WATER PROFESSIONALS INTERNATIONAL

The Associated Boards
of Certification

MODEL STANDARDS OF OPERATOR CERTIFICATION

A comprehensive guide to best practices
for water certification programs

Superior Water Starts Here™

Edition Statement

This is the 2nd edition of the Water Professionals International Model Standards of Operator Certification. This is a living, breathing, and adapting document that is prone to future updates, resulting in the release of new editions. Contact WPI for the most current version.

Acknowledgment

WPI would like to thank all of the volunteers who contributed to the development of this document, a task 40 years in the making.

Copyright Statement

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WPI is dedicated to advancing the quality and integrity of environmental certification programs.

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INTRODUCTION

In 1918, the first operator certification program in North America was implemented. Over the next 50 years, more states and provinces would follow suit, all of them developing programs as they thought best with little guidance or concern for uniformity. Though at the core these programs shared an identical goal, they have differed in the pursuit of that goal since their creation. In 1970, the Water Environment Federation's committee for operator certification released a survey that reported on the state of operator certification programs. The group concluded, "The unfortunate aspect lies in the fact that the programs are as diverse as they are numerous. This seriously impairs the value of certification. The survey demonstrates a critical need for a nationwide standard of personnel classification."

WEF was not alone in its call for standardization and collaboration between operator certification programs, not merely for the sake of uniformity, but also to provide the opportunity for greater assurances of public health and environmental protection. To fill this need, the American Water Works Association and more than 50 operator certification programs came together with WEF to form the Association of Boards of Certification (ABC) in 1972. ABC is now known as Water Professionals International (WPI). WPI was created to be a resource for all certification programs—to advance the quality and integrity of operator certification in a way that would benefit all certification programs, public health, and the environment. Though WPI has carried out its mission in many different ways over its more than 50-year history, few have so perfectly embodied that mission as WPI's Model Standards of Operator Certification.

WPI's model standards are a comprehensive industry resource designed to assist certifying authorities in reviewing, benchmarking, and bettering their certification programs by identifying operator certification best practices and aligning them to national and international certification standards. Model Standards of Operator Certification was authored by a group of industry stakeholders—operators, certification officers, regulators, and trainers representing both WPI members and non-members. The document has been peer reviewed by stakeholders representing state and provincial certification programs, oversight authorities, and other industry associations across the United States and Canada. The industry-developed Model Standards of Operator Certification provides a framework for what a first-tier program should strive to be and do.

1 - Institution

(1.1) Mandatory certification programs shall have the legal authority to implement a program requiring the certification of operators of all public drinking water and wastewater systems/facilities and to mandate that these systems/facilities comply with the appropriate elements of the program. All certification programs, regardless of legal authorization or standing, shall adhere to all applicable best practices of certification.

(1.2) Certification programs shall have a documented structure that ensures impartiality and integrity, defines responsibilities of individuals involved in the certification process, and ensures stakeholder representation.

(1.3) Certification programs shall define the scope of each certification type and class based on analysis of knowledge, skills, and abilities required of individuals working in a specific field.

(1.4) Certification programs shall have the financial resources required for sustained operation as well as for associated liabilities.

(1.5) Certification programs shall comply with all applicable laws and regulations.

2 - Classification of Systems, Facilities, and Operators

(2.1) Certification programs shall classify water and wastewater facilities and distribution and collection systems based on indicators of potential risk to public health and/or environment, which should include

(A) water treatment facility complexity, capacity, population served, and source water characteristics;

(B) water distribution system operational requirements and population served;

(C) wastewater treatment facility complexity, capacity, population served, and wastewater characteristics; and

(D) wastewater collection system operational requirements and population served.

The classification levels for these systems/facilities shall be aligned with the job analysis, which is used to develop validated certification examinations (see Standard 1.3 and Standard 4).

(2.2) Certification programs shall require owners of water and wastewater systems/facilities to place the direct supervision of each facility and/or each system or major segment of the facility and/or system under the responsible charge of one or more operator(s) holding a valid certification equal to or greater than the classification of the facility or system.

(2.3) Certification programs shall require all operating personnel who make process control and system integrity decisions about water quality or water quantity that affect public health or the environment to hold the appropriate class and type of certification.

(2.4) Certification programs shall require all operating personnel working at a Class I or higher system or facility to become certified at Class I or higher in the appropriate system type within two years of employment.

(2.5) Certification programs shall require that a designated certified operator of the appropriate system type and class be on-site or available for each operating shift or system project.

(2.6) Certification programs shall require that all operators, systems, and facilities be classified into one of five levels based on classifications defined by Standards 2.1 and 1.3. The levels of certification start at Class I and continue on to II, III, and IV (IV being the highest, most complex level). A Very Small Water System (VSWS) or Small Wastewater System (SWWS) classification shall be reserved for systems less complex than Class I.

3 - Certification Eligibility

(3.1) Certification programs shall require that candidates have one of these qualifications: a high school diploma, a general equivalency diploma (GED), documentation of post-secondary education from an accredited institution, or foreign academic credentials evaluated to be equivalent to or higher than a high school diploma.

(3.2) Certification programs shall require that candidates have the amount of post-secondary education or allowable substitution of experience prescribed in Table 3A. Education used to meet the education requirement shall be in a field directly related to the type of certification being sought and shall not be reused as a substitute for the experience requirement. Calculation of hours of post-secondary education shall adhere to the conversion factors prescribed in Table 3B.

STANDARDS

TABLE 3A: Required Post-secondary Education and Substitutions		
Class	**Required Post-secondary Education**	**Allowed Substitution: Experience for Post-secondary Education** (Maximum substitution allowed)
VSWS/SWWS	12 contact hours of very small water system/small wastewater system operation education	None
Class I	90 contact hours of post-secondary education in a field directly related to the type of certification being sought	None
Class II	180 contact hours of post-secondary education in a field directly related to the type of certification being sought	None
Class III	2-year degree (physical or natural science; civil, chemical, or environmental engineering) or 900 contact hours of post-secondary education in a field directly related to the type of certification being sought	1 year of DRC* experience in a Class II or higher position for 450 contact hours of post-secondary education
Class IV	4-year degree (physical or natural science; civil, chemical or environmental engineering) or 1800 contact hours of post-secondary education in a field directly related to the type of certification being sought	2 years of DRC* experience in a Class III or higher position for 900 contact hours of post-secondary education
*"DRC" denotes Direct Responsible Charge		

TABLE 3B: Post-secondary Education Conversion Factors	
Post-secondary Education Type	**Equivalent Amount of Contact Hours**
1 Continuing Education Unit (CEU)	10 contact hours
1 semester course credit from an accredited college or university in a subject directly related to the type of certification being sought	15 contact hours
1 quarter course credit from an accredited college or university in a subject directly related to the type of certification being sought	10 contact hours

(3.3) Certification programs shall require that candidates have the amount of operating experience or allowable substitutions of education or related experience prescribed in Table 3C. Experience used to meet the experience requirement shall be directly related to the type of certification being sought and shall not be reused as a substitute for the education requirement.

STANDARDS

(3.4) Certification programs shall define acceptable forms of related experience for each certification type as prescribed in Table 3D. Related experience shall be credited at a rate of 50 percent toward meeting the operating experience requirements for Classes I and II as prescribed in Table 3C.

TABLE 3C: Required Experience and Substitutions			
Class	Required Operating Experience	Allowed Substitutions: Education for Operating Experience (Maximum substitution allowed)	Allowed Substitutions: Related Experience for Operating Experience (Maximum substitution allowed)
VSWS/ SWWS	6 months of operating experience in a very small water system/small wastewater system or higher class utility	None	None
Class I	1 year of operating experience directly related to the type of certification being sought	None	12 months of related experience for 6 months of operating experience (still must have 6 months of operating experience)
Class II	3 years of operating experience directly related to the type of certification being sought in a Class I or higher utility	675 contact hours of post-secondary education in a field directly related to the type of certification being sought for 18 months of operating experience (still must have 18 months of operating experience)	36 months of related experience for 18 months of operating experience (still must have 18 months of operating experience)
Class III	4 years of operating experience directly related to the type of certification being sought in a Class II or higher utility, including 2 years of DRC*	900 contact hours of post-secondary education in a field directly related to the type of certification being sought for 24 months of operating experience (still must have 24 months of operating experience, including 12 months of DRC*)	None
Class IV	4 years of operating experience directly related to the type of certification being sought in a Class III or higher utility, including 2 years of DRC*	900 contact hours of post-secondary education in a field directly related to the type of certification being sought for 24 months of operating experience (still must have 24 months of DRC*)	None

*"DRC" denotes Direct Responsible Charge

TABLE 3D: Accepted Related Experience			
Water Treatment	**Water Distribution**	**Wastewater Treatment**	**Wastewater Collection**
• Water distribution operator • Wastewater treatment operator • Wastewater collection operator • Water/wastewater lab technician* • Engineer* • Plant maintenance technologist**	• Water treatment operator • Wastewater collection operator • Wastewater treatment operator • Pipe layer • Engineer* • Plant maintenance technologist**	• Water treatment operator • Wastewater collection operator • Water distribution operator • Water/wastewater lab technician* • Engineer* • Plant maintenance technologist**	• Wastewater treatment operator • Water distribution operator • Water treatment operator • Pipe layer • Engineer* • Plant maintenance technologist***
*Must be experience obtained in a water/wastewater facility or in a facility similar to a water/wastewater facility. **Duties of plant maintenance technologists accepted as "related" include pipe fitting; plumbing; or maintenance of instrumentation, machines, mechanical systems, or electrical systems. ***Duties of plant maintenance technologists accepted as "related" include pipe fitting; plumbing; power and stationary engineering; or maintenance of instrumentation, machines, mechanical systems, or electrical systems.			

(3.5) Certification programs shall require every applicant, candidate, and/or certificant to disclose any past and/or pending disciplinary action imposed upon him or her, regardless of jurisdiction.

(3.6) Certification programs shall develop a code of conduct and require agreement to adhere to that code of conduct as a condition for issuance of a certification.

(3.7) Certification programs shall develop policies regarding the issuance of certifications to operators who hold certifications from other jurisdictions with the goal of facilitating the mobility of operators between jurisdictions to the extent practicable.

4 - Certification Procedures

(4.1) Certification programs shall use legally defensible exams that are developed and validated using industry-prevailing, psychometrically sound development processes under the supervision of a qualified psychometrician. National standardized exams shall be used to maintain uniformity in evaluating core processes and to facilitate the mobility of operators between jurisdictions. Exams shall be revalidated on an ongoing basis to ensure evaluation of operator competence is based on current technology and regulations. Any revision to an exam form requires a revalidation of the exam form as a whole. Critical components of a psychometrically sound exam development process include

> **(A)** Job Analysis (JA)
>
> **(B)** Test Specifications (*Need-to-Know Criteria*)
>
> **(C)** Item Writing
>
> **(D)** Item Review
>
> **(E)** Field Testing (Beta Testing)
>
> **(F)** Item Analysis
>
> **(G)** Test Form Assembly
>
> **(H)** Standard Setting (Cut Score or Passing Score Setting).

(4.2) Certification programs shall maintain strict exam administration processes, which shall require

> **(A)** candidates to pass examinations sequentially in order from the lowest class to highest class;
>
> **(B)** examinations to be proctored using standards that accord with Instructions for Administering WPI Exams (see Referenced Documents);
>
> **(C)** documentable separation between training and exam administration to ensure exam integrity;
>
> **(D)** candidates who fail an exam to wait 30 days from the previous exam date before retaking the exam;
>
> **(E)** candidates who fail an exam three or more times to complete additional specified training before being allowed to retake the exam;
>
> **(F)** prohibition of exam question review by parties other than the certification program or; approved contractors in order to preserve the security and integrity of the exam process; and
>
> **(G)** submitted comments or queries to have no effect on candidates' exam scores.

(4.3) Certification programs shall require all eligibility criteria to be met (including passing the exam and paying applicable fees) before granting certification. Certification programs shall provide documentation of certification to each certified individual.

(4.4) Certification programs shall require any and all work performed by program contractors and/or subcontractors to adhere to all pertinent certification standards.

(4.5) Certification programs shall ensure the security of all certification-related information: physical and electronic.

(4.6) Certification programs shall develop criteria to identify and protect certification-related information that must be kept confidential.

(4.7) Certification programs shall define and uphold competency and ethics requirements for all individuals associated with the certification process.

(4.8) Certification programs shall require all applicants to submit verifiable documentation of certification eligibility.

(4.9) Certification programs shall define and uphold standards, policies, and procedures for all certification processes.

5 - Enforcement

(5.1) Certification programs shall have the authority to enforce compliance with certification requirements.

(5.2) Certification programs shall define certificant misconduct and procedures for investigating reported misconduct. Common examples of misconduct requiring disciplinary action are

> **(A)** conduct that subverts or attempts to subvert the minimum certification requirements, application processes, or examination processes;
>
> **(B)** failure to disclose convictions and pending felony charges within the scope of the operator's certification;
>
> **(C)** violation of a code of conduct;
>
> **(D)** falsification of records or reports;
>
> **(E)** negligence in operation;
>
> **(F)** incompetence in the performance of duties of a certified operator; and
>
> **(G)** misrepresenting a certification.

(5.3) Certification programs shall have the procedures and resources to fully and consistently implement enforcement processes / disciplinary actions relative to the level of operator misconduct. Examples of disciplinary actions include

    (A) reprimand;

    (B) censure;

    (C) probation;

    (D) suspension;

    (E) revocation;

    (F) fines and other administrative penalties; and

    (G) civil and/or criminal action.

(5.4) Certification programs shall have a documented appeal process for any enforcement or disciplinary action.

(5.5) Certification programs shall have the authority to discipline certificants regardless of the location in which misconduct was committed or of disciplinary action taken by other entities.

6 - Recertification

(6.1) Certification programs shall have a fixed recertification cycle for each certification that includes

    (A) an expiration date not to exceed 3 years from the date certification was awarded; and

    (B) a date by which recertification requirements must be met.

(6.2) Certification programs shall establish and require continuing education hours for recertification as prescribed in Table 6A.

TABLE 6A: Hours of Continuing Education Required Per Certification			
Class	Per 1-year Recertification Cycle	Per 2-year Recertification Cycle	Per 3-year Recertification Cycle
VSWS/SWWS	5	10	15
Class I	8	16	24
Class II	8	16	24
Class III	10	20	30
Class IV	12	24	36

(6.3) Certification programs shall establish criteria for the approval of operator continuing education courses for recertification, including

    (A) course administration;

    (B) course content; and

    (C) relevancy criteria.

At least 75 percent of the continuing education hours required for recertification must be on topics directly related to the certification held. These hours may not be used for any other recertification.

(6.4) Certification programs shall grant recertification credit only once for continuing education subject matter that is repeated within a single recertification cycle.

(6.5) If continuing education hours earned during a single recertification cycle exceed the requirements, excess hours cannot be carried over to subsequent recertification cycles.

(6.6) Certifications with recertification requirements unfulfilled by the expiration date or due date, whichever is specified by the program, shall be considered invalid and shall not be renewed.

(6.7) Certification programs shall require individuals whose certification has been invalidated to re-enter the program by following the procedures and requirements specified by the program. Alternate paths to re-entry may be made available depending on the circumstances resulting in invalidation and the time elapsed since invalidation.

(6.8) Certification programs shall have a mechanism within the recertification process to bring certificants into compliance with changes to the program.

(6.9) If a certified individual has been subject to disciplinary action, certification programs shall ensure that all conditions of the disciplinary action are satisfied prior to recertification.

(6.10) Certification programs shall require agreement to adhere to a code of conduct as a condition of recertification.

7 - Program Review

(7.1) Certification programs shall routinely inform, solicit opinions from, and enlist the involvement of industry groups or committees associated with the operation of water and wastewater systems/ facilities, the certification of operators, and training of operators relative to the administration of the certification program.

(7.2) Certification programs shall annually perform internal reviews of their environmental certification programs.

(7.3) Certification programs shall require external reviews to be conducted

    (A) at least once every five years;

    (B) by entities with relevant certification experience; and

    (C) by entities with no direct reporting responsibility to or a conflict of interest with the certification program being reviewed.

(7.4) Certification programs shall require that internal and external reviews be based on

    (A) a program summary documenting the certification program's mission and the alignment of this mission with the lead agency, department, or association;

    (B) staffing resources, including sufficient staff and board member credentials;

    (C) a budget, cost, or revenue analysis;

    (D) an examination process (see Standard 4);

    (E) a for identification of training needs;

    (F) enforcement process and activity (see Standard 5);

    (G) business processes and regulations;

    (H) a continuing education review process, including relevancy (see Standard 6);

    (I) initial certification and recertification processes;

    (J) data management and integrity;

    (K) the response to previous program reviews;

    (L) stakeholder involvement;

    (M) the status of operators and statistical trends;

    (N) outreach; and

    (O) a strategic plan.

Both internal and external reviews shall include an assessment of adequacy along with identified issues and recommendations for improvement in the areas listed above.

Glossary

Available Able to be immediately contacted to assess and initiate appropriate action.

Certificant An individual certified by a certification program.

Class The level or grade of certification or system/facility.

Contact Hour An organized continuing education experience under responsible sponsorship, capable direction, and qualified instruction.

Direct Responsible Charge (DRC) Where shift operation is required, accountability for and performance of active, daily on-site operation of an operating shift or of a major segment of the system/facility. Where shift operation is not required, accountability for and performance of active, daily on-site operation of the system/facility or of a major segment of the system/facility.

Directly Related Education Post-secondary education in water/wastewater technology, chemistry, microbiology, math, engineering, or similar curriculum essential to system/facility operation of the type of certification being sought.

Directly Related Experience Hands-on operation or direct responsible charge operation of a system/facility or major segment of a system/facility of the type of certification being sought.

Facility The combination of processes and equipment for the purpose of treating water or wastewater.

Field Testing An exam development process during which draft test items are administered to examinees and the results are used to inform Item Analysis and to predict how well the items will perform.

Hands-on Actual operation of a system/facility. Knowledge gathered from daily operating experience of a system/facility and not merely from textbook study.

Item Analysis A phase of exam development during which test items are statistically analyzed to identify items that are not performing well (e.g., items that are too easy or too difficult, or that do not differentiate between candidates who are knowledgeable and those who are not).

Item Review A phase of exam development during which test items are reviewed by subject matter experts for accuracy and clarity and by professional editors for punctuation, grammar, and spelling. Items may also be reviewed for fairness and to ensure conformity with the Test Specifications during this process.

Item Writing A phase of exam development during which subject matter experts write test items in accordance with the content areas and cognitive levels or item types outlined in the Test Specifications, as well as in accordance with any applicable item specifications.

Job Analysis (JA) A study conducted to identify the critical knowledge, skills, and abilities that a professional in the field ought to possess. A JA provides a link between the exam content and the competencies necessary to perform the job.

Modified Angoff A method of standard setting using a panel of subject matter experts who estimate the proportion of minimally competent examinees who would correctly answer each test question. The panel's estimates are combined mathematically to determine a recommended passing score.

Operating Experience Direct responsible charge experience while holding a valid certification or performing hands-on operation of the system/facility.

Operating Personnel Those individuals performing the day-to-day duties relating to the adjustment and control of system/facility processes.

Public Water System A system for the provision to the public of water for human consumption through pipes or other constructed conveyances, if such system has at least 15 service connections or regularly serves at least 25 individuals.

Psychometrics The branch of psychology that deals with the design, administration, and interpretation of quantitative tests for the measurement of psychological variables such as job-related knowledge, skills, and abilities. Also called psychometry.

Psychometrician An individual skilled in psychometrics.

Recertification The periodic process required to maintain a certification, typically the submittal of documentation of continuing education earned during the certification cycle.

Reliability The overall consistency of a measurement; an exam's ability to produce consistent scores or pass/fail results.

Small Wastewater System (SWWS) A wastewater system serving fewer than 500 persons except if rated as a Class I or higher system or facility.

Standardized Exam An exam developed, maintained, and administered in a psychometrically sound manner and widely accepted and used across an industry.

Standard Setting The process through which the passing score for a test is determined, typically by the Modified Angoff method.

System The various components involved in transmitting water from a treatment facility to a point of use, or components used to transmit wastewater from a point of origin to a treatment facility.

Test Blueprint A document developed from the results of a JA that includes a list of content areas to be included on the test as well as the proportion of items to be included from each content area.

Test Description A document providing background information on the exam, such as the purpose, audience, and length.

Test Form Assembly An exam development process during which validated test items are assembled into a test form satisfying the Test Specifications and statistical criteria.

Test Specifications A detailed document including the Test Description and the Test Blueprint that outlines the structure for the test forms. WPI's Need-to-Know Criteria are widely adopted test specifications.

Type The scope of certification (e.g., water treatment operation).

Validity The extent to which a test measures what it claims to and corresponds accurately to the real world.

Very Small Water System (VSWS) A water system serving fewer than 500 persons except if rated as a Class I or higher system or facility.

Standard Justifications

Standard 1 - Institution

[1.1] Various governmental guidelines provide legal standing for implementation of certification programs only for public drinking water systems or facilities, and not for wastewater systems or facilities. Strengthening certification in the drinking water sector was a good start toward safeguarding public health, but ultimately operator certification guidelines for the remaining half of the water consumption cycle are lacking. States, provinces, and other jurisdictions around the world have already recognized the importance of also requiring certification for those working in wastewater systems or facilities. For that reason, the Standard requires that any public water system or wastewater system that affects public health or the environment at large have the legal standing to implement and enforce certification requirements. Not all programs have such jurisdictional authority; however, programs with limited or no authority are encouraged to adhere to as many Standards as possible. Voluntary programs should hold themselves to the same standards as mandatory programs whether or not they have the power to require compliance. Regardless of governmental edicts or local mandates, all programs certifying operators in the water or wastewater sectors should operate in accordance with the same set of high standards. The environment is not a static entity: poor practices in one location invariably affect neighboring locations.

[1.2] Certification procedures must be equitable and uniform, with no applicant given an advantage. The requirements for eligibility in this document (see Standard 3) are a good example of how to provide multiple paths of entry into a program without compromising the integrity of the certification. A base amount of experience and education is set, but individuals whose qualifications exceed what is required in one of those areas can redirect that excess to make up for shortcomings in other areas. This gives those with little education but plenty of experience, and vice versa, the opportunity to become certified and to advance to higher levels of certification.

Employees involved in the certification process must administer the program in an equitable manner. To identify potential conflicts that may undermine their integrity, programs should define responsibilities carefully. One common conflict is an insufficient separation between training and certification. A trainer who is too familiar with the exam may be teaching directly to the exam material. Another example is a trainer who sits on the certification board and must decide whether or not to award certification to a candidate who is also a former student. The previous relationship might give the candidate an unfair advantage. In addition, programs must involve all stakeholders (for example, by structuring a governing board so that all industry groups are represented) to ensure all relevant perspectives are considered and all stakeholders have a voice in the certification process.

[1.3] A psychometrically sound study must be conducted in order to develop a scope of knowledge. A separate study must be done for every type and every class within a type. This is because each class has its own unique set of skills and required knowledge. Job analyses are the first step in creating a valid, psychometrically sound, legally defensible certification. Additional measures needed to complete the process are addressed in Standard 4, Certification Procedures.

[1.4] Finances play an important role in the operation of a certification program. Though it should be obvious that a program should aspire for financial sustainability, the issue of liability is not always as obvious. Certification programs need to be financially prepared should legal action be necessary or legal defense of the program be required. A financially sustainable certification program is necessary to protect the public health, environment, and infrastructure. Certification programs are strongly encouraged to implement full-cost pricing evaluations to support daily maintenance and to conduct long-term planning. Such evaluations should include staff-to-operator ratio, exam development and administration cost, analysis of program workload requirements per certification type to establish certification fees, and identification of alternative revenue sources.

[1.5] The intent of operator certification is to ensure that individuals possess the minimum acceptable knowledge, skills, and abilities necessary to protect public health and the environment. Standards adopted for administering a certification program must conform to the laws of locations where they are instituted. Local laws may allow more stringent certification standards, but programs should avoid arbitrary or unnecessary barriers that do not protect public health and the environment.

Standard 2 - Classification of Systems, Facilities, and Operators

[2.1] By categorizing (classifying) water and wastewater facilities based on complexity, size, and operational requirements, certification programs can establish various processes that effectively gauge the qualification of the examinee/operator. If the classification level of the facility is aligned with the JA (see Standard 1.3), a true assessment of the examinee's ability to operate a particular facility can be made. WPI and several programs around the world use a plant point rating system to capture and compare these different factors. This Standard recognizes that any psychometrically sound method that adequately weighs complexity, size, operational requirements, or other factors may be used.

[2.2] The owner of a utility is required to designate an operator(s) as being in DRC. Note that the individual who is on-site daily, making decisions must be certified, as specified in Standard 2.3. The individual designated as being in DRC cannot be a general manager, director, or similar administrative official in an office (whether on- or off-site) who is not making these decisions.

In large utilities, several individuals may be designated as in DRC of divisions or major segments. These individuals must also be certified for the appropriate class and type. It is equally important to identify which individuals are earning DRC experience credit as distinguished from the legal DRC responsibility described above. Table 3C denotes that DRC operating experience is required to move up to Class III and then to

Class IV certification. DRC experience can best be defined as accountability for, and performance of, active, daily, hands-on operation. A plant operator working a shift alone is earning DRC experience credit. In a large plant or system, only the lead or chief operator or crew leader on a shift or system project is earning DRC experience credit. For example, an operator in charge, a chief shift operator, or the sole shift operator in a Class II or higher utility is earning the DRC credit required for advancement to Class III certification. An operator designated by the owner as being in DRC would normally always be earning DRC experience credit.

[2.3] The language of Standard 2.3 is based on EPA's Final Guidelines for the Certification and Recertification of Operators of Community and Nontransient Noncommunity Public Water Systems (see Referenced Documents in the Appendix) published February 5, 1999, which indicates the vital importance of having a qualified, certified operator available at all times, whether or not the designated DRC operator is present. In small utilities, the operator often works alone and must make operating decisions. In larger utilities, a chief operator or crew leader shall determine operational or maintenance strategies to be carried out by staff who may not yet be certified and thus are not qualified to make these decisions. For this reason, all individuals making process control / system integrity decisions shall be certified for the appropriate class and type.

Historically, certification programs were established to deal primarily with plant operation; this orientation has changed little in many programs. Since the late 1990s, it has been recognized that most problems originate in the distribution system rather than in the treatment facility. Proper care in water distribution operation and maintenance is critical to ensure drinking water quality. Consequently, certification of distribution system personnel must be brought up to a level equal with that for water treatment plant personnel. Precisely the same scenario and justification apply to the wastewater and collection sectors.

This premise requires considerable change in our industry's mindset. Achieving equivalent certification will require sustained effort over an extended time period by many programs, but the result will be improved water quality and better compliance with environmental regulations. Certification requirements for operators at various levels of responsibility in treatment plants, sometimes by job titles, are well defined in many programs. What is needed now is equal emphasis and attention to distribution and collection systems to meet both the spirit and the letter of the requirement in Standard 2.3. New terminology is also needed to supplement the ubiquitous term "operator." Examples may be "pipe layer," "field crew leader," "maintenance technician," and other similar descriptive professional job titles.

[2.4] Because of the immense importance of maintaining the integrity of these systems, requiring a minimum level of certification provides the greatest assurance that all those working in the field have at least a minimum level of competence. Requiring certification to be obtained within two years provides new operators sufficient time to obtain a year of operating experience and to successfully pass the exam. In meeting this Standard, operators must attain basic education, job training, and experience to continue working in the profession.

[2.5] To ensure continuous proper operation of water and wastewater systems/facilities, an appropriately certified operator must be on-site or able to be immediately contacted so that he or she can initiate appropriate actions to protect public health and the environment. In accordance with Standards 2.2 and 2.3, this allows DRC operators the flexibility to be off-site but still be in direct responsible charge of a system/facility.

[2.6] A comprehensive classification scheme should be based on initial job task surveys and analyses of operators along with a survey and inventory of water and wastewater system components. A Class I facility or system requires a Class I or higher operator to ensure that an operator meeting the eligibility requirements can safely and efficiently operate the system. A four-class classification system is the most prevalent, with a fifth class devoted to very small systems with simpler characteristics and requirements than those of Class I.

Standard 3 - Certification Eligibility

[3.1] Federal government certification guidelines commonly require a high school diploma or GED. A candidate may obtain postsecondary education from an accredited institution without earning a high school diploma or GED. In this case, documentation of equivalent postsecondary education fulfills the Standard. Additionally, many foreign academic credentials may meet if not exceed the high school diploma requirement. Foreign academic credentials validated by a professional educational evaluator would also meet this Standard.

[3.2] To supplement the base education requirements defined in Standard 3.1, additional postsecondary training or education relevant to the certification being sought is needed. Even though an operator may meet the minimum education and experience requirements, he or she may need additional training in that field. Logically, the higher classes of certification require larger amounts of relevant training. Surveys and studies indicate that substitutions between education and experience are common within the industry, allowing operators multiple paths to certification. Education, training, or experience that is used to meet the educational requirement should not be used again to meet the experience requirement.

[3.3] Programs should require a defined minimum amount of on-the-job experience for each class of certification. Many programs that allow substitution of postsecondary education for experience do not define the amount of education to be substituted. WPI has used survey data and existing WPI certification standards to define amounts of required experience for each type and class along with the maximum amount of education that may be substituted for experience. Experience earned in a position of DRC is needed to advance to higher certification levels.

[3.4] Government guidelines typically allow certification programs to substitute experience in a related field for required experience, but the kind of experience or the amount that may be substituted is not always defined. Guidelines should specify what related experience is acceptable and how much of that experience may be used. Related experience substitutions at Class I and Class II are allowed to provide flexibility for new operators to apply related experience from a previous job to obtain certification. Related experience substitutions are not allowed at higher levels, as Class III and IV operators may be exercising DRC operator responsibilities. At this level in an operator's career, he or she should have considerable operating experience to ensure competency.

[3.5] Full disclosure to a certification program of disciplinary action against an individual eliminates unwanted surprises for both the program and the individual. A certificant, applicant, or candidate who conducts him- or herself in a manner unbecoming of a professional presents potential liabilities to the certification program and to the public. For this reason, a proactive approach to uncovering evidence and disclosure of such misconduct is necessary to ensure the credibility of the program. That credibility is essential if the program must mount a legal defense. Credibility also reassures the public that certified operators are professionals of integrity.

[3.6] By defining misconduct, a program establishes a basis for an enforcement program (see Standard 5). Programs that require agreement to a code of conduct give themselves the best possible recourse should a certificant violate the code. The code protects the program and the public by clearly defining the expectations of those holding or seeking certification and by making it clear that certification is a conditional arrangement between a program and an individual; misconduct will have repercussions.

[3.7] To ensure consistent decisions, certification programs must maintain documented policies and procedures for issuing equivalent certifications to operators from other jurisdictions. Such policies and procedures identify circumstances under which an equivalent certification would be issued and what (if any) additional criteria must be met. Where equivalency is possible, certification authorities should carefully consider the material differences between programs when assessing equivalency to facilitate certification mobility.

Standard 4 - Certification Procedures

[4.1] A certification examination that is developed with professional care and consideration for certain critical components is likely to survive legal scrutiny. Development of a legally defensible and reliable certification examination requires strict adherence to psychometric processes and procedures. Critical exam development components are

> **(A)** Job Analysis (JA)
>
> **(B)** Test Specifications (*Need-to-Know Criteria*)
>
> **(C)** Item Writing
>
> **(D)** Item Review
>
> **(E)** Field Testing (Beta Testing)
>
> **(F)** Item Analysis
>
> **(G)** Test Form Assembly
>
> **(H)** Standard Setting (Cut Score or Passing Score Setting)

Depending on needs or conditions, changes in the sequence of the above components may be necessary. Obtaining the services of a psychometrician for development of certification exams shall provide substantial assurance that examinations are developed in accordance with prevailing standards. The goal of the psychometrician is to construct an examination that provides a valid and reliable measure of a candidate's knowledge, skills, and abilities. If an exam score is not reliable, the measurement is not a valid tool. Since certification decisions are based on exam scores, candidates' scores must be reliable and valid.

Certification programs may include exam questions on jurisdiction-specific regulations and processes in addition to the standardized exam. Jurisdiction-specific questions should be developed and validated using industry-prevailing, psychometrically sound examination development processes. They should be scored independently of the standardized exam.

[4.2] **[A]** A sequential program helps ensure that only qualified individuals are able to advance to higher-class systems affecting substantially larger populations.

[B] Uniform administration of examinations is essential in terms of fairness and also for obtaining reliable exam scores. The Instructions for Administering WPI Exams (see Referenced Documents in the Appendix) provide an organized and structured exam administration process for that purpose. In addition to ensuring uniform exam administration, certifying authorities should require that proctors be well trained and free from conflicts of interest.

[C] A separation between exam administration and the education/training processes must be identifiable and documented. Training to the exam undermines the certification process. Exam preparation activities can range from simple practice exams to courses on exam content,

all of which affect exam score reliability. Exam candidates bring to the exam their own levels of experience, knowledge, skills, and abilities. An accurate measure (exam score) of those characteristics of a candidate cannot be made if individual exam performance is inflated due to subversive activities.

[D] Not all examinees who take a certification exam will obtain a passing score. Some do not pass an exam because they lack the needed knowledge, skills, and abilities, while others may be influenced by factors unrelated to the exam, such as illness or exam anxiety. To minimize the potential of unreliable exam scores due to the effects of test practicing, the minimum time frame required between examinations is 30 days.

[E] Although failure may be caused by many factors, additional training does become necessary after a number of unsuccessful attempts. A properly developed certification exam is presumed to measure the candidate's knowledge, skills, and abilities as they relate to a minimally acceptable requirement for a specific type and class of certification. After three unsuccessful attempts on an exam, a candidate must be directed by the certification authority to obtain additional training as prescribed by a diagnostic tool. An exam diagnostic is a useful tool for identifying areas in which a candidate might be deficient and in which additional training might be needed. This will help ensure that the individual learns the subject matter, not the exam items.

[F] Examination materials must be secured throughout the examination development and administration processes. Allowing review of examination questions by examinees (successful or unsuccessful), even under a closely scrutinized procedure, creates a situation that needlessly compromises the exam items and the reliability of the candidate's future examination results. Examination security is paramount to production of reliable scores. Prohibition of exam item review is consistent with the practices of other professional certification organizations.

[G] Score adjustments based on comments or complaints do not constitute a reliable measure of the examinee's knowledge, skills, and abilities. Certification candidates are to utilize the methods suggested by the certification body to bring exam concerns to the attention of the program.

[4.3] Operator certification is based on a progressive model of experience, education, and knowledge, verified by an exam. In order to apply and demonstrate knowledge of operations, an operator needs to not only take relevant training and study relevant subjects but also apply knowledge gained through on-the-job experience. For this reason, operators must meet the experience/education requirements for a certification class prior to writing the applicable exam. The stakes are very high when verifying competency of those working in the water and wastewater industries. Upon an operator's successful completion of all requirements, the certification program shall issue written documentation of certification that specifies the class and type of certification earned.

[4.4] The fundamental responsibilities of the certification entity cannot be transferred to a contractor or subcontractor. Any elements of the certification program conducted by a contractor or subcontractor must meet the same standards as would be required of the certification program.

[4.5] Security of certification-related information must be maintained to demonstrate the credibility of a certification program. Unauthorized access to certification-related material shall jeopardize the validity of the examination development process.

[4.6] Confidentiality of certification-related information must be maintained to demonstrate credibility of a certification program. The certification program shall maintain secured records as determined by applicable laws or rules.

[4.7] Individuals associated with the certification process must be competent in performing their respective duties and maintain ethical behavior relative to the work they perform. All must understand what is expected of them and recognize how their work affects the public.

[4.8] An applicant for any level of certification shall submit documentation including personal information, education, experience, and work history. Since each certification level has minimum entrance requirements, all documentation should be verified. Only verifiable documentation shall be accepted. Decisions based on that documentation must be legally defensible, so the documentation must support those decisions.

[4.9] Certification programs must have documented standards, policies, and procedures to guide the certification process. These standards, policies, and procedures shall be defined with great care to minimize the chance that they are interpreted as vague, subjective, arbitrary, or capricious. The documentation is only part of the program; the standards, policies, and procedures are to be followed by the certifying body and updated as necessary.

Standard 5 - Enforcement

[5.1] Certification authorities shall have the ability to ensure compliance with program requirements. The ideal certification program will have the power to require certification of personnel operating water and wastewater systems/facilities. Without the ability to enforce these requirements, certification authorities cannot effectively administer a program.

[5.2] To ensure consistent application of enforcement procedures and aid in potential litigation, a certification program must have defined procedures and resources available to conduct enforcement. Programs must also document enforcement proceedings and compliance with enforcement action.

[5.3] Certification programs must identify the misconduct that triggers enforcement actions. The development of a code of conduct aids in such identification (see Standard 3.6 and Supplemental Documents for a Sample Code of Conduct). Certification programs must also identify the types of enforcement procedures that can be used when certification requirements are violated. The greater

the number of tools available to a certifying authority, the greater its ability to take appropriate action when rules are violated. Tools such as operator disciplinary action matrices are commonly developed to aid programs in consistent application of enforcement action (see Supplemental Documents for a Sample Operator Penalty Matrix).

[5.4] Certification programs must allow certified operators an opportunity to defend themselves from accusations of wrongdoing. An appeal process provides an operator with the opportunity to receive due process. A documented process also ensures adherence to enforcement procedures and impartial, equal treatment for all defendants.

[5.5] Certification programs should be able to address situations when an operator is disciplined by another certifying authority. Certificants guilty of misconduct should be disciplined by any and all certification authorities from which they maintain certification. A certificant's incompetence or misconduct poses a potential threat to the operation of all water/wastewater systems/facilities, regardless of the location where an infraction occurred.

Standard 6 - Recertification

[6.1] A set recertification period requires certificants to actively maintain their certification and establishes a deadline by which recertification requirements must be fulfilled. According to survey data, the average recertification cycle is just over two years. The shorter the time frame, the more often competency can be assessed. With this in mind, three years should be the absolute maximum. All requirements for recertification shall be submitted prior to a due date determined by the certification program. This provides the program staff with adequate time to verify compliance, notify operators of their status, and prepare for the next cycle. If all recertification requirements are not met by the due date, the request for recertification shall be denied. Continuing education earned in excess of the recertification requirement cannot be carried over into the next cycle. Certification programs may want to make exceptions in the case of extenuating circumstances, such as medical emergencies or military service, though such exceptions should be supported by rule or documented procedure.

[6.2] Certification is an important personal and professional career milestone. It is evidence of the competence required to hold a responsible position in the drinking water/wastewater sector. It directly impacts public health and safety and the environment. One-time certification is not enough. The essence of continuing education is to retain and gain: to retain the skills and knowledge that enabled the operator to become certified in the first place and to gain the new skills and knowledge needed to keep current in this rapidly changing field.

Continuing education is not just an obligation or a means of holding a job; it is an opportunity for professional growth and advancement. Within the drinking water/wastewater industry, continuing education is critical to ensure that operators are aware of emerging operational technologies and approaches, current public

health risks, emerging contaminants, and new legislation. The goal for this standard is to develop a model scheme that takes into account the various program diversities and weighs them against past WPI standards, program requirements across the world, and program requirements of similar professions within the industry.

First, the recertification for each certification stands alone. Fulfillment of the requirements of one certification must not contribute toward the recertification of another certification if a certificant maintains multiple certifications. This could be difficult to enforce if a certificant maintains multiple certifications from multiple certifying bodies; for example, how can continuing education documentation be verified across all certifying bodies to ensure documentation has not been used multiple times? Though there are some difficulties in enforcing this requirement across jurisdictions, it is recommended that certification bodies ensure that a candidate with multiple certifications housed within one program be required to fulfill the full amount of hours for each certification.

Second, the number of hours required for each certification is based on multiple factors, including the average number of hours required by water environment personnel certifying authorities, the average number of hours required by other professions, and an examination of the amount of training needed for individual classes. ABC's 2009 Certification Program Standards were also taken into account. A survey of water and wastewater operator certification programs revealed that two different systems were being used: one was a static system in which every class within one type required the same number of hours, and the other was a dynamic system in which the number of hours required depended on the class of certification. Both approaches have advantages and disadvantages, and a desire to increase the professionalism of certificants must be balanced with the realities of training availability and need.

Taking all of these factors into consideration, the "8, 8, 10, 12" sequence presented in Table 6A was developed. This represents a balance between the current national average (5, 6, 8, 10) and the previously mentioned desire to catalyze increased professionalism in the industry. This set of numbers reflects the fact that operators working in higher-class facilities are exposed to more complex operational requirements and responsibilities and, as a result, have greater training needs. These numbers are also fairly consistent with average standards of other professions within the industry. Professional engineers, public health inspectors (Canadian), and various National Environmental Health Association certifications require between 6 and 15 hours per year on average. In general terms, the current requirements of approximately two-thirds of operator certification programs are less than those shown in Table 6A, while approximately one-third are already at or above those requirements. The survey data also indicated that many operators of systems classified as VSWS/SWWS were not required to demonstrate their competency in the form of continuing education. Relative to Class I systems/facilities, systems classified as VSWS/SWWS require less initial education and experience to be able to understand and operate, thus necessitating only a modest number of contact hours for recertification.

[6.3] Certification programs shall either adopt and reference the latest edition of WPI's relevancy criteria or develop their own equivalent document. Criteria should include all relevant training topics that are directly related to each certification type. This should be a dynamic document, regularly updated to reflect advances in the field. Continuing education content must be relevant and aligned with the classification of the operator. Evaluation of course administration is also helpful in ensuring effective training. The WPI *Need-to-Know Criteria* and Approved Topics Lists (see Referenced Documents in the Appendix) are one such example of relevancy criteria. Using the job task analysis required by Standard 4.1, specific skills and knowledge can be identified to create relevancy criteria. Some knowledge is relevant to all jobs in the water and wastewater sector. For this reason, at least 75 percent of the documented continuing education obtained by an individual must be directly related to the classification for which the certification was issued; 100 percent would be too stringent, while 50 percent would be too lax. This leaves up to 25 percent of an operator's continuing education hours to be obtained in other relevant subjects and able to be shared across certifications. Refer to WPI *Need-to-Know Criteria* and Approved Topics Lists for examples of relevancy criteria.

[6.4] A certification program has little assurance that a certified individual is getting adequate and relevant training if he or she continually takes courses that cover the same subject matter. However, good judgment must be used in the decision to award or deny credit. For example, an individual could take a course on aerobic digestion and another on anaerobic digestion, receiving credit for each though they share the more general subject matter of digestion. Similarly, continuations of a course (Volume I, Volume II, etc.) or paired basic and advanced courses of similar subject matter within a certification cycle are also acceptable. Ultimately, goals are to prevent the repetition of identical courses and to maximize the value of continuing education to certificants, thereby maximizing the value of those certified to the systems or facilities that they operate.

[6.5] Standard 6.4 requires a set number of continuing education hours to be earned per certification, per cycle. This requirement loses its impact if excess hours earned in past cycles can be carried over to address the requirements of a new certification cycle. This Standard affirms that such carryover is not to be allowed, maintaining the importance of regular professional development as a means for programs to gauge certificants' continued competency.

[6.6] According to Standard 6.1, a certification will be invalidated unless recertification requirements are met. This standard dictates how and why. A hard-and-fast deadline for recertification should be instituted calling on certificants to be responsible for the maintenance of their certifications with no grace periods or gray areas. If a certification is expired, it is invalid. This Standard emphasizes that it is the professional responsibility of the candidate, not the certification program, to fulfill recertification requirements.

[6.7] Competency of a candidate for certification is initially measured by an exam, after which some mechanism must be instituted to continually gauge a candidate's proficiency. Continuing education has emerged as the standard alternative to requiring periodic reexamination of candidates. If a certificant does not document participation in one of these options, then competency is no longer assured. Invalidated certifications are not eligible for recertification. Based on history and experience, individual certification programs are encouraged to develop alternate paths for individuals whose certification has expired to reenter the program.

The former certificant should be required to retake either the exam for the certification level previously held or a sequence of exams, depending on the time away from the field. If the former certificant has been without certification for five years or more and has not been employed in the water/wastewater sector or in a related field in that time, he or she must be required to meet all requirements of a first-time applicant, including the lowest-level exam. Additional administrative requirements may be established by the certification program.

It is up to each program to define alternate paths to recertification. Certification programs are urged to give special consideration to documented extenuating circumstances, such as illness or military service, that were a factor in the expiration of certification. Ultimately, alternate paths to recertification must be as fair to those consistently meeting the recertification requirements as they are to those unable to meet the requirements for good reason.

[6.8] Elements of a certification program may change over time. Recertification also provides a method to ensure that certificants are being held to current requirements. Compliance of certificants with the requirements of a certifying authority can thereby be evaluated with every recertification cycle. Although the method(s) employed by certifying authorities to effectively accomplish this will vary, the mechanism used must ensure that competency is maintained in accordance with the current program standards.

[6.9] Special attention is due to those who have undergone disciplinary action. The program must review the action and ensure that every requirement due before recertification has been satisfied prior to awarding recertification. Note that recertification applicants are not required to have completed the entire disciplinary sentence before recertification; they must, however, complete all requirements specified by the due date.

[6.10] Affirmation of a code of conduct has been established in Standard 3.6 as a requirement of initial certification. Reaffirmation of the code at every recertification will help operators ingrain the principles of the code into their practice.

Standard 7 - Program Review

[7.1] Periodic reviews of the operator certification program are critical to ensure that the expressed goals of the program are achieved. Many elements of the program depend on other program elements, and all rely on having adequate resources for implementation. Periodic reviews provide information about effective use of resources and possible improvements in the program. Input from stakeholders, program staff, and outside sources familiar with certification concepts is essential in enhancing the administration, processes, and procedures of the certification program.

[7.2] Internal program reviews conducted annually can help gauge the effectiveness and efficiency of the program and provide insight into possible enhancements. Internal review by the program administration, staff, and stakeholders is, in many cases, an ongoing practice that identifies issues and situations that arise routinely. These may include or address strategic planning, budgeting, revision of regulations, data compilation, formal and informal discussions with training providers and stakeholders, and preparation of periodic program reports. Results of internal reviews must be maintained in program records.

[7.3] At least once every 5 years, external reviews must be conducted by an entity from outside the certification program that has intimate familiarity with the requirements established for operator certification programs. A memorandum of understanding and/or a binding written agreement between the external review entity and the operator certification program that outlines the responsibilities of both parties is strongly recommended. The external reviewer(s) must provide a written report to the operator certification program. The operator certification program is responsible for preparing an action plan that addresses reviewer recommendations. The program must submit the action plan to its lead agency, department, or board in a timely manner. The action plan shall consist of a response to the recommendations and, if appropriate, recommendations and a timeline to implement the improvements identified in the external review.

[7.4] All elements of the operator certification program must be reviewed. Some elements may require more frequent review than others depending on program planning needs. Aside from the basic certification processes and procedures, ancillary program elements, such as information dissemination and identification of operator trends, are to be included in the reviews. Internal and external program reviews are not intended to evaluate compliance with EPA or other jurisdictional requirements; they are conducted to identify possible improvements in program administration, processes, and procedures. Not all identified improvements may be implemented given that funding, regulatory/institutional restraints, and political climate can be barriers to implementation of recommendations.

Sample Documents

These documents are to serve as examples for certification programs in developing documents, policies, and procedures.

Sample Operator Penalty Matrix

Guidelines for Characterizing Operator Certification Violations

These guidelines help ensure consistency when implementing disciplinary actions for certified operators. The items listed do not represent a complete characterization of all violations that may be discovered. This is a living document that should be frequently updated with new violations as they are discovered. Due to the importance of certified operators in protecting public health and safety and the necessity for certifying authorities to rely on self-reporting by certified operators, any instance of falsification shall be considered a serious breach of the public trust that should be met with severe penalties.

		Potential for Harm		
		Major	Moderate	Minor
Extent of Deviation	Major	Revocation	5-year suspension	3-year suspension
	Moderate	5-year suspension	1-year suspension	6-month suspension
	Minor	3-year suspension	6-month suspension	1-month suspension/ probation/reprimand

Potential for Harm	
Major	Violations that actually (or are reasonably expected to) result in a substantial threat to human health or the environment.
Moderate	Violations that actually (or are reasonably expected to) result in a significant threat to human health or the environment.
Minor	Violations that actually (or are reasonably expected to) result in minimal or no threat to human health or the environment.
Extent of Deviation	
Major	The violator deviates from the requirements of the law to such an extent that there is substantial noncompliance.
Moderate	The violator deviates from the requirements of the law significantly, but some of the requirements are implemented as intended.
Minor	The violator deviates somewhat from the requirements of the law, but most of the requirements are met.

Sample Code of Conduct

All applicants for initial certification and recertification must sign and agree to the following
Code of Conduct:

The Code of Conduct requires certificants to act honestly, competently, and with integrity and to use their knowledge, skills, and abilities for the enhancement of public health and the protection of the environment. As a condition of holding and maintaining a certification, I agree to

- Be truthful and accurate in what I say, do, and write.

- Adhere to all laws and regulations applicable to the profession.

- Promote and encourage the highest quality of water/wastewater system/facility operation within the industry.

- Not misrepresent or permit misrepresentation of my qualifications or the qualifications of my associates.

- Not conduct myself in a manner that subverts or attempts to subvert the minimum certification requirements, application processes, or examination processes.

- Continue professional development throughout my career and promote the professional development of the operators under my supervision.

- Not misuse the certificate, logo, and marks of the designation as they are the property of the certification body, and to use such property only in an approved manner.

- Uphold and follow all policies and procedures required by the certification body to remain in good standing.

- Report to the certification body any pending personal litigation within the scope of my certification and actions, and the resulting resolution related to my certification.

- Not participate in any interest, activity, or influence that may be perceived to influence a decision purely for personal gain and that is not in the interest of public health or environmental stability.

I recognize that failure to adhere to this Code is grounds for disciplinary action and enforcement by the certification body.

A certification shall be valid only so long as its holder agrees and adheres to the Code of Conduct. No certification shall be valid if obtained by misconduct.

Referenced Documents

The documents below were instrumental in the development of these model standards.

Association of Boards of Certification. *Comparison of State Requirements: Drinking Water Best PracticesDevelopment*. ABC, 2012.

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U. S. Environmental Protection Agency. *Final Guidelines for the Certification and Recertification of the Operators of Community and Nontransient Noncommunity Public Water Systems. Federal Register* 24, no. 64 (February 1999): 5916–21.

U. S. Environmental Protection Agency. *Operator Certification Guidelines: Implementation Guidance*. 816-R-00-022. Washington, D.C.: Government Printing Office, 2000.