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State of Maine

Annual Operator Certification Program Report

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The State of Maine, Department of Health and Human Services, Center of Disease Control and Prevention, Division of Environmental and Community Health, Drinking Water Program (DWP) is responsible for regulating public water systems and overseeing compliance with requirements of the Safe Drinking Water Act and Maine’s Rules Relating to Drinking Water. In 1995 the Maine State Legislature established the Board of Licensure of Water System Operators (Board) to improve the level of professionalism of water system operators. The Board, comprised of nine appointees by the Governor, in conjunction with the DWP ensures that the continued high quality of training, examination and licensing of operators of public water systems in Maine.

Operators of Maine’s public water systems (PWS) are first and foremost protectors of public health and the safety of drinking water. Maine’s water systems span a spectrum of complexities and sizes with each operator responsible for the same results: a safe and adequate drinking water supply. The Board ensures that operators meet standards by evaluating experience and education through application review, and performance through successful completion of a nationally verified examination. The Operator Certification Program assists operators in achieving and maintaining this professionalism through training and ensuring appropriate operator coverage at PWSs.

1. Authorization

Maine’s Operator Certification Program has met EPA’s Baseline Standards since major changes were implemented in 2000 and continues to meet and implement EPA’s *Final Guidelines for the Certification and Recertification of Community and Non-transient Non-community Public Water Systems*.

In addition to Maine Rules Relating to the Licensure of Water System Operators 90-429 Chapter 1, the Maine DWP has enacted a series of policies and procedures related to licensed operator requirements. They are *Policy for Administering the Maine Rules Relating to Drinking Water Regarding a Public Water System Operating Without a Licensed Operator; Owner & Operator Responsibilities; Licensed Operator Minimum Requirements for PWS; Procedure for Ensuring Public Water System (PWS) Compliance to Requirements for Having Designated Operators; and Responding to Operator Failure to Perform Duties Properly*.

2. Classification of Systems and Operators

Table 1 shows PWS classifications according to two disciplines - Treatment and Distribution - and the number of PWSs in each. PWSs are classified based on system capacity, source, complexity of treatment, and other physical conditions affecting the systems. The Very Small Water System (VSWS) classification includes both treatment and distribution disciplines.

Table 1 Public Water Systems Classification

PWS Classification	Treatment Points From Appendix A Operator Rules	Distribution points Population	Number of PWS with this classification
Very Small Water System	19 or less	<500	1,085
Treatment Class I	19 or less	N/A	79
Treatment Class II	20 to 34	N/A	83
Treatment Class III	35 to 47	N/A	27
Treatment Class IV	48 or more	N/A	23
Distribution Class I		1,500 or less	135
Distribution Class II		1,501 to 15,000	67
Distribution Class III		15,001 to 50,000	9
Distribution Class IV		>50,000	1

In 2021, there were 875 persons holding an active license and 83 persons with an inactive license that may be renewed within 2 years for a total of 958 licensed persons. In 2021 3 licenses expired due to non-renewal. This number does not include deceased persons but may include retired operators.

License holders who allow their licenses to expire shall be granted license reinstatement upon payment of the reinstatement and renewal fees and upon proof the applicant has completed the required Training Contact Hours pursuant to the State of Maine Water System Operators Rule, 90-249.

Table 2. Licensed Operator Classification

Category of License	Number of Active Licenses-persons	Number of Active OIT Licenses-persons	Number of licenses not renewed (inactive) in 2021: total persons
Very Small Water System	193	0	26
Class I Distribution	149	0	18
Class I Treatment	143	1	14
Class II Distribution	245	4	16
Class II Treatment	224	1	16
Class III Distribution	122	1	10
Class III Treatment	93	3	8
Class IV Distribution	216	3	12
Class IV Treatment	202	0	11

3. Operators

Qualifications

Maine operators are evaluated based on education, experience and job task knowledge measured through successful Association of Boards of Certifications (ABC) examinations. Operators must have a high school diploma or equivalent. Relevant post-secondary education may be used for up to two years' credit toward experience. On-the-job experience may be in a water system or prorated for related professional experience. The level of license is not dependent upon experience in same level of system. Operator In Training (OIT) licenses are available for all levels of operators. The OIT license requires maintenance through continuing education just as a standard license. An OIT licensee has up to 4 years to complete required experience. Certification from the OIT licensee and the employer(s) are required to obtain full licensure. While we do have an Operator In Training program, we do not allow OIT operators to be solely in charge of water systems, even in a temporary capacity. All water systems are required to have fully-qualified operators in responsible charge at all times.

Examination Preparation

Preparation classes are held by independent trainers. Several large utilities provide in-house examination preparation classes. Due to the availability of exams through computer-based testing, preparation classes are offered throughout the year. Maine's Capacity Development set-aside established a Capacity Development Training Reimbursement Fund that reimburses trainers for class attendance for approved classes. This has allowed trainers to market directly to systems as well as hold traditional classes.

As of July 1, 2018, the reimbursement amount changed from \$20/TCH/student to \$15/TCH/student for training classes, and the maximum \$3,000 reimbursement to trainers for multi-day classes was removed. Training provided as part of association conferences and tradeshow now qualifies for reimbursement. In 2021 the Capacity Development Training Reimbursement Fund (TRF) funded 208 training classes with 2,696 attendees.

Examinations

Maine holds an agreement with ABC for the purchase of paper exams. Due to the small number of paper exams given, a purchase contract is not necessary. No paper tests were given in 2021.

Pursuant to Section 5.C of the State of Maine Water System Operators Rule, 90-249 all applicants for licensure must submit satisfactory evidence of graduation from high school or an equivalency certificate.

ABC holds an agreement with Applied Measurements Professionals (AMP) to proctor computer-based testing (CBT). AMP has partnered with PSI Services, LLC to improve examination services. AMP offers CBT in Auburn, Bangor, Farmington, Portland, Presque Isle and South Portland. Maine tests may be taken at these locations or any AMP location in the United States and Canada.

In 2021 the Maine Drinking Water Program had no examination-related issues, reviewed no new questions, and had no need to consult subject matter experts or psychometricians. No licenses were considered for reciprocity in 2021. When an application by reciprocity is received it is reviewed for conformity with Maine licensing requirements (experience, education, etc.) and the Licensing Coordinator contacts the originating jurisdiction to verify that the out-of-state license is in good standing.

Examination record-keeping is on an electronic basis. Operators receive results and mastery reports when they take the exam. Examination reports are submitted by ABC to the licensing coordinator monthly and kept in this electronic format. No personal results are filed by the operator until a license application is received. The certification program maintains the electronic report but does not enter the information into the operator’s record until a license or an upgrade application is submitted. An operator’s record will contain no failed exams.

There were 348 exams administered in 2021 of which 157 were passed. The average score was 69. Average pass rates ranged from 11 percent for Treatment Class 4 to 93 percent for Very Small Water System.

Table 3-Exam Summary 2021

2021	VSWS	I-T	II-T	III-T	IV-T	I-D	II-D	III-D	IV-D	total
# taking test	14	59	70	15	19	71	63	17	20	348
# passing test	13	26	23	10	2	37	28	9	9	157
% pass	93	44	33	67	11	52	44	53	45	45
Avg (mean) score	78	69	67	73	60	70	67	72	69	69

4. Enforcement

System Compliance

System compliance with operator requirements is measured by documentation of persons in responsible charge recorded in Safe Drinking Water Information System (SDWIS) and assurance of up to date active licenses recorded in Safe Water Operator Certification System (SWOCS). This process flows through several DWP teams. Operator compliance changes with retirements, newly found systems and seasonal system activity. Systems are normally given five workdays to secure an operator when the DWP learns of the lack of an operator in responsible charge.

Revisions to the Water System Operators Licensing Rule, 90-429 Code of Maine Rules became effective July 1, 2018. A major change in this Rule was the elimination of a 60-day “grace period” for license expirations. The grace period in the prior rule did not comply with 22 M.R.S. § 2625 which states that the Board shall issue biennial licenses, and 22 M.R.S. § 2623 which states it is unlawful for any person to perform the duties of an operator, as defined, without being duly licensed. Other changes included addition of a Restricted License status for Very Small Water System licensed operators who qualified for an education waiver previously approved by the Department, and various minor clarifications. Restricted licenses will be site specific and non-transferable.

Maine requires that each system have a minimum of one licensed operator that holds both Treatment and Distribution licenses at the same or higher level at which the system is classified. This operator is referred to as the Primary Designated Operator. Systems may have more than one appropriately licensed operator in responsible charge of treatment, distribution or both. These operators are referred to as Designated Operators

and may make water quality and quantity decisions. Unlicensed or under-licensed persons, or Operators-in-Training may not make decisions and must follow established Standard Operating Procedures established by a designated operator.

Table 4 Systems in Compliance Summary 2021

System Type	Number of PWS	Number of PWS with licensed operators	Percentage in Compliance
Community	384	380	99.0%
Non-Transient, Non-Community	371	366	98.7%
Transient systems surface water only	20	20	100%
Total	775	766	98.8%

No systems were issued OP violations in 2021. Approximately ten systems were identified and contacted by telephone, mail, and/or e-mail that had no designated operator in 2021. Approximately 46 contacts were made to water systems for cases where systems either lacked a designated operator or were about to be without one. No licenses were revoked nor were in the process of being revoked in Maine in 2021. There were no licenses suspended in 2021, and there are no licenses currently suspended. On June 30, 2022, there were 0 systems without a certified operator.

Operator Compliance

No complaints were received in 2021 regarding operator compliance. The complaint was resolved without the need for Board review.

5. Certification Renewal

Maine requires relevant continuing education training for the two-year license renewal period correlated to the highest level of license held. Training is applied to both disciplines of licensure. Such training must show a direct link to water quality, water supply, or protection of public health; and be relevant to managing the operation or maintenance of public water systems; or be relevant to the operation or maintenance of public water systems.

It is integral to the license renewal process that operator training be documented. To that end, operators and training providers may submit to the Board copies of course completion certificates or attendance rosters in printed form, by direct e-mail, or by e-mail via an online license renewal site administered by the State of Maine.

Training

The licensing coordinator reviews applications for new training providers and for new classes, guided by a Standard Operating Procedure adopted by the Board several years ago. The Board adopted a revised application form in 2018 which includes ABC Need-To-Know criteria. This standardized format made reviews far less subjective, but still allows for some discretion.

Operators may participate in formal post-secondary courses and subject-specific workshops as well as take advantage of online classes and webinars. An operator cannot attend the same training more than once in a renewal period. This requires operators to seek a variety of relevant training topics in the two-year licensing cycle, thereby broadening their range of knowledge.

There is a continuing need for reasonably priced, easily accessed training for very small water system (VSWS) operators. These persons operate small community systems such as mobile home parks, schools, or apartment houses. Often, operating a public water system is not their primary occupation, thus training offered during business hours interferes with their primary occupation. Online training and free webinars have been used to good effect by VSWS operators due to flexible scheduling. However, many areas in Maine

are problematically distant from live training or lack reliable broadband internet service for online training. Alternatives are being actively researched.

The Board approved 301 new water operator training courses in 2021. Approximately five applications for a new training provider were approved in 2021. A training calendar is posted on the Board's page on the DWP website. Hardcopies of the training calendar are available by request.

No operators were required to take additional training in 2021.

Renewal Database

The SWOCS program has been used for 15 years. However, it has slowly been losing functionality/speed, and therefore we have begun pursuing a replacement. It is likely that by the end of 2023 we will have migrated to GEC's Certification Tracker.

Workforce Forecast

There were 43 new operators licensed in 2021. There were 9 inactive licenses renewed in 2021.

2021 License Renewals by License Grade/Number Renewed:

2021	VSWS	I-D	I-T	II-D	II-T	III-D	III-T	IV-D	IV-T
# Renewed	78	62	54	107	99	55	43	110	104

The Northern Maine Community College (NMCC) in Presque Isle, Maine added a Water and Wastewater Treatment Associate Degree program in 2018, filling a need for such training for potential younger operators. The Board will need to explore methods of outreach and education to entice younger workers to enter the field, perhaps including promotion of the NMCC degree program.

Necessary Resources

The Board considered but ultimately did not pursue raising license fees as part of the changes to the Water System Operators Licensing Rule, 90-429 Code of Maine Rules in 2018.

Staff

Board operational tasks such as document preparation and website maintenance are assigned to a team at the DWP. This team continued to support Maine's Operator Certification Program throughout 2021, and included:

- Tina Lemieux, Board Clerk.
- David Welch, Licensing Coordinator.
- Amy Lachance, Drinking Water Program Manager, Board representative.

8. Board Activities

- The Board met four times in 2021. All meetings were the Board's regularly scheduled meetings. Due to the COVID pandemic, the first two meetings were held virtually.

9. Program Review

- Standard procedures for both the Board and the Board Clerk were continually reviewed.
- The Board fees continue to be closely watched. With no fees from examinations, licensing fees must carry the expenses mid-way through the following fiscal year without replenishment. The Board operates on a July-June fiscal year, receiving most funding in December when operator licenses are renewed. State level initiatives are for zero-based budgeting, which cover only the cost of services with little or no carry-over from year to year.

10. Planned Activities Update

The Board and DWP worked together on operator competency related to system violations.

The Board continues to review policies to ensure alignment with rules and DWP initiatives.

There were no proposed revisions to the Maine Operator Certification program in 2021. In the absence of proposed revisions, no stakeholder meetings were held. There are no grand-parented operators in Maine.

Funding for Training

The SRF Capacity Development Training Reimbursement Fund (TRF) was established to assist in funding operator training and will continue. The 15 percent Capacity Development Grant funds this program. The Capacity Development Coordinator, Sara Flanagan, continued to manage the funding of training programs in cooperation with Board approval of courses. In 2021 we budgeted \$200,000 for the TRF, and we expended approximately \$155,000. In 2022, we are budgeting \$250,000 for this fund.

The funding is open to all providers offering accepted relevant training on annually selected topics. Training topics are reviewed and approved by the Licensing Coordinator and fall into three broad categories: technical, managerial, or financial capacity. This program is in its ninth year and it is used by many providers. The process also facilitates the submittal of attendance forms in a timely manner, to accommodate reimbursements.

The Board's funding is based on licensing renewal fees and the tasks associated with maintaining the licensing program. There are no budgeted amounts for training of operators.

State of Maine Water System Operators Licensing Rule
90-429 Chapter 1

Appendix A

Treatment System Classification Point Values	
Item	Points
Size (2 point minimum to 10 point maximum)	
Maximum population (1 point minimum to 5 points maximum)	1 point per 10,000
Design flow average (1 point minimum to 5 points maximum)	1 point per MGD
Water Supply Sources	
Groundwater	3
Groundwater under the influence of surface water	5
Surface Water	5
Chemical Treatment / Addition Processes	
Fluoridation	5
<i>Disinfection:</i>	
Chlorination	5
Chloramination	10
Chlorine dioxide	5
Ultraviolet light	5
Ozonation	10
pH adjustment (calcium carbonate, carbon dioxide, hydrochloric acid, calcium oxide, calcium hydroxide, sodium hydroxide, sulfuric acid, other)	5
Stability or corrosion control (calcium oxide, calcium hydroxide, sodium or potassium carbonate, sodium hexametaphosphate, other)	5
Coagulation & Flocculation Process	
Chemical addition (aluminum sulfate, bauxite, ferrous sulfate, ferric sulfate, calcium oxide, bentonite, calcium carbonate, carbon dioxide, sodium silicate, other)	1 point per chemical coagulant added (5 points max.)
<i>Rapid mix units:</i>	
Mechanical mixers	3
Injection mixers	2
In-line blender mixers	2
<i>Flocculation tanks:</i>	
Hydraulic flocculators	2
Mechanical flocculators	3
Clarification / Sedimentation Process	
Horizontal Flow (rectangular basins)	5
Horizontal Flow (round basins)	7
Solid-contact	15
Inclined-plate, tube	10
Dissolved air flotation	30
Filtration Process	
Single media filtration	3
Dual or mixed media filtration	5
Microscreens	5
Diatomaceous earth filters	5
Cartridge filters	
As pre-filter to another process	2
As microbiological removal	5
Slow sand filters	5

Item	Points
Direct filtration	5
Pressure or greensand filtration	5
Other Treatment Processes	
Aeration	3
Packed tower aeration	5
Ion exchange / softening (Cation, Anion) To control Primary MCL contaminant	5
To control secondary MCL contaminant	2
Adsorptive media	5
Lime - soda ash softening	5
Membrane filtration- reverse osmosis, micro, ultra, nano	10
Powdered activated carbon	5
Other Processes	0 to 15
Residuals Disposal	
Discharge to lagoons	5
Discharge to lagoons and then raw water source	8
Discharge to raw water	10
Disposal to sanitary sewer	3
Mechanical dewatering	5
On-site disposal	5
Land application	5
Solids composting	5
Facility Characteristics	
<i>Instrumentation:</i>	
The use of SCADA or similar instrumentation to provide data with no process operation	0
The use of SCADA or similar instrumentation to provide data with limited process operation	2
The use of SCADA or similar instrumentation to provide data with moderate process operation	4
The use of SCADA or similar instrumentation to provide data with extensive or total process operation	6
Gravity Fed Systems	
Total atmospheric storage less than average day design flow	5