facility's treatment process and design capacity in accordance with Appendix A.

Section 8. Status of Existing Certificates

- (a) Effective on the date this Rule is adopted, the 1985 Water Pollution Abatement Facility Operator Certification Regulations are superseded.
- (b) Certificates issued under the 1985 Regulations will continue in effect under this Rule, but will lapse as they are replaced by certificates issued under this Rule.
- (c) All persons employed as chief operators, assistant chief operators, and operators in Vermont on the effective date of this Rule, holding a full certificate (not provisional) under the 1985 Regulations, will be issued new certificates upon renewal. The certificates will be valid for a period as provided in Section 6(c)(i).
- (d) All persons employed as chief operators holding a full certificate on the effective date of this Rule for which the certificate grade does not meet the facility class calculated in accordance with Section 7, shall be grandfathered at the employing facility. Such grandfathered certifications shall lapse upon departure from the employing facility unless examination at the grade is successful.
- (e) All persons employed as assistant chief operators holding a full certificate on the effective date of this Rule that do not meet the facility class calculated in accordance with Section 7, shall be granted a two-year grace period to successfully complete the examination for certification.
- (f) All chief operators, assistant chief operators, and operators who had been fully certified under the 1985 Regulations but were not employed as such in Vermont on the effective date of this Rule, upon application, shall be issued a new certificate of the same grade as the one previously held, if they become re-employed at a Vermont wastewater treatment facility within five years of the effective date of this Rule and have met the renewal training requirement. Any such reissued certificates shall expire on July 1 five years from the year in which this Rule becomes effective.
- (g) All operators holding provisional certification under the 1985 Regulations will not be issued new certificates under this Rule, but may apply for full certification once examination, experience, and training requirements are met. Training requirements under the 1985 Regulations shall apply to these applicants.

Appendix A

(a) Wastewater treatment facilities will be classified as follows:

**Table A
Classification Rating by Range of Points**

Facility Class	1	2	3	4	5
Sum of all Points					
Domestic	0-50	51-90	91-120	121-150	151+
Industrial	0-50	51-105	n/a	106-151+	n/a

(b) To classify wastewater treatment facilities the Department will use the following point system:

Category	Points
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Preliminary Treatment

Influent / primary pump / sewage pump (on-site).....	1
Pump stations (off-site) less than 10.....	1
Pump stations (off-site) 10 or more	2
Grit collection / removal.....	2
Comminutor / grinder.....	1
Coarse screen automatic / fine or micro-screen automatic.....	2
Septage receiving (sophistication)	2
Flow equalization basin(s).....	2
Imhoff tank / other predigestion / sedimentation.....	1
Maximum Points:	10

Primary Treatment

Primary settling tank(s).....	1
Primary clarifiers.....	2
Primary clarifiers with chemical addition.....	3
Receives external industrial waste that requires a pretreatment permit.....	2
Maximum Points:	5

Category	Points
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Secondary Treatment

Extended Aeration (EA).....	20
Conventional Activated Sludge (AS).....	20
with pure oxygen (add points).....	5
Oxidation ditch or closed loop reactor.....	10
Aerated Lagoon(s)(AL).....	5
Sequencing Batch Reactor(s) (SBR), other batch treatment	20
Rotating Biological Contactor(s) (RBC).....	20
Chemical addition non-nutrient related (2 points each chemical added/max 10).....	10
Secondary clarifiers.....	5
pH adjustment / control	5
Maximum Points:	35

Disinfection

Chlorination.....	5
Dechlorination.....	5
Ultra-violet (UV) disinfection	10
Maximum Points:	10

Advanced Treatment

Sand filter	5
Sand filter multi-media.....	5
Membrane (or cloth) filtration.....	5
Chemical phosphorus removal.....	10
Biological phosphorus removal.....	10
Nitrification (permit required).....	5
Denitrification (permit required).....	5
Computer based control system for the facility (SCADA or DCS)*.....	5
Reverse osmosis / electro dialysis.....	5
Sprayfield Operation / Disposal	5
Maximum Points:	50

* SCADA = Supervisory Control And Data Acquisition

* DCS = Distributive Control System

Solids Handling, Sludge Processing and Management

Sludge holding tank / decanting tank.....	2
Sludge concentrator mechanical.....	3
Sludge gravity thickener basin.....	3
Sand drying beds.....	1
Digester (aerobic).....	5
Digester (anaerobic).....	10
Dissolved Air Flootation (DAF).....	10
Belt filter press / plate & frame / vac filter.....	10
Centrifuge.....	10
Rotary press.....	10
Lime stabilization.....	3
Two-stage digestion, ATAD.....	10
Maximum Points:	25

Category	Points
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Biosolids Management

Composting / heat drying.....	10
Land application.....	10
Maximum Points:	10

Design Capacity (gallons per day (gpd))

Less than 10,000.....	1
10,000 to 50,000.....	2
50,001 to 100,000.....	4
100,001 to 500,000.....	9
500,001 to 1,000,000.....	12
1,000,001 to 5,000,000.....	16
5,000,001 to 10,000,000.....	20
Greater than 10,000,000.....	25
Indirect discharge or high-strength waste disposal (in addition to above gpd).....	5
Maximum Points:	30

Odor Control

Odor control, site (scrubber / carbon)	10
Site odor control (biofilter).....	10
Other odor control (chemical, bacteria, spray).....	2
Maximum Points:	10

Laboratory Controls (analysis performed by plant personnel)

Basic laboratory (pH, chlorine, settleable solids, temperature, dissolved oxygen, etc.).....	2
Biochemical Oxygen Demand (BOD), Total Suspended Solids (TSS), or <i>Escherichia coli</i> bacteria (E. Coli) (4 points each with max. of 10)..	10
Phosphorus, Total Kjeldahl Nitrogen (TKN), or other nutrients (4 points each with max of 10 points).....	10
Advanced metals.....	10
Microscope ID.....	5
Maximum Points:	25

Other

Emergency power (entire plant).....	10
Emergency power (partial plant).....	5
Multi-permit.....	5
Maximum Points:	15

TOTAL MAXIMUM POINTS: 215

* SCADA = Supervisory Control And Data Acquisition
 * DCS = Distributive Control System

(c) Definitions

Biochemical Oxygen Demand (BOD) means the amount of oxygen utilized by bacteria in the biochemical oxidation of organic matter over five days.

Biological wastewater treatment means the process by which metabolic activities of bacteria and other microorganisms break down complex organic materials into simple, more stable substances.

Chemical Precipitation as used in Section 7 means a method of wastewater treatment utilizing chemicals for flocculation and may include precipitation. Addition of these chemicals is specifically designed to remove Biochemical Oxygen Demand (BOD), suspended solids (SS), Chemical Oxygen Demand (COD), phosphorus, heavy metals or other deleterious constituents of wastewater and as distinguished from chemical addition to enhance sludge dewatering capabilities or to disinfect wastes.

Design flow means the design hydraulic capacity of the wastewater treatment facility.

Domestic wastewater means wastewater discharged from residences or from employee or public washrooms in institutions, businesses, or industrial establishments.

Industrial wastewater means wastewater, other than domestic wastewater, discharged from institutions, businesses, or industrial establishments that is amenable to treatment by means of biological wastewater treatment.

Wastewater treatment facility means a pollution abatement facility permitted by the Department for the purpose of treating domestic sewage or industrial wastewaters, or both.

(d) The Department may, after considering the advice of the Advisory Board, modify the wastewater facility classification rating system.