

Certification Programs for Water and Wastewater System Operators

Joint report of Oregon Health Authority, Drinking Water Services
and Oregon Department of Environmental Quality, Water Quality Program



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Submitted to:

**Governor Brown
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Oregon Environmental Quality Commission
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DEQ is a leader in restoring, maintaining and enhancing the quality of Oregon's air, land and water.

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The Oregon Health Authority and the Oregon Department of Environmental Quality prepared this report in accordance with the requirements of Oregon Revised Statute 448.409. The report describes the activities of OHA and DEQ under their respective water and wastewater operator certification programs from October 16, 2016 to October 15, 2018 (June 30, 2018 for OHA, DWS).

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Executive Summary

Oregon law requires owners of drinking water and wastewater systems (public and private) to operate their systems under the responsible control and direction of certified operators. Trained and certified operators ensure that the systems function in a manner that fully protects public health and the environment. Certified operators also improve facility operation and compliance, protect the public's investment in the facilities, and instill public confidence in the safety and certainty of services. The Oregon Health Authority's Center for Health Protection, Drinking Water Services (OHA-DWS) administers the certification program for drinking water system operators, and the Oregon Department of Environmental Quality (DEQ) administers the program for domestic wastewater system operators. This report provides an overview of program activities and accomplishments, and notes several initiatives to improve program efficiency.

OHA-DWS and DEQ coordinate activities to benefit their respective certification programs. Coordination efforts include, but are not limited to, representation and input at advisory committee meetings on program activities, effectiveness and rulemaking, and general program administration in areas such as testing, efficiencies, and the sharing of operator work experience records. Another important area of coordination includes input to trainers and educators through the Oregon Environmental Services Advisory Council (OESAC) for workforce training and continuing education. Program staff also work with the Associated Boards of Certification (ABC), a national accreditation organization, on issues relevant to certification program operation. Both programs contract with ABC for computer-based testing. OHA-DWS and DEQ eliminated paper-and-pencil exams offered once a year, replacing them with computer-based exams offered year-round, statewide, and up to six days a week. This approach provides examinees with immediate exam results and is expected to improve program efficiency and service delivery. Moreover, utilization of standardized ABC exams, which are used by over 40 states, aids in granting certification via reciprocity.

DEQ has increased use of the Internet for communication, guidance, application and other document distribution. The wastewater system operator certification program's web page includes a database for operators who passed the exam and those who hold current certification, including expiration date and county of residence. DEQ program staff also provide outreach at training workshops and community colleges throughout the state to make additional certification information available to current and prospective operators. DEQ engages regularly with the Wastewater Operator Certification Advisory Committee, and the population it serves, in order to ensure needs are being met.

The data collected for this reporting period is between October 16, 2016 through October 15, 2018.

Table 1: OHA-DWS and DEQ Operator Certification Programs, 2017-2018				
CATEGORY	OHA WATER		DEQ WASTEWATER	
Total Persons Certified	1752		1472	
Holding Two Certificates OHA-DWS <u>or</u> DEQ	526 (29%) (Distribution & Treatment)		617 (42%) (Collection & Treatment)	
Certified by OHA-DWS <u>and</u> DEQ	636 (35%)		537 (37%)	
Certificate Applications Reviewed ¹	579		611	
Applications Denied (not including fails)	46		15	
Certificates Issued by Reciprocity	42		20	
Examinations (scheduled)	525		509	
Failed Exams	106		107	
Continuing Education Required	2.0 CEUs every two years		2.0 CEUs every two years	
Certification Renewal Period	Biennial		Biennial	
Certificates	Distribution	Treatment	Collection	Treatment
Provisional Grade I Certificate	N/A	N/A	3	9
Small System Certificate	847		3	
Grade I Certificate	557	306	407	332
Grade II Certificate	613	226	393	297
Grade III Certificate	227	108	150	156
Grade IV Certificate	121	113	133	206
Filtration Endorsement	N/A	243	N/A	N/A
Total Certificates by Type	1518	753	1086	1000
Total Certificates	2271		2089	
Systems Where Certified Operators Required	Distribution	Treatment	Collection	Treatment
Class I	188	82	141	139
Class II	139	89	127	87
Class III	28	25	40	52
Class IV	14	6	28	43
Total Systems by Type	369	202	336 ²	321
Small Water / Wastewater Systems	864		11	
Total Entities	367³		383	
Certificate Fee (application, exam & license document)	One cert. \$90.00 to \$195.00 Filtration Endorsement: \$90.00		One cert. \$240.00 to \$340.00 (2 yrs.) Grade I combined \$400.00 (2 yrs.)	
Renewal Fee — One Certificate	All grades \$140.00 for two years		All Grades \$160.00 for two years	
Renewal Fee — Two Certificates	All grades \$210.00 for two years		No Additional Fee	
Reciprocity Fee	\$100.00		\$160-260.00 Grades I-IV	
Program Staffing	1.0 Compliance Specialist 2		1.0 Natural Resource Specialist	
			1.0 Administrative Specialist	

¹ “Application” count does not include continuing education evaluations for renewal or reinstatement eligibility.

² This total does not include 54 “satellite” wastewater collection systems that provide effluent to a nearby treatment facility through a connection.

³ This total does not include 864 small water systems.

Certification Program for Drinking Water System Operators

Program Activities

The following is an outline of the Operator Certification Program activities for the past two years.

Water System Classification:

- Classify systems in the areas of distribution, treatment, and filtration method to determine operator certificate grade level requirements

Operator Certification for Grades 1- 4 and Filtration Endorsement:

- Review, evaluate, and verify applications for certification. This includes exams and reciprocity for applicants in the four levels of treatment, four levels of distribution, and the filtration endorsement
- Manage data, receipts, refunds, and reports
- Manage renewal and verify continuing education units (CEU's)
- Manage CEU Audits
- Determine Compliance
- Secure exam sites in Oregon through PSI/AMP
- Manage the operator certification database
- Provide information on examination study materials
- Notify examinees of exam results; issue certificates
- Quarterly unit report to Management
- Terminate certificates based on non-renewal, retirement, and moved or no longer in the water industry

Small Water System Operator Certification:

- Review, evaluate, and verify SWS operator designation application with required training
- Update training materials and documents
- Manage the renewal process
- Manage the database and reports
- Issue certificates
- Determine Compliance

Compliance and Enforcement:

- Track compliance with requirements for qualified and certified operators
- Report performance measures quarterly
- Respond to complaints and investigate allegations of fraud, misconduct, or false reporting
- Track professional growth for individual operators
- Initiate enforcement against non-compliers
- Revoke/suspend certificates when necessary

Technical Assistance and Training:

- Respond to inquiries on certification requirements and procedures
- Provide lists of qualified operators to systems recruiting for vacancies and for professional training
- Provide technical assistance and data management support to OHA-DWS staff regarding system operator and certification compliance
- Update desk manual as needed
- Update contact information
- Attend and present at industry sponsored training conferences
- Provide technical assistance and record support for the OESAC Continuing Education Committee

Efficiency and Service Improvements:

- Work with Data Information Services program staff to implement and customize the new licensing database

- Provide detailed updates to the operator certification procedural manuals
- Perform exam analysis for training needs
- Ensure certification program staff work with field staff to monitor compliance and assure proper system classification
- Update/request new exam locations
- Work with OHA Information Services program staff to implement and customize electronic renewal payment
- Attend quarterly meetings with DEQ staff
- Submit articles to the DWS Pipeline newsletter
- Update forms and language for operator certification website

Coordination and Development:

- Network with other certifying authorities, organizations, and states
- Review and amend Water Operator Certification Rules
- Manage services agreement contract for exams and grading by the Association of Boards of Certification
- Manage services agreement contract for computer-based exams and grading by the Applied Management Professionals through Association of Boards of Certification
- Participate in the activities of the Oregon Environmental Services Advisory Council, which evaluates and assigns Continuing Education Units (CEUs) to courses offered for professional growth and assists in coordinating statewide training in environmental technology
- Provide staff support for the Certification Subcommittee of the Drinking Water Advisory Committee
- Develop forms and guidance materials

Overview of Drinking Water Operator Certification

Notable accomplishments for this report include the following highlights: OHA-DWS has formally adopted a new certification database in May 2018, completing a three-year research and development process. As both operator certification and backflow prevention activities are now managed within this new database together, the programs have been combined into a single certification unit within the Drinking Water Program.

Water System Classification

Water systems are classified as small water, water distribution, or water treatment, depending on their size and complexity. A water system is classified as a Small Water System if it has fewer than 150 connections and either uses only groundwater as its source or it purchases water that needs no further treatment once reaching the purchasing system. Water Distribution systems, with four levels of complexity, are classified based on population served. Water systems are only classified for water treatment when they are not identified as a small water system and are treating for specific contaminants. Water treatment plant classification, also with four levels of complexity, is based on a point system assigned to reflect the complexity of the treatment process used at the plant. A filtration endorsement is required for treatment plant operators who work in facilities that use conventional and direct filtration in which the plant requires a Level 2 operator. Oregon is the only State which requires a Filtration Endorsement. These water system classifications are used to determine the qualifications required of personnel in direct responsible charge of each water system. There are 369 water systems that require Level 1-4 certified distribution operators, and 201 water systems requiring Level 1-4 treatment operators, and 864 systems classified as Small Water Systems. Small water system operators are separated from the larger public water supplier group because small water system operators have unique characteristics: (e.g., certifications are issued to water systems, not operators, there are no fees for small water system certification, and the certifications are valid for three years).

Requirements: Education and experience requirements related to certification is consolidated in one location and included as a table rather than as written text (See Appendix B).

Operator Certification for Grades 1- 4, Filtration Endorsements, and Reciprocity

Certification exam applications are reviewed and administered by program staff. All exams are offered as computer-based exams at multiple locations around the state. During this reporting period, 579 applications for exams were reviewed and 525 exams were provided. 106 operators failed their exam. 42 reciprocity applications were also

reviewed and approved.

Examination: Oregon utilizes the Association of Boards of Certification (ABC) to provide exams for operators seeking certification. ABC contracts with PSI/AMP to proctor the exams, which are all computer-based exams, and which are generally provided at local H & R Block centers. Currently, Oregon has eight testing locations, with the newest exam site located in Wilsonville.

Application review fees are based on the level of certification being sought. Once approved for an exam, applicants work directly with PSI/AMP to schedule their exams and are required to pay the relevant exam fees directly to PSI/AMP. Applicants are provided 90 days to complete their exams once they receive approval to sit for the exam. Successful applicants who score 70% or above on their exam(s) may become certified. All candidates are provided with individualized exam results noting the area(s) of deficiency. DWS staff receive the exam scores from AMP electronically in weekly batches, and new certificates and wallet cards are processed accordingly. OHA-DWS staff evaluate exam content and test results, and then work with trainers to develop training intended specifically to improve areas of deficiency. *See table 1: applications reviewed table*

Reciprocity certificates are granted on a case-by-case basis when an operator’s experience, education, and examination results meet established criteria. The criteria closely follow the Model Certification Program Standards developed by the Association of Boards of Certification (ABC), whose membership consists of over 100 certifying authorities representing more than 40 states and 10 Canadian provinces and several international programs. Program standards, uniform testing, and networking among certifying authorities help enable operators certified in Oregon to receive reciprocity in other states or provinces.

1. Applications reviewed

Year	2018	2017	2016	2015	2014
Applications	282	323	271	262	292

Renewal: Certifications are valid for two years and expire on December 31. Certifications are staggered based on the first letter of the last name; operators whose last name initial begins with the letters A to K will renew their certification in even-numbered years, and individuals whose last name initial begins with the letters L to Z in odd-numbered years. Renewal notices are mailed every November.

Renewal requires an applicant to submit a renewal application, pay the renewal fee, and submit proof that the applicant has completed two continuing education units (CEUs) of professional training. To ensure professional growth, operators are not allowed to utilize the same class training to be credited twice in a renewal period. Oregon currently has 1752 certified operators, with 1518 operators certified in distribution and 753 are certified as treatment operators. Additionally, 526 of these operators maintain certification in both treatment and distribution activities. 243 operators have a Filtration Endorsement rating, and these have no renewal requirement. *See Table 2 renewal data.* Biennial renewals began in 2016.

2. Renewal Data

Year	2018	2017	2016	2015	2014	2013
Operators	937	989	1,162	1808	1861	1860

Operators who fail to renew their certification on time have a one-year grace period where they may pay a late fee and have their expired certification re-instated. Operators who fail to meet this extended deadline legally forfeit their certificate. After forfeiture, operators who wish to be certified again are required to follow the process for initial certification, including successfully passing the appropriate exam. Operators who allow their certificates to expire are disqualified to be the Direct Responsible Charge (DRC) for any water system. Operators who want to voluntarily terminate their certification may complete a termination request and submit it to the program.

Continuing Education Units: Certified Operators are required to demonstrate professional growth in the field by completing 20 contact hours / 2.0 Continuing Education Units (CEUs) every two years. Certified operators are required to submit an affidavit when they renew their certificates attesting to completing the requisite CEUs. Completion of CEUs requires participating in valid training activities relating to technical, managerial, and financial topics relevant to drinking water production activities. Continuing education ensures that operators maintain and enhance their skills and keep pace with changing regulations and technology. Training opportunities are plentiful in the state and well-attended. Training is available from a wide variety of educational programs, and both local and out-of-state training is acceptable.

CEU values are determined in a variety of ways. Nationally accredited schools and universities may assign a CEU value to training they create in accordance with their accrediting standards. Training created by non-accredited industry partners may need to be reviewed by an independent agency for review. In Oregon, OHA-DWS and the Oregon Environmental Services Advisory Council (OESAC) typically review training content and assign CEUs.

DWS holds a position with the Oregon Environmental Services Advisory Council (OESAC) CEU committee and reviews training created by industry and assigns CEUs based on its relevance to drinking water. OESAC evaluates educational programs monthly and maintains records of those courses that meet CEU criteria in the area of environmental technology. These class offerings are also maintained on the OESAC website which is updated monthly. The OESAC committee uses the standards of the International Association for Continuing Education and Training (IACET) to review and assign CEU values to training. 580 courses have been reviewed for training this reporting period, with 262 courses representing 540.5 CEUs being approved for drinking water.

Operators may also choose to attend training that has not been pre-evaluated by OESAC. If an operator selects training that has not already had an independent review of content, DWS certification staff will review the training and assign a CEU value on an as-needed-basis.

Audit: In March 2017, 224 operators were selected for a CEU compliance audit, and in March 2018, 232 operators were selected. Each selection represents approximately 25% of the renewal pool. Those selected for audit were notified by mail and were required to submit proof of obtaining the mandatory 20 contact hours / 2 CEUs worth of training. The training must have been completed within their two-year renewal period. Operators who fail to provide proof of their training within the allotted response time are advised that they are not in compliance with the CEU requirements and are added to the next audit cycle. Subsequent failures to comply with the audit requirements, and/or failing to obtain the minimum number of CEUs within the appropriate certification period will result in additional enforcement actions, which may include the revocation of their certification.

Reinstatement: Operators have a 30-day grace period to renew their delinquent certification without incurring a late fee. Operators who renew their certificates after this 30-day grace period may be assessed a \$50.00 late fee. An operator whose certification is delinquent may not be in the “Direct Responsible Charge” of a water system. Certifications that “are delinquent for more than one calendar year will be forfeited. 309 operators received reinstatement notices this reporting period.

Forfeiture and Voluntary Termination: An operator who wishes to reclaim their certification after having their certification terminated are required to meet all requirements of an initial applicant, including applying for and successfully passing the appropriate level written examination.

Technical Assistance and Training

During the reporting period, program staff responded to thousands of requests for assistance from system owners, operator personnel, training providers, vocational counselors, and regional staff regarding operator certificate qualifications, application forms, continuing education, system classification, and rule interpretation. Access to the list of qualified operators is maintained on the DWS website and is available to the public. This data is also provided upon request to facilitate trainer outreach for continuing education opportunities and to assist water systems with recruitment efforts. DWS staff routinely provide educational presentations at industry-sponsored conferences to facilitate better understanding of program goals and requirements. These presentations are generally well-received by industry groups.

Compliance

Water system compliance is measured by documentation of persons in “Direct Responsible Charge” recorded in Safe Drinking Water Information System (SDWIS) database, with assurance of up-to-date active certification recorded in the Certification Database. The total number of certified operators for the level 1-4 water systems is 1752. There are currently 369 water systems that require a certified operator to be assigned as the distribution direct responsible charge, and 202 water systems that require a certified operator to be assigned as the treatment direct responsible charge. For this reporting period, Level 1- 4 compliance for distribution certification is 99%, and 98% for treatment certification.

For level 1-4 certifications, there was a total of 104 certification terminated for failure to renew effective January 01, 2017. There were an additional 103 certifications terminated for failure to renew effective January 01, 2018.

For small water system certifications, there have been a total of 16 water systems without an appropriately certified operator during this reporting period. The average compliance rate for small water systems is 89%.

Enforcement

OHA-DWS staff respond to allegations of fraud or misconduct of water system operators regarding compliance with applicable rules and standards. The program is typically able to resolve these issues by contacting the appropriate parties to clarify the regulatory requirements. Compliance with Operator Certification requirements is included with any administrative orders generated by Drinking Water Services. The program is currently investigating one report of fraud in exam application submittal. There were no formal complaints during this reporting period.

Small Water System Operator Certification

Oregon’s small ground water operator certification is based on EPA guidelines. This element of the certification program was formerly supported by a grant from the Environmental Protection Agency (EPA) that was allotted to states to fund the training and certification for the operators of Small Water Systems. Small water systems are defined as community or non-transient non-community water systems serving fewer than 150 connections from a groundwater source.

Applicants for certification must have a minimum of a high school education or equivalent and submit an application from the owner assigning the applicant as the “Direct Responsible Charge” for the system. Applicants must also attend a small water system operator training course and provide a copy of their completion certification. This training course was developed on contract for DWS and was based on a document created by drinking water stakeholders, operators, and DWS staff. The training materials consist of a manual with individual, fact sheets on various program elements. These materials were last updated in 2015.

The classroom instruction of the small water system training course is provided under contract by The Oregon Association of Water Utilities (OAWU). This contract will expire in November 2018, and DWS has posted a Request for Proposal (RFP) to select a new vendor for the 2018-2023 contract period.

Efficiency and Service Improvements

The License 2000 (L2K) certification database used for operator certification has been replaced by a new database that now houses all DWS certification data.

Coordination and Development

Drinking Water Services engages stakeholders in a variety of settings. These groups include:

The Drinking Water Advisory Committee (DWAC) advises and assists DWS on policies related to the protection, safety and regulation of public drinking water in Oregon. The committee consists of representatives from served communities, advocacy groups and professional organizations and meets quarterly.

The Oregon Environmental Services Advisory Committee (OESAC) reviews proposed training for qualifications of instructors, determines relevancy of course material, assigns continuing education units, and coordinates training opportunities around the state. OESAC is composed of representatives from community colleges, professional organizations in the water and wastewater industry, OHA-DWS, and DEQ.

The Association of Boards of Certification (ABC) provides the knowledge-based exam testing for operator certification in Oregon. The passing score for all exams in Oregon is 70%. The distribution, treatment and filtration need-to-know criteria are available as a study guide on the DWS website. These tests are given throughout North America and internationally under strict standards set by ABC.

Applied Measurement Professionals (AMP) contracts with ABC to provide exam sites and proctoring for the exclusively electronic certification exams in Oregon. This agreement allows operators to take exams via computer at eight testing centers throughout Oregon. Examinees value computer-based testing as a convenient alternative to the paper and pencil exams, enabling them to schedule the exams anytime during the month and then access score reports when complete. This service also reduces overhead and workload and provides faster compliance for water systems.

The lead operator certification personnel at DEQ's Wastewater Program and DWS meet quarterly to discuss current issues for operator certification.

Certification Program for Wastewater System Operators

ORS 448 requires DEQ to certify persons operating or supervising the operation of sewage treatment works (wastewater systems). Wastewater systems include collection-only systems, treatment-only systems, and combined collection and treatment systems, whether publicly or privately owned. The Wastewater System Operator Certification Program, as adopted in rule by the Oregon Environmental Quality Commission, requires DEQ to:

- Assist permit writers in classifying systems and defining requirements of system owners
- Certify persons qualified to operate and supervise systems
- Set forth a system of penalties for rule violations
- Revoke or refuse to issue certificates for established grounds
- Provide for variances to the rules
- Establish certification fees based on the principle of cost recovery.

Program Activities

Program Coordination and Development:

- Develop forms and guidance materials
- Manage data, invoicing, collection, receipts, refunds, and reports
- Manage contract for testing services by the Association of Boards of Certification
- Review and amend rules, including fees
- Coordinate meetings and provide staff support for DEQ's Operator Certification Advisory Committee
- Communicate with trainers to assess training needs and career development ladders, and participate with OESAC for workforce training and continuing education
- Act as liaison with ABC, North American certifying authorities, and organizations that represent wastewater

system operators, owners, vocational-technical educators and the water quality control industry

Wastewater System Classification:

- Compile, evaluate, and interpret design summary, operation, maintenance, and operational compliance information for wastewater systems statewide
- Assist permit writers in classifying systems to determine operator or supervisor certificate grade requirement
- Coordinate permit notification to system owners

Operator Certification and Examination:

- Evaluate education, training, and experience qualifications for certification, including: Operator-In-Training, Provisional and standard certificates, certificates by reciprocity, continuing education, renewals, and reinstatements
- Evaluate and provide examination accommodations for the disabled
- Proctor and secure paper-based examinations
- Prepare and distribute exam study guidance
- Approve candidates for self-scheduling of computer-based exams
- Provide written notice of exam results
- Issue certificates and renew validation cards for certificate validation
- Review and amend Wastewater Operator Certification Rules as needed

Technical Assistance, Training, and Continuing Education:

- Respond to inquiries and provide guidance and interpretation of certification requirements regarding system owner, supervisor, operator, and contractor operability issues
- Provide technical assistance and record support for the OESAC Continuing Education Committee
- Present program information at conferences, schools, and other events statewide each year
- Provide technical assistance and data management support to DEQ staff regarding system owner and operator certification compliance

Compliance, Variance, and Enforcement

- Track compliance of system owners and operators
- Respond to complaints and inquiries, including evaluation of compliance investigations and actions, and certificate sanction or revocation
- Evaluate and prepare responses to variance applications

Efficiency and Service Improvements

- Transition to the newest (2017) version of the computer-based ABC standardized exam on January 1, 2019
- Improvement of Program webpage
- Creation of Fact Sheets for clarity and simplicity regarding various program elements
- Technology updates, including possible future replacement of licensing data management system

Program Coordination and Development

The objectives of DEQ's Wastewater System Operator Certification Program are to help protect public health, Oregon's environment/water resources, and capital investment in infrastructure through safe and effective operation of Oregon's domestic wastewater collection and treatment systems. The program helps ensure there are an adequate number of qualified persons available to provide these services throughout the state. Some of the emerging challenges wastewater certification helps to meet are those of an aging operator workforce, where the recruitment of new operators is critical to sustaining the continued level of service for Oregon communities. Additionally, the wastewater certification program supports educators to equip operators with the knowledge and experience required for the operation of systems that are becoming increasingly complex in their engineering and technological components. Oregon's wastewater utilities continue to raise minimum employment qualifications for both supervisory and non-supervisory personnel. Certification has established a much-needed minimum standard for education, training, and experience that helps ensure an effective and efficient workforce that properly operates and maintains facilities to minimize adverse effects on water quality.

DEQ rules provide for a standing Operator Certification Advisory Committee to provide advice and make program recommendations. DEQ’s director appoints Advisory Committee members who represent wastewater system owners and operators, professional technical educators and trainers, industry associations, and interested parties. Committee members provide advice and make recommendations to the program. DEQ schedules advisory committee meetings at least twice a year. In 2018, the committee met four times, in preparation for future rulemaking.

With the support of the Advisory Committee, DEQ implemented fee increases through rule revisions in March 2013 to fund the Wastewater System Operator Certification program through 2019. This included a 60 percent across-the-board fee increase for operators and system owners. The Operator Certification program is solely reliant on operator and system owner-paid fees, which had not changed since 2002 despite rising costs of the program. If the one-time fee increase was spread across years 2002 to 2019, the average annual fee increase would have been about three percent.

In the upcoming biennium, DEQ will work with the operator certification advisory committee that includes representatives of small and large wastewater system operators, and professional technical educators and trainers to draft rules that include a strategy to avoid a one-time large fee increase after a number of years of rising costs. Over a series of meetings, committee members will discuss the program’s needs and concerns, including aging workforce strategies, current fee structure, and various proposed approaches to maintain the program at or above the current level of service for the years to come.

Continued acceptance and support of the program is evidenced by increased employer preference for certification, recruiting preferences, promotional and pay incentives, and increased employer support for continuing professional skills training. Another indicator of support is the high number of certification and renewal fees paid for operators by their employers.

Wastewater System Classification

Wastewater systems are classified by DEQ as collection or treatment, and at one of five levels (small and I-IV) based on a system’s size, complexity, and degree of difficulty to operate. These classifications establish the certificate type and grade level requirement for the operator. Some entities have both a collection and treatment system classification, while others have only one type of system. As of October 2018, there were a total of 383 classified systems where certification of operators is required (Table 2). Additionally, there are 54 collection systems that do not have treatment systems where certification is also required.

Table 2: Oregon Classified Wastewater Systems

Collection & Treatment (including 11 SWS)	290
Collection Only	54
Treatment Only	39
TOTAL	383

DEQ conducts classification reviews for a system whenever a permit action occurs (new permit, permit renewal, or permit modification) or a technical evaluation is required (plan review). DEQ staff reviews system classifications for about 25 facilities a year.

Revisions to rules implemented in March of 2013 resulted in establishing small wastewater systems (SWS) as those systems evaluated as having less than 30 total points, and less than 500 design population or less than 150 connections. This allows communities with this classification to operate their systems with an individual who has earned the small systems certification but who have not achieved the higher standard of grade I certification. The small wastewater system certification is a combined collection and treatment certification and may be a valuable certification tool for use by

communities with small wastewater systems. The rulemaking also established the experience required in order to obtain small wastewater system certification.

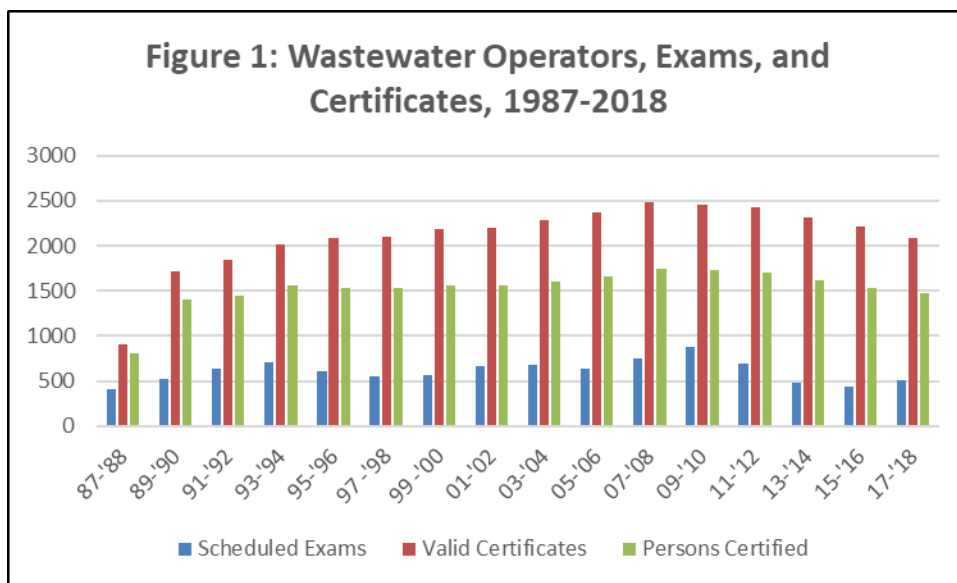
Operator Certification and Examination

Oregon operators must meet minimum standards for education and operator work experience, as well as pass an examination, to obtain a renewable certificate. DEQ examinations are standardized, closed-book tests of 100 questions for both collection and treatment system operation. Computer-based exams entirely replaced paper-based exams as of March 2013, except by special ADA request. Test questions are developed and validated by Association of Boards of Certification, a contracted test administrator.

Unlike paper-based testing that was only offered a few times per year, computer-based testing is available year-round, Monday through Friday, and also on Saturdays in select test sites. Approved candidates schedule their tests with ABC contractor PSI/AMP (<http://www.goamp.com/>), which provides a network of over 170 secured and proctored testing centers across the United States, including at least eight locations in Oregon. The wastewater certification program is continually searching for new exam locations in order to increase the ease of access to testing services. Computer-based testing provides immediate exam results to the examinee and reduces resources from the certification program that would otherwise be required to administer paper-based exams. However, the reduction in program resources required to arrange and proctor paper-based exams is partially offset by increased contractor fees. Overall, computer-based exams provide greater access to testing services with a lower expenditure of program staff resources. Many states and certifying organizations have transitioned to computer-based testing. During this reporting period, DEQ scheduled 509 examinations.

As of October 2018, 1472 persons were certified in wastewater system operation, including 12 holding provisional certificates that require on-the-job training to achieve grade I certification. The total number of valid certificates on this date was 2089, and about 42 percent or 617 persons hold both a certificate in collection system operation and a certificate in treatment system operation.

Figure 1: Oregon's Wastewater Operator Certification Program, 1987- 2018



Technical Assistance, Training, and Continuing Education

During this reporting period, program staff responded to requests for assistance from system owners, operator personnel, training providers and DEQ regional staff regarding operator certificate qualifications, application forms, continuing

education, system classification, and rule interpretation. DEQ also provides certified operator and classified system information to system owners (employers), operators, vocational counselors, organizations, etc., to help with operator training, recruiting and job placement.

To be eligible to renew a certificate, an operator is required to accumulate a minimum of two (2.0) continuing education units (CEUs) or equivalent, or two hours of community college, college or university credit during the two years leading up to the certificate's two year expiration date. OESAC provides evaluation and approval of courses and trainings offered for operators in Oregon. One CEU equals 10 contact hours of participation in an organized continuing education experience under responsible sponsorship, capable direction, and qualified instruction. Courses must have direct application to wastewater system (collection or treatment) operator job tasks and required knowledge. Continuing education promotes professional growth, helps ensure that operators maintain their skills in keeping with changing technology and regulations, and ultimately enhances safe and effective practices in the field.

Training of operators is accomplished by a host of non-profit organizations, community colleges, foundations, public and private sector consultants, and professional trainers. In addition to classroom and formalized on-the-job training, numerous opportunities exist for traditional correspondence and distance learning, such as over the Internet. The OESAC website lists available courses approved for operator continuing education opportunities for certificate renewal or advancement. DEQ staff also deliver training topics including certification requirements, system operation, and compliance issues. DEQ staff assisted with, or made presentations at, 12 of these events statewide during this reporting period.

Compliance, Variance, and Enforcement

DEQ determines permit compliance by reviewing self-monitoring reports, written operator designations and file records, and through field inspections, surveys, and other investigative techniques. DEQ has enforcement authority to compel compliance should it be needed, and program rules call for DEQ's director to revoke or refuse to issue an operator's certificate for grievous acts.

DEQ investigates complaints alleging operator violations of permit conditions for various acts such as failure to perform proper sampling and testing, improper facility operation, false or fraudulent records or reports, or failure to obtain proper certification. DEQ works with system owners and operators who are out of compliance, as well as those where compliance is in question, to help them find efficient and cost effective ways to ensure compliance. DEQ encourages and often recommends a course of action to ensure both operator and operator training deficiencies are corrected in the shortest possible time. When there is an unexpected loss or departure of a system-supervising operator, upon written request, DEQ may grant a conditional time extension to allow for recruiting or for securing a contract with a certified operator. DEQ also monitors compliance of current and accurate designated system supervisor operator forms. Approximately one in four wastewater system owners meet the requirement to designate a certified supervisory operator through some type of contractual agreement that includes the services of a certified operator.

Efficiency and Service Improvements

A program coordinator and a clerical support person currently staff DEQ's Operator Certification Program. The program has increased use of the Internet for communication, guidance, application and other document distribution. The program's web page also includes a database for operators who passed the exam and those who hold current certification, including expiration date and county of residence. Increased use of the program's web page reduces the number of telephone inquiries and the volume of material needed to be sent by post mail.

DEQ continues to use a licensing data management system, *License2000*, made available through the Department of Administrative Services in 2005. License 2000 is currently compatible with DEQ's Information Technology infrastructure and the agency adequately meets its needs for the next few years while new platforms and strategies are developed. In future Legislative Reports, DEQ will describe the scope and context for future licensing software replacement strategies.

DEQ's staggered certificate expiration dates and corresponding two-year continuing education reporting distributes workload and revenue flow over the biennium. DEQ anticipates that all computer-based testing will continue to increase program efficiency and customer service to operators. The move to computer exams also benefits operators in scheduling their exams at any time of the year, on short notice, and in obtaining their certificate(s) faster.

Conclusion

The objectives of DEQ's Wastewater System Operator Certification Program are to help protect public health, Oregon's natural resources, and capital investment in infrastructure through safe and effective operation of Oregon's domestic wastewater collection and treatment systems. The program helps ensure there are an adequate number of qualified persons available to provide these services throughout the state. Some of the emerging challenges wastewater certification helps to meet are those of an aging operator workforce, where the recruitment of new operators is critical to sustaining the continued level of service for Oregon communities. Additionally, the wastewater certification program supports educators in their role to equip operators with the knowledge and experience required for the operation of systems that are becoming increasingly complex in their engineering and technological components.

Oregon's wastewater utilities continue to raise minimum employment qualifications for both supervisory and non-supervisory personnel. With the additional Small Wastewater System Operator certification, DEQ anticipates an increase in certification of operators for small treatment and collection systems. Certification has established a much-needed minimum standard for education, training, and experience that helps ensure an effective and efficient workforce that properly operates and maintains facilities, to minimize adverse effects on water quality.

The Wastewater System Operator Certification Program is working well in Oregon. Accomplishments in 2016 and 2017 include webpage feature improvements, updated application forms that better reflect candidate work experience, identification of additional facilities, addition of extra computer exam sites, and increased compliance monitoring. For the coming biennium, DEQ will continue to seek a variety of outreach opportunities throughout the state. DEQ will also continue to plan for licensing software replacement. The program will continue to engage regularly with the Wastewater Operator Certification Advisory Committee, and the population it serves, in order to ensure needs are being met. Finally, the Operator Certification Program regularly looks to enhance program components by maintaining the most current information and resources on the web page for operators, system owners, DEQ employees, and others interested parties.