COMMONWEALTH of VIRGINIA

Department of Health

Karen Shelton, MD
State Health Commissioner

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June 30, 2024

Mr. William Richardson
USEPA Region 3
1650 Arch Street
Mail Code 3WP21
Philadelphia, PA 19103-2029

Dear Mr. Richardson:

In compliance with the requirement for states to meet the Certification and Recertification of Operators of Community and Nontransient Noncommunity Public Water Systems (February 5, 1999). Enclosed please find the completed Annual Operator Certification Report for the Commonwealth of Virginia for the reporting period July 1, 2023 to June 30, 2024.

If you have any questions, please do not hesitate to contact me at (804) 477-5171, or at barry.matthews@vdh.virginia.gov.

Sincerely,

Barry E. Matthews, PG
Director – Training, Capacity Development and Outreach

Cc: Mr. Dwayne Roadcap, Director – Office of Drinking Water

Enclosure

Office of Drinking Water
Safe Drinking Water for a Healthy Virginia

VDH VIRGINIA DEPARTMENT OF HEALTH

Commonwealth Of Virginia

Operator Certification Annual Report

Reporting Period July 1, 2023 to June 30, 2024

2024

Contents

Annual Operator Certification Report for Virginia

Executive Summary

The Virginia Operator Certification Program (OpCert) remains a robust, effective program. No backsliding has occurred since the last report. All public health objectives are met by Virginia's Operator Certification Program. Since the Environmental Protection Agency (EPA) published the *Federal Operator Certification Guidelines,* in Virginia, there are 1572 waterworks required to have licensed operators. The compliance rate (percentage of waterworks with a properly licensed operator) is over 99 percent.

The Virginia Department of Health – Office of Drinking Water (VDH – ODW) funds many training opportunities for waterworks operators through the EPA's Drinking Water State Revolving Fund (DWSRF) set-asides. Training partners design the courses to assist operators to gain new and improved skills as well as a better understanding of their industry. These courses provide continuing education credits as replacement for experience to obtaining an operators' licensure, as well as for license renewal.

As of June 4, 2024, there are a total of 2,205 licensed waterworks operators in the State of Virginia across six classifications. This represents an increase of 296 operators since June 2023, only 7 fewer than June 2022. The Virginia Department of Professional and Occupational Regulation (DPOR) is the state agency that oversees waterworks licensure. Effective July 1, 2023, Universal Licensing Recognition (ULR) became effective. This is not reciprocity but is an alternative method of entry to Virginia's Operator licensure for out-of-state individuals. Applicants holding a license in another state for three years or more can apply for a license in Virginia of equal classification. Following passing an examination and meeting other criteria, the applicant can receive a Virginia license. This has resulted in an increase in licensed waterworks operators in Virginia. Additionally, VDH is continuing to collaborate with DPOR and Virginia Tech to offer proctored licensure tests on-site at the end of the annual Virginia Tech Water Operator Short School again this year. This exam is offered in paper format which appeals to individuals who prefer this method over computer-based examinations. VDH continues to actively support low-cost training offered across the state to meet the need for high-quality, accessible water operator training.

DPOR has the power to discipline and fine any licensee and to suspend or revoke or refuse to renew or reinstate any license. The agency also has the authority to deny any application for a license. There were two disciplinary actions taken during the reporting period; details are provided in Section 4 of this report.

Purpose

This annual report provides detailed information on Operator Certification in Virginia. It addresses the nine guidelines of the Federal *Final Guidelines for Certification and Recertification of the Operators of Community (CWS) and Nontransient Noncommunity (NTNC) Public Water Systems.*

The document is organized in accordance with Federal Operator Certification Guidelines*;* the October 15, 2001, Office of Water memorandum "*Annual Submittal for State Operator Certification Programs*," and "*Recommended Operator Certification Annual Submittal Reporting Requirements*" provided by EPA. This report covers the nine baseline standards in the order published in the *Federal Register.*

Background

VDH – ODW is the primacy agency that regulates waterworks in Virginia by means of the Virginia *Waterworks Regulations*. DPOR administers the water operators' licensure program, not the drinking water primacy agency. Since operation of a waterworks is in the interest of public health and safety, operator licensure is required for all operators of community and nontransient noncommunity waterworks.

Within DPOR, the Board for Waterworks and Wastewater Works Operators and Onsite Sewage System Professionals (Licensing Board) is the regulatory board and governing body. Chapter 23, Title 54.1, *Code of Virginia* authorizes the Licensing Board to regulate waterworks operator licensure under its *Waterworks and Wastewater Works Operators Licensing Regulations*.

The Licensure Board provides for the testing of operators and issues licenses. Licenses issued are specific to operator classifications which attest to the competency of an operator to supervise and operate specific classes of waterworks while protecting public health, safety, and welfare, and conserving and protecting the water resources of the Commonwealth. The Licensure Board is comprised of eleven stakeholder members as follows:

- the Director of the Office of Drinking Water of the Virginia Department of Health, or his designee,
- the Executive Director of the Virginia Water Control Board, or his designee,
- a currently employed waterworks operator having a valid license of the highest classification (Class 1) issued by the Board,
- a currently employed wastewater works operator having a valid license of the highest classification (Class 1) issued by the Board,
- a local or regional representative of the Department of Health,
- a representative of an owner of a waterworks,
- a representative of an owner of a wastewater works,
- a licensed alternative on-site sewage system operator,
- a licensed alternative on-site sewage system installer,
- a licensed on-site soil evaluator,
- and one non-legislative citizen member.

The alternative on-site sewage system operator, alternative on-site sewage system installer, and on-site soil evaluator have practiced for at least five consecutive years immediately prior to appointment. No owner can be represented on the Board by more than one representative or employee operator. The term of Board members is four years.

Operator Certification Annual Report

1.0 Authorization

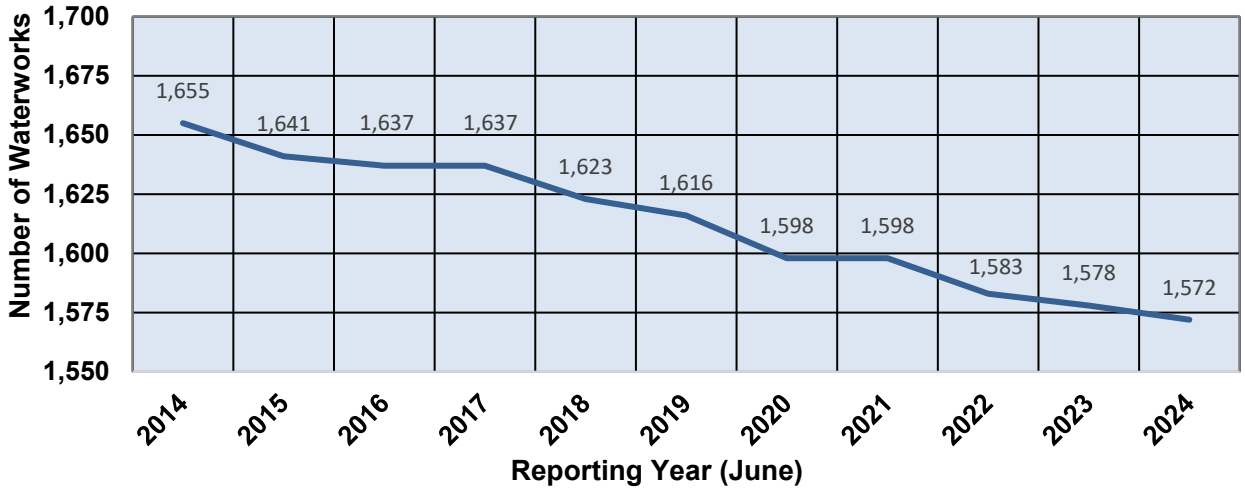
The Licensure Board made no changes or revisions to the licensure regulations since the last submittal of the Attorney General's certification to the Environmental Protection Agency (EPA). The primacy agency has made no changes or revisions to regulations that would affect the licensure or classification of licenses held by waterworks operators.

2.0 Classification of Systems, Facilities, and Operators

In Virginia, VDH-ODW classifies community and Nontransient Noncommunity (NTNC) waterworks by the potential health risks based on size, population served, source, and complexity. There are six classifications from the lowest, Class 6, to the highest, Class 1. In 1999, when EPA published the *Federal Operator Certification Guidelines*, there were 1,992 operators.

As of June 5, 2023, the total number of Community (1068) and NTNC waterworks (504) in Virginia required to have a licensed operator is 1572; this total represents a net decrease of 6 waterworks since the last report. This decline represents small waterworks consolidating with larger waterworks.

Graph 1
Trend in Waterworks Required to have Operators



The total number of licensed waterworks operators in Virginia is 2,205. This reporting period saw an increase of 296 operators in total. This significant increase can be explained, at least in part, by the impact of Universal Licensing Recognition, see table below. To help operators pass their exams and join the workforce, VDH – ODW plans to continue offering low-cost education solutions, which are now more important than ever. Data obtained from DPOR on June 4, 2024.

Table 1
Number of Operators by Class as of June 4, 2024

Class License	Number of 2023 Licensees	Number of 2024 Licensees	Net Gain (Loss) Since 2023 Report
6	183	205	22
5	217	255	38
4	251	314	63
3	300	352	52
2	292	327	35
1	666	752	86
Total	1909	2205	296

2.1 Class 6 Waterworks

A Class 6 waterworks licensee may operate any waterworks as follows: a waterworks providing no treatment other than hypo-chlorination and corrosion control using calcite feeders and serving fewer than 400 persons or a waterworks classified by VDH-ODW as a Class 6 waterworks. As of May 27,2024, Virginia has 883 Class 6 waterworks; a decrease of four from last year's report.

2.2 Class 5 Waterworks

A Class 5 waterworks licensee may operate any waterworks as follows:

- a waterworks serving 400 or more persons which (i) provides no treatment or (ii) employs hypo-chlorination for disinfection; or
- a waterworks classified by VDH-ODW as either a Class 5 or Class 6 waterworks. The Class 5 also serves as the distribution system classification.

As of May 27,2023, Virginia had 276 Class 5 waterworks; an increase of four from last year's report.

2.3. Class 4 Waterworks

A Class 4 waterworks licensee may operate any waterworks as follows:

- a waterworks serving fewer than 5,000 persons or having a design hydraulic capacity of less than 0.5 million gallons per day (MGD), employing one or more of the following (i) disinfection other than with hypo-chlorination, (ii) corrosion control, (iii) iron and manganese removal, (iv) ion exchange, (v) membrane technology without pretreatment, (vi) slow sand filtration, (vii) aeration, (viii) rechlorination other than with hypo-chlorination, or (ix) activated carbon contactors; or
- a waterworks classified by the VDH-ODW as either a Class 4, 5, or 6 waterworks.

As of May 27,2024, Virginia has 258 Class 4 waterworks; a decrease of four from last year's report.

2.4. Class 3 Waterworks

A Class 3 waterworks licensee may operate any waterworks as follows:

- a waterworks serving fewer than 5,000 persons or having a design capacity less than 0.5 MGD, employing chemical coagulation or lime softening in combination with one or more of the following (i) sedimentation, (ii) rapid sand filtration with a rate of 2 gallons per minute (gpm)/square foot or less, (iii) fluoridation, (iv) disinfection, (v) aeration, (vi) corrosion control, or (vii) membrane technologies;
- a waterworks serving 5,000 or more persons or having a design hydraulic capacity of 0.5 MGD, employing one or more of the following; (i) disinfection other than with hypo-chlorination, (ii) corrosion control, (iii) iron and manganese removal, (iv) ion exchange, (v) membrane technology without pretreatment, (vi) slow sand filtration, (vii) aeration, (viii) rechlorination other than with hypo-chlorination, or (ix) activated carbon contactors;
- a waterworks employing (i) membrane technology requiring pretreatment consisting of pH adjustment; or (ii) diatomaceous earth filtration, coupled with aeration, corrosion control, disinfection, or fluoridation; a waterworks employing fluoridation which is not under a higher classification; or
- a waterworks classified by VDH-ODW as either a Class 3, 4, 5 or 6 waterworks.

As of May 27,2024, Virginia had 42 Class 3 waterworks; a decrease of one from last year's report.

2.5. Class 2 Waterworks

A Class 2 waterworks licensee may operate any waterworks as follows:

- a waterworks serving 5,000 or more persons but fewer than 50,000 persons or having a design hydraulic capacity of 0.5 MGD or more but less than 5.0 MGD employing chemical coagulation or lime softening in combination with one or more of the following; (i) sedimentation, (ii) rapid sand filtration, (iii) fluoridation, (iv) disinfection, (v) aeration, (vi) corrosion control, or (vii) membrane technologies;
- a waterworks serving fewer than 50,000 persons or having a design hydraulic capacity of less than 5.0 MGD which employs chemical coagulation or lime softening coupled with multimedia granular filtration or granular filtration at rates above 2.0 gpm/square foot (high rate filtration) in combination with one or more of the following: (i) sedimentation, (ii) fluoridation, (iii) disinfection, (iv) aeration, or (v) corrosion control; a waterworks employing biological activated carbon contactors or membrane technology requiring pretreatment other than pH adjustment; or
- a waterworks classified by the VDH-ODW as either a Class 2, 3, 4, 5 or 6 waterworks.

As of May 27, 2024, Virginia had 77 Class 2 waterworks; no change from last year's report.

2.6. Class 1 Waterworks

A Class 1 waterworks licensee may operate any waterworks. A Class 1 waterworks is a waterworks serving 50,000 or more persons or having a design hydraulic capacity of 5.0 MGD or more which employ chemical coagulation or lime softening with rapid sand or high-rate granular media filtration or membrane or other alternative filtration technologies.

As of May 27, 2024, Virginia had 36 Class 1 waterworks; no change from last year's report.

Below is a table showing the number of designated operators (systems) by class. Information queried from the State Drinking Water Information System (SDWIS) on May 27, 2024.

Table 2
Number of Designated Operators by Operator Class at Waterworks

Class License	Number of DO
6	173
5	123
4	361
3	401
2	169
1	325
No Class Code	11
Total	1563

Table 3 shows the breakdown of operators by system type; staff obtained the information from the State Drinking Water Information System (SDWIS). Since DPOR does not track by type of system and only tracks operators by class, these numbers may differ slightly from other reported percentage of operators. In addition, this data does not count more than one operator per system, only if the system had an active designated operator during the reporting period.

Table 3
Percent of Waterworks with Licensed Designated Operators

System Type	# of Systems	# of Systems with Active Designated Operator	% of Systems with Active Designated Operator
C	1075	1062	99.44%
NTNC	503	501	99.40%
Total	**1578**	**1563**	**99.43%**

3.0 Operator Qualifications

The Licensure Board bases licensing on having applicable experience and education as well as demonstrating knowledge of core competencies through an examination.

3.1. Exams

On June 1, 2018, Virginia began using ABC's 2017 Standardized Exam, which replaces the 2012 version, for class 1 through 4 exam candidates. Virginia's class 5 candidates continue to take ABC's Very Small Water Systems examination, and the class 6 examination consists of questions from ABC's item bank and is a Virginia customized exam.

3.2. Experience

DPOR requirements express length of experience in terms of calendar periods of full-time employment as an operator or as an operator-in-training at a waterworks in the same category as the license. Regulations define one year of experience as a minimum of 220 days or 1,760 hours. All experience claimed on the licensure application is certified by the individual's immediate supervisor or a representative of the facility owner if the immediate supervisor is unavailable. Operators-in-training must gain experience under the supervision of an operator holding a valid waterworks operator license of a classification equal to or higher than the classification of the waterworks. The supervising operator or a representative of the facility owner certifies the experience on the application form as accurate and relevant to the classification of license for the applicant.

An applicant for a provisional license at a nonclassified waterworks may meet experience requirements through experience gained as an operator or operator-in-training at a nonclassified facility under certain conditions. The experience must be obtained at a nonclassified facility that is comparable in size and treatments process to the one where they will be working. The experience is obtained while performing duties that provide experience comparable to that obtained at a classified facility. Experience operating and maintaining water distribution systems shall only be considered for a Class 5 or Class 6 provisional

waterworks operator license. Experience limited solely to laboratory work, plant maintenance, and other nonoperating duties shall not be counted as experience as a provisional operator or operator-in-training.

3.3. Education

The minimum education requirement for an operator's license is a high school diploma or General Educational Development (GED) certificate. There are provisions in the Licensure Regulations for a candidate without a high school diploma to get a license by substituting more operator in-training experience for education. Individuals may use advanced degrees (certain associate, bachelor, master's degrees) from an accredited college or university can be used to meet specific education requirements. It cannot be used as a substitution for experience.

3.4 Specific requirements for licenses

3.4.1. Specific requirements for a Class 6 license

Candidates for licensure as a Class 6 waterworks operator shall meet one of the following requirements and pass a board-approved exam (40.5% Pass Rate):

- have (i) a high school diploma or GED certificate and (ii) at least six months of experience as an operator-in-training in a Class 6 or higher waterworks; or
- have (i) no high school diploma and (ii) at least one year of experience as an operator-in-training in a Class 6 or higher waterworks.

The Licensure Board determined in its *Regulations* that experience as an operator at a Class 6 facility is not transferable to higher classifications.

3.4.2. Specific requirements for a Class 5 license

Candidates for licensure as a Class 5 waterworks operator shall meet one of the following requirements and pass a board-approved exam (68.2% Pass Rate):

- have (i) a high school diploma or GED certificate and (ii) at least six months of experience as an operator-in-training in a Class 5 or higher, waterworks; or
- have (i) no high school diploma and (ii) at least one year of experience as an operator-in-training in a Class 5 or higher waterworks.

The Licensure Board determined in its *Regulations* that experience as an operator at a Class 5 facility is not transferable to higher classifications.

3.4.3. Specific requirements for a Class 4 license

Candidates for licensure as a Class 4 waterworks operator shall meet one of the following requirements and pass a board-approved exam (45.6% Pass Rate):

- have (i) a high school diploma or GED certificate and (ii) at least six months of experience as an operator-in-training in a Class 4 or higher waterworks; or
- have (i) no high school diploma and (ii) at least one year of experience as an operator-in-training in a Class 4 or higher waterworks.

3.4.4. Specific requirements for a Class 3 license

Candidates for licensure as a Class 3 waterworks operator shall meet one of the following requirements and pass a board-approved exam (43.6% Pass Rate):

- have (i) a bachelor's or master's degree in engineering or engineering technology, or in a related physical, biological, environmental, or chemical science; and (ii) at least six months of experience as an operator-in-training in a Class 4 or higher waterworks;
- have (i) an associate degree in waterworks or wastewater works, or in a related physical, biological, environmental, or chemical science; (ii) a Class 4 license; and (iii) a total of at least nine months of experience as an operator or operator-in-training in a Class 4 or higher waterworks, of which at least six months without substitutions shall be as an operator-in-training in a Class 4 or higher waterworks;
- have (i) a high school diploma or GED certificate and (ii) at least one year of experience as an operator-in-training in a Class 4 or higher waterworks, of which at least six months without substitutions shall be as an operator-in-training in a Class 4 or higher waterworks; or
- have (i) no high school diploma, (ii) a Class 4 license, and (iii) a total of at least three years of experience as an operator or operator-in-training in a Class 3 or higher waterworks, of which at least one-and-one-half months without substitutions shall be as an operator-in-training in a Class 3 or higher waterworks.

3.4.5. Specific requirements for a Class 2 license

Candidates for licensure as a Class 2 waterworks operator shall meet one of the following requirements and pass a board-approved exam (49.3% Pass Rate):

- have (i) a bachelor's or master's degree in engineering or engineering technology, or in a related physical, biological, environmental, or chemical science; and (ii) a total of at least one year of experience, of which at least six months without substitutions shall be as an operator-in-training in a Class 3 or higher waterworks;
- have (i) an associate degree in waterworks or wastewater works, or in a related physical, biological, environmental, or chemical science; and (ii) a total of at least 1-1/2 years of experience, of which at least nine months without substitutions shall be as an operator-in-training in a Class 3 or higher waterworks;
- have (i) a high school diploma or GED certificate, and (ii) a total of at least two years of experience, of which at least one year without substitutions shall be as an operator or operator in-training in a Class 3 or higher waterworks; or
- have (i) no high school diploma, (ii) a Class 3 license, and (iii) a total of at least five years of experience, of which at least 3 ½ years without substitutions shall be as an operator or operator in-training in a Class 2 or higher waterworks.

3.4.6. Specific requirements for a Class 1 license

Candidates for licensure as a Class 1waterworks operator shall meet one of the following requirements and pass a board-approved examination (25.1% Pass Rate):

- have (i) a bachelor's or master's degree in engineering or engineering technology, or in a related physical, biological, environmental, or chemical science; (ii) a Class 2 license; and (iii) a total of at least two years of experience, of which at least one year without substitutions shall be as an operator or operator-in-training in a Class 2 or as a Class 1waterworks;

- have (i) an associate degree in waterworks or wastewater works, or in a related physical, biological, environmental, or chemical science; and (ii) a total of at least three years of experience, of which at least 1-1/2 years without substitutions shall be as an operator-in-training in a Class 2 or Class 1 waterworks;

- have (i) a high school diploma or GED certificate , (ii) a Class 2 license and (iii) a total of at least four years of experience, of which at least two years without substitutions shall be as an operator or operator-in-training in a Class 2 or a Class 1waterworks; or

- have (i) no high school diploma, (ii) a Class 2 license, and (iii) a total of at least nine years of experience, of which at least 4- ½ years without substitutions shall be as an operator or operator in-training in a Class 2 or Class 1waterworks.

3.5. Grandparenting

Licensure regulations have no provisions for grandparenting of waterworks operators.

3.6. Reciprocity

The Board does not specifically recognize any other state's license as meeting its requirements for licensure. However, per 18 *Virginia Administrative Code* §160-30-80, "an applicant holding a valid license or certificate in another jurisdiction who meets the requirements of this chapter, including having equivalent experience and education, shall pass a board approved examination to become licensed." For waterworks operators, the current Board approved examination is the ABC national exam. Out-of-state applicants are not required to retake the ABC examination in Virginia if they have already passed the ABC exam. The Board would accept equivalent experience and education in another state as meeting its requirements. A letter of good standing issued by the licensing authority in the other state would need to be submitted with an application and would need to include the method of licensure (exam, experience, education) for the board to consider an out-of-state license equivalent.

On July 1, 2023, DPOR began creating Universal Licensing Recognition (ULR) procedures and requirements for qualified individuals who are licensed in other states to obtain an equivalent license more easily in Virginia. The program is for people 1) who have held an equivalent license in another state for at least three years, 2) are in good standing in all states where they are licensed, 3) were required to pass a competency exam and met training standards to obtain their original state license, and 4) pay all applicable Virginia fees. Workers who move to Virginia must apply for a license through the DPOR Board for Waterworks and Wastewater Works Operators and Onsite Sewage System Professionals Board before working in the Commonwealth.

4.0 Enforcement

4.1. Waterworks Operators

The Licensure Board has the power to discipline and fine any licensee and to suspend or revoke or refuse to renew or reinstate any license as well as the power to deny any application for a license under the provisions of Chapter 23 of Title 54.1 of the *Code of Virginia* and its regulations for any of the following:

The following acts are prohibited and any violation may result in disciplinary action by the board:

1. Violating, inducing another to violate, cooperating with another to violate, or combining or conspiring with or acting as agent, partner, or associate for another to violate any of the provisions of Chapter 1 (§ 54.1-100 et seq.), 2 (§ 54.1-200 et seq.), or 23 (§ 54.1-2300 et seq.) of Title 54.1 of the Code of Virginia, or any of the regulations of the board.
2. Allowing a license issued by the board to be used by another.
3. Obtaining or attempting to obtain a license by false or fraudulent representation or maintaining or renewing a license by false or fraudulent representation.
4. A licensee having been convicted, found guilty, or disciplined in any jurisdiction of any offense or violation enumerated in 18VAC160-30-310. Review of convictions shall be subject to the requirements of § 54.1-204 of the Code of Virginia.
5. Failing to inform the board in writing within 30 days that the licensee was convicted, found guilty, or disciplined in any jurisdiction of any offense or violation enumerated in 18VAC160-30-310.
6. Not demonstrating reasonable care, judgment, or application of the required knowledge, skill, and ability in the performance of the licensee's duties.
7. Having undertaken to perform or performed a professional assignment that the licensee is not qualified to perform by education, experience, training, or any combination thereof.
8. Failing to report a change as required by 18VAC160-30-300.
9. Negligence, misconduct, or incompetence in the practice of the profession.
10. Making any misrepresentation or engaging in acts of fraud or deceit in providing professional services.
11. Failing to adequately supervise and review work performed by licensed or unlicensed employees under direct supervision of the licensee.
12. Submitting or recording or assisting another in the submission or recording of false or misleading operational information relating to the performance and monitoring requirements of a waterworks or wastewater works.
13. Failing to act in providing waterworks and wastewater works operator services in a manner that safeguards the interests of the public.

There have been two (2) disciplinary actions taken against waterworks operator licenses between June 30, 2023, and the present.

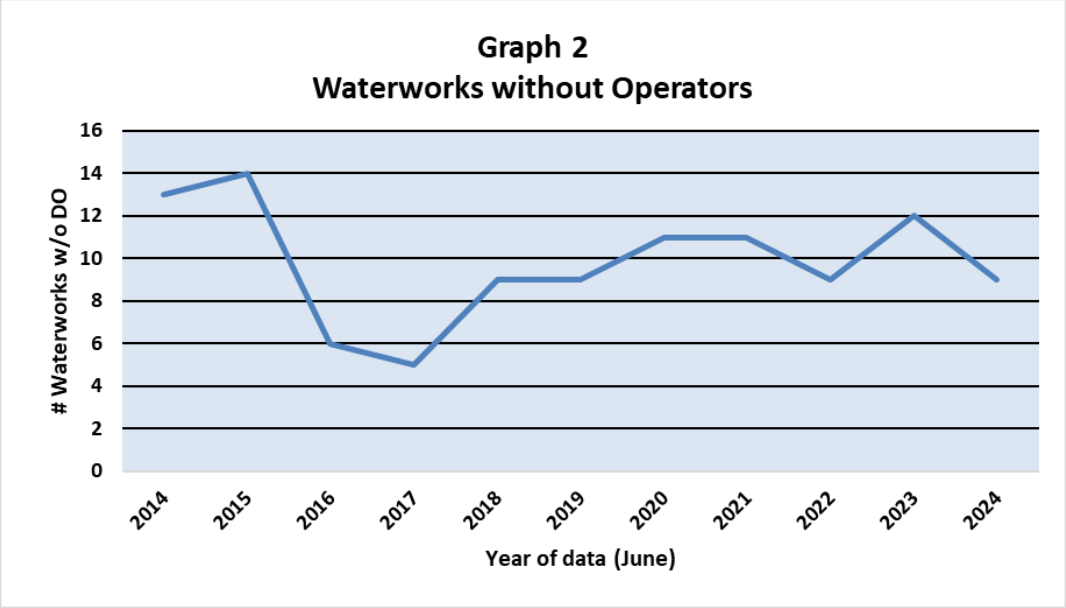
Class 5 Waterworks Operator, found in violation of:
18VAC160-30-350.D: Response to inquiry and provision of records: D. With the exception of the requirements of subsections A and B of this section, a licensee must respond to an inquiry by the board or its agent within 21 days. This resulted in the revocation of the license.

Class 4 Waterworks Operator, found in violation of two (2) counts of:
18VAC160-30-320.1: Prohibited acts: 1. Violating, inducing another to violate, cooperating with another to violate, or combining or conspiring with or acting as agent, partner, or associate for another to violate any of the provisions of Chapter 1 (§ 54.1-100 et seq.), 2 (§ 54.1-200 et seq.), or 23 (§ 54.1-2300 et seq.) of Title 54.1 of the Code of Virginia, or any of the regulations of the board. This resulted in a sanction of $650 with the requirement that outstanding Continuing Professional Education (CPE) credits be completed. Upon completion of the outstanding CPE credits, the Board agreed to waive $250.

4.2. Waterworks Owners

The Waterworks Regulations, 12VAC5-590-460, requires waterworks operators to have a designated operator for the waterworks that can meet all requirements in the Virginia *Waterworks Regulations*. The license must be of a classification equal to or higher than that of the waterworks. When no designated operator is on duty or in communication with the operating personnel in attendance at the waterworks, the owner shall designate a substitute operator. The substitute operator shall possess a valid operator license of a classification equal to or greater than that of the waterworks. Operators must have a license, if they make process control/system integrity decisions about water quality or quantity that affects public health. Any waterworks that fail to comply with this requirement may face further enforcement action, which may include administrative orders, criminal prosecution, civil actions, and penalties.

As of May 27, 2024, waterworks without a licensed operator in the State Drinking Water Information System (SDWIS) database totaled 9 systems. This equates to a compliance rate of 99.43%.



Waterworks owners are responsible for notifying VDH – ODW when they have secured a licensed operator. When notified, VDH – ODW updates the operator in responsible charge in SDWIS after checking the online DPOR operator database. Routine verification occurs when VDH – ODW staff inspects the waterworks.

5.0 Certification Renewal

5.1. License Expiration

Licenses for waterworks operators expire on the last day of February of each odd numbered year. The board may deny renewal of a license for the same reasons as it may refuse initial licensure or discipline a licensee.

5.2. Continuing Education

Each licensed waterworks operator is required to have completed the following number of continuing professional education (CPE) contact hours required for his or her class of license before the license is renewed:

- Class 1, 2, and 3 operators shall obtain a minimum of 20 contact hours during each license renewal cycle;
- Class 4 operators shall obtain a minimum of 16 contact hours during each license renewal cycle;
- Class 5 operators shall obtain a minimum of eight contact hours during each license renewal cycle; or
- Class 6 operators shall obtain a minimum of four contact hours during each license renewal cycle.

The audit process for continuing education randomly selects operators from the operator database for an audit. Refer to Section 4 for enforcement activities.

6.0 Resources Needed to Implement the Program

Waterworks management and staff request free and low-cost training alternatives as waterworks continue to face revenue shortfalls. Low certification exam pass rates place an even greater demand for ODW sponsored and in-house training sponsored by individual waterworks and partners, such as Mountain Empire Community College (MECC), Virginia Chapter of the American Water Works Association (VA AWWA), Southeast Rural Community Assistance Project (SERCAP) and the Virginia Rural Water Association (VRWA).

The training offered through Drinking Water State Revolving Fund (DWSRF) set-aside funds included many Virginia Tech trainings, short courses, and seminars. Examples are *Continuing Professional Education Water Quality Broadcast* series, the *Applied Math and Basic Science* short course, the *Contaminants of Concern* short course and the weeklong *Operation and Maintenance of Distribution Systems* courses. Report Sections 6.3.3 through 6.3.8 provide details on Virginia Tech training offerings. ODW provides funding support for MECC through the Capitalization Grant set-asides.

6.1. Program Funding

DPOR funds the operator-licensing program through the collection of exam fees, license application fees, and license renewal fees. DPOR uses no general or grant funds to support the licensure program.

6.2. Operator Training Issues

There are limited opportunities for affordable training in Virginia except for those subsidized by VDH. Training offered, even by nonprofit organizations, can be costly for the waterworks owner, operator, or candidate to attend. For example, the registration fee to attend the Virginia Tech Summer Short School is

approximately $1,500.00. Total cost for training is much higher with mileage and evening meals. Adding these costs raises the training expense to over $1,900.00. When added to the week each operator is absent from work, owners of small waterworks face considerable costs. For some small waterworks, if their sole operator attends, they must contract for a replacement. Under the Fair Labor Standards Act, waterworks owners must compensate operators for Sunday travel or attending evening study halls with overtime. In 2024, VDH will provide ten scholarships to operators from small waterworks to attend the August Short School courses.

6.3 DWSRF Sponsored Training

VDH continues to offer training and other operator certification support using DWSRF set-asides. These opportunities are detailed below.

6.3.1. CPE Video Teleconference Series

The VDH-CPE Broadcast Series is a series of webinars hosted by Virginia Tech and sponsored by VDH - ODW featuring various instructors that cover a variety of topics specific to water operations and utilities. These virtual workshops are broadcast throughout the Commonwealth of Virginia via Zoom. Using interactive technology, participants can engage in discussions and to ask specific questions of the presenters and participants around the state. The webinars are held on a Wednesday in February, March, April, May, June, July, September, October, and November and are scheduled from 12:00 pm to 3:00 pm. Evaluations and feedback from attendees are consistently positive.

Table 4
Continuing and Professional Education Video Teleconference Series

Title	Date	Location	Attendees
July Virtual Water Quality Broadcast: VDH Office of Drinking Water Update	07/12/2023	Webinar	137
September Virtual Water Quality Broadcast: Lead Your Team to a Higher Level of Morale and Productivity	09/20/2023	Webinar	138
October Virtual Water Quality Broadcast: AWWA M36 Water Audits & Loss Control	10/11/2023	Webinar	129
November Virtual Water Quality Broadcast: Improvement Case Studies	11/08/2023	Webinar	109
December Virtual Water Quality Broadcast: Sampling Verification Program (Rescheduled from May 2023)	12/13/2023	Webinar	99
Feb Virtual Water Quality Broadcast: Membranes 101	02/21/2024	Webinar	136
Mar Virtual Water Quality Broadcast: Distribution System Disinfection	03/13/2024	Webinar	128
Apr Virtual Water Quality Broadcast: Coagulation, Flocculation, and Mixing	04/10/2024	Webinar	129
May Virtual Water Quality Broadcast: Asset Management in Action & Rate Impacts	05/15/2024	Webinar	153
Jun Virtual Water Quality Broadcast: Plant Operation Front to Back: Intake Design/Permitting, Pump Basics and Discharge Permitting	06/12/2024	Webinar	Future Program

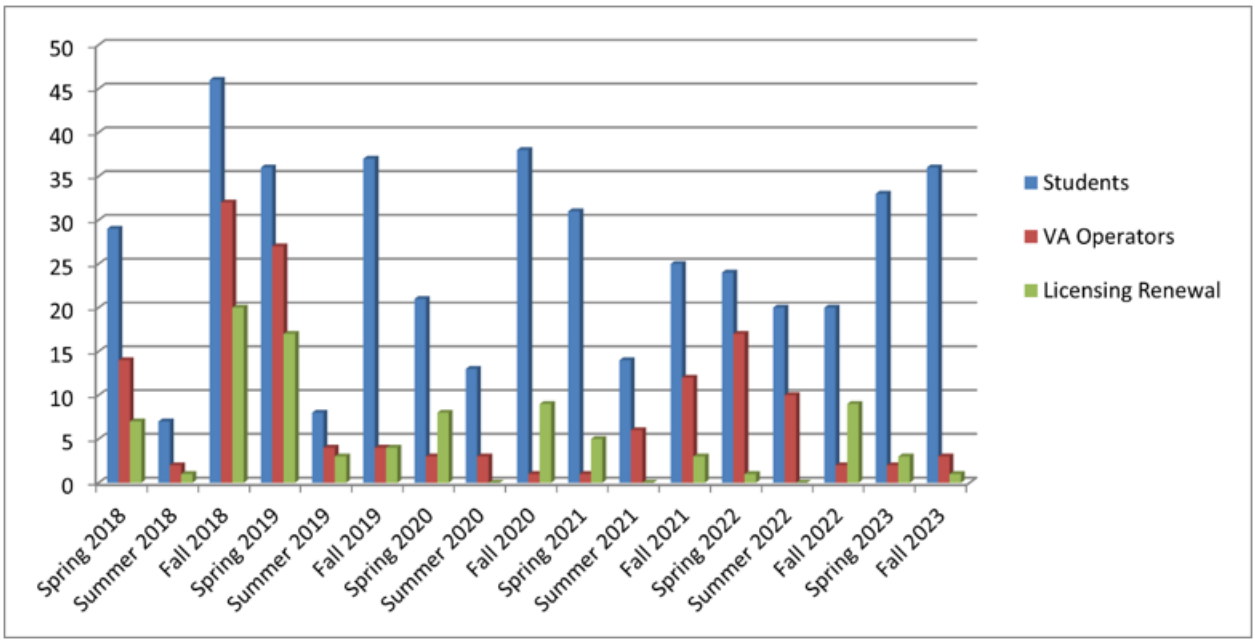
6.3.2. Mountain Empire Community College (MECC) Online Degree Program

VDH-ODW uses set-aside funds from the DWSRF to fund a two-year, online, associate degree program for waterworks operators by paying for the development and implementation of drinking water courses and web hosting. Funding support is limited to paying the salary of the Assistant Professor, head of the program, who is responsible for website management and curriculum development, along with all other duties that will assist in the training and addition of operators to the water treatment field. VDH – ODW believes its support not only helps to develop operators professionally, but also promotes waterworks operation as a career to students.

From the graph below, data shows that approximately half of the AAS Degree students are not current operators, this represents an encouraging potential of new operators in the industry.

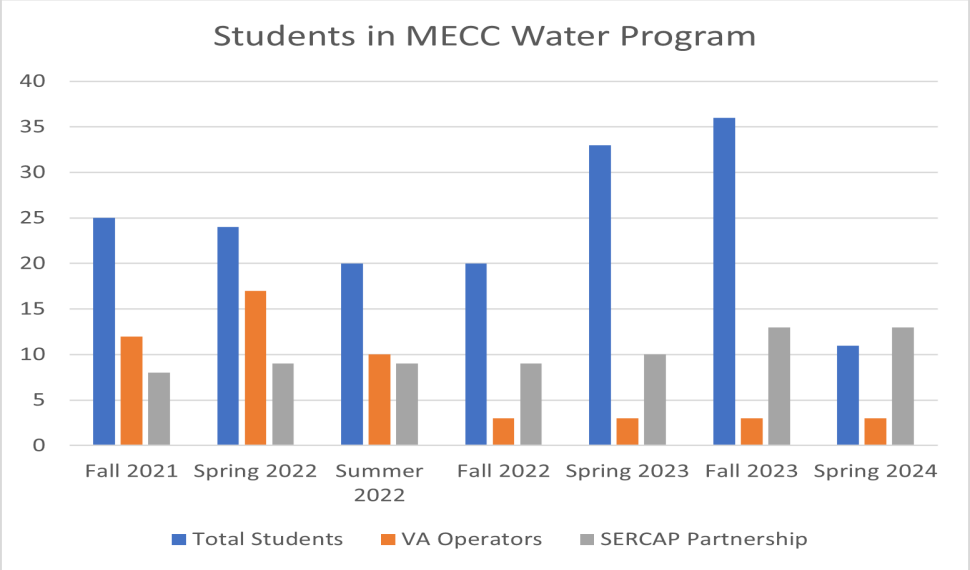
Graph 4

Students enrolled in the Associate of Applied Science program at Mountain Empire Community College



In 2021, MECC joined in partnership with the Southeast Rural Community Assistance Program to increase the number of students enrolling in the online Associate of Applied Science program at MECC. SERCAP has been able to provide laptops and free online math tutoring for low-income individuals. Once the student completes the MECC program, they are allowed to keep the laptop. SERCAP directly supported the program by purchasing a rolling audio-visual cart for the professor to record lecture videos. Since partnering with SERCAP, a total of 12 students have been recruited and provided laptop assistance.

Graph 5



The Associate of Applied Science degree program is continually being improved. In the upcoming year, electrical courses, Programmable Logic Controller (PLC), and Supervisory Control and Data Acquisition (SCADA) courses will be developed and incorporated into the course.

MECC is currently creating new licensing renewal courses so that operators can continue to utilize our online courses for renewal since the subject matter has to be different every time. The 2-credit course will include the 5-hour management requirement.

MECC continues to support internships in the state. Currently they are working with Wise County Public Service Authority. Wise County PSA has funding to pay summer interns. The success of the internship program includes education, with the MECC program can assist.

MECC is working on offering the entire Career Studies Certificate to the entire Virginia Community College System (VCCS). A scheduled timeline must be developed for all courses before they meet the requirements. Videos will be developed for math tutorials, helping to better understand the proper steps to follow.

6.3.3. Basic Groundwater Course for Small Systems

This two-day Basic Groundwater Course teaches operators of very small waterworks to learn competencies for a Class 6 operator. The course material may also be suitable for some Class 5 operators; however, the curriculum does not cover all competencies for a Class 5 operator. This course was held in Newport News, Virginia. During the reporting period, Short Course dates were February 6-8, 2024, with 19 attendees.

6.3.4. Applied Math and Basic Science Course

VT offered this four-and-a-half-day short course June 3-7, 2024, with 13 students registered. This course covers the math and science of real-world, water treatment applications. It is an intensive course that builds from introductory, basic skills to the application of many important principles.

6.3.5. Hands-on Training at a Full-Scale Water Plant

This program focuses on hands-on full-scale exercises at a water treatment plant. Subject matter experts provide the actual instruction, i.e., supervisors and lead operators, at the plant under a facilitator from the Department of Civil and Environmental Engineering at Virginia Tech. Thia program demonstrates and supplements lessons learned in the annual summer short courses at Virginia Tech. The goal is to offer training that helps operators understand the function of treatment systems, operate their system optimally, and produce safe water. VT conducted the course on November 01-02, 2023, in Roanoke, VA, with 19 attendees and again on March 19-20, 2024, in Newport News, VA with 19 attendees.

6.3.6. Water Operations Math

VT and ODW designed this 20-hour course to help both licensure candidates and experienced operators strengthen their understanding of the applied math used in the operation of conventional water plants and small water systems. Attendees will find this course helpful when preparing to face the math portions of Class VI – Class I certification exams. VT offered the course on March 4-18, 2024, with 18 attendees.

6.3.7. Operation and Maintenance of Distribution Systems

The City of Virginia Beach, Western Virginia Water Authority and Virginia Tech present this weeklong short course for distribution system operators. This "team approach" enables a comprehensive course specifically for distribution system workers. City of Virginia Beach Department of Public Utilities and Western Virginia Water Authority hosts this training. Partners other than those mentioned above included the City of Salem and the Virginia Rural Water Association in the planning phase. In addition to the instructors provided by the above partners, the Cities of Chesapeake and Lynchburg and the New River Valley Regional Water Authority provided instructors.

Organizers hold lectures and demonstrations in the mornings and demonstrations in the field and hands-on exercises are in the afternoons. Hands-on or demonstration topics included: proper lifting techniques, installation of pipes and valves, fire hydrant maintenance and flushing, water main leak detection, GPS and utility location, water main breaks and repairs, service connections and meter installation, pipe repairs, confined space entry, fall safety, trailer operation, excavation equipment, shoring excavated trenches, using an automated valve operator, industrial control systems, and pumps. This course was offered in Virginia Beach October 16-20, 2023, with 19 attendees and May 6-10, 2024, with 16 attendees.

6.3.8. Contaminants of Concern

In recent years, participants learned about Contaminants of Emerging Concern (CECs), Contaminant Candidate Listings (CCLs), and the chemistry, toxicity, and effectiveness of treatment options for several chemicals of concern through case studies. This course is scheduled for virtual delivery in October 2024.

6.3.9. Management, Methods, & Money: Understanding Concepts in Capacity Development

This course is designed to cover crucial areas like management, technical operations, regulations & finances. Over three days, participants work through a real-word case study, with capacity development issues, learning about owner responsibilities/liabilities, business & managerial operations, utility operations and asset management as well as software tools for managing a waterworks. This is a supervisory level course. It was held July 18-20, 2023, in Roanoke, VA with 23 attendees.

6.3.10 Establishing a Safe & Successful Waterworks: Revenues, Rates, & Funding

This supervisory course builds from the foundation of Management, Methods, & Money and expands to include understanding and assessing needs, budgeting, rate setting, loans & grants, and how to clearly communicate with the public. Participants are instructed by industry and VDH professionals on how to build a Waterworks Business Operation Plan as required by the Code of Virginia. It was held in Richmond, VA August 29-31, 2023, with 16 participants.

6.4. Other VDH Sponsored Training

6.4.1. Drinking Water Fluoridation Course

Due the absence of a Fluoridation Coordinator there were no courses provided during the reporting period.

6.4.2. Cross-Connection Control Workshop

AWWA offers this 16-contact hour workshop in support of the Safe Drinking Water Act and the Virginia *Waterworks Regulations.* The workshop design gives participants a thorough classroom and hands-on review of the methods to test and inspect reduced pressure zone and other backflow prevention devices. Training includes both classroom and hands-on work with actual devices.

This training course addresses the following topics: definitions and related terms; controlling agencies and regulations; cross-connection record keeping; examples of cross connections; types of backflow protection devices and equipment; in-line inspection; and hands-on practice with test equipment. ODW assisted with two cross-connection control workshops in one location. Class size is restricted to support the wet lab training. AWWA provides 1.4 CEUs or 16 CPE approved contact hours for this workshop. During this reporting period, a Cross Connection Control Training took place in Roanoke, Virginia, on July 10-12, 2023. There were 13 registered attendees. It was held also on October 2-4, 2023, in Newport News, Virginia. There were 20 registered attendees.

6.4.3. Waterworks Operator Short Course

The flagship of Operator Certification training is the weeklong Short Course that has been held at Virginia Tech since the 1940's. There are four levels to the course: introductory, intermediate, advanced, and supervisory. The curricula for the intermediate, advanced, and supervisory sessions build on the preceding year's course. VT held the course July 30-August 4, and 102 people attended this training.

- The first-year course concentrates on small waterworks using groundwater for their source with an introduction to other treatment technologies. The core subjects taught are cross connection control, disinfection, basic electricity, and safety. Fifty-two people attended Year 1 training.

- The second-year course is primarily an introduction to surface water treatment. The instructor introduces topics like zeta potential, optimizing the coagulation process, pretreatment chemistry, and taste and odor control. Twenty-six people attended Year 2 training.

- The third year focuses on surface water treatment with filtration, disinfection and disinfection byproducts, nuisance organisms, sedimentation, and flow measurement. Eighteen people attended Year 3 training.

- The fourth year focuses on advanced treatment technologies and supervisory skills. Virginia Tech CPE cancelled Year 4 last year due to low registration.

Virginia Tech funds the course through student registration fees. Instructors volunteer their time on a pro bono basis. VDH staff provide in-kind instruction at many of the sessions.

6.4.4. All Hazards Emergency Preparedness and Security Training

The Virginia Department of Health - Office of Drinking Water hired an Emergency Services Coordinator/ESF #3 Lead in August of 2023. Staff leads Emergency Support Function #3 – Public Works and Engineering (ESF #3) functions for the Commonwealth of Virginia Emergency Operations Center (EOC), which includes coordination with the Virginia Department of Environmental Management (VDEM), Virginia Department of Environmental Quality (DEQ), the Virginia Department of Conservation and Recreation (DCR), and the Virginia Department of General Services (DGS). ESF #3 responds to wastewater, drinking water, dam, and building events throughout the Commonwealth, including dam failures, wastewater and stormwater overflows, natural disasters, and weather events. The Coordinator assists with Boil Water Advisories, Do Not Use orders, attends, and reports out on the Commonwealth's Drought Monitoring Task Force calls with the Virginia Department of Environmental Quality (DEQ), and attends weekly Virginia Emergency Response Team (VEST) check-in meetings with the Virginia Department of Emergency Management (VDEM). This year she coordinated with the Environmental Protection Agency (EPA) on a virtual cybersecurity tabletop exercise for water utilities that was successfully completed in January 2024, and worked with VDEM to ensure the ODW Reporting Tool was functional to ensure efficient and immediate communications of water emergencies to Local Health District's. The ODW Emergency Service Coordinator receives and responds to approximately 20 to 25 incidents per week involving hazardous materials spills, which affect water in some capacity. She participated in the Commonwealth of Virginia's Emergency Operations Plan (COVEOP) update for 2024 with many changes noted to VDH ODW and ESF #3. Additionally, she participates in biweekly training exercises held by VDEM and routinely communicates with the Office of Environmental Health Services (OEHS) on 24/7 monitoring of events.

The Coordinator gives presentations to various partner agencies on the Office of Drinking Water and emergency response activities. She presented at a Virginia wide Emergency Management Symposium co-hosted by VDEM and the Virginia Emergency Management Association (VEMA) on ODW's response to a Do Not Use event, the successes noted and the gaps that were identified which are actively being corrected. She participated in the VDEM annual VESTEX training at the beginning of May for two days, highlighting a need for more cooperation and interaction between VDEM, ESF #3 and waterworks. She released a Water Emergency Toolkit in May 2024 for locality and state emergency managers to better understand the role of a waterworks and allow localities to better integrate into waterworks if needed during an emergency. The Coordinator also worked with ODW staff on cybersecurity initiatives and updating the new remote monitoring regulations. Jessica serves on the internal ODW safety subcommittee, which is currently working on best practices and ways to lead training in the field offices and with waterworks. Currently, she is working with the Virginia Fusion Center (VFC) to provide cybersecurity specific training to waterworks in each ODW field office, specific to waterworks in each field office. This webinar style training is set to take place in June 2024.

6.5 Other Partner Sponsored Training

6.5.1. Virginia Section American Water Works Association Training

Below is a list of training conducted throughout Virginia by the VA AWWA. The list excludes the previously highlighted Cross Connection Control trainings.

Table 5
Virginia Section American Water Works Association Training

Event: Cross Connection Control Training (16-hour course) **Date**: July 1012, 2023 **Location**: WVWA, Roanoke, VA **Registered Attendees**: 13	**Event:** Effective Utility Management Panel Discussions II **Date:** March 6, 2024 **Location:** Virtual **Registered Attendees:** 57
Event: Leadership Academy 22-23: Leading Through Change Part I **Date**: July 19, 2023 **Location**: Virtual **Registered Attendees**: 28	**Event:** Cross Connection Devices: Inspection, Maintenance, and Testing- 16 Hours **Date:** March 11-13, 2024 **Location**: Leesburg, VA **Registered Attendees:** 13
Event: Roundtable Discussion: EPA Cybersecurity Requirements in Sanitary Surveys **Date:** July 20, 2023 **Location:** Virtual **Registered Attendees:** 103	**Event:** Effective Utility Management Panel Discussions III **Date:** March 13, 2024 **Location:** Virtual **Registered Attendees:** 53
Event: Capital Financing Strategies and Alternatives Webinar **Date:** July 27, 2023 **Location:** Virtual **Registered Attendees:** 26	**Event:** Cyber Fortress 3.0 Utility Participant Informational Webinar **Date:** March 20, 2024 **Location:** Virtual **Registered Attendees:** 88
Event: Good Lab Practices Conference **Date**: July 31-August 1, 2023 **Location**: Richmond **Registered Attendees**: 155	**Event:** Effective Utility Management Panel Discussions IV **Date:** March 20, 2024 **Location:** Virtual **Registered Attendees:** 51
Event: Thoughtful Tuesday: Building an Inclusive Workforce - Triumphs and Challenges Faced By Utilities In Operationalizing DEI, featuring PWCSA **Date**: August 22, 2023 **Location**: Virtual **Registered Attendees**: 40	**Event:** Roundtable Discussion- A Document Management Journey **Date:** March 21, 2024 **Location:** Virtual **Registered Attendees:** 59
Event: Leadership Academy 22-23: Final Session and Graduation **Date:** September 11, 2023 **Location:** Virginia Beach, VA **Registered Attendees**: 30	**Event:** Lead and Copper Rule Improvements Webinar – What's New and Different in the Proposed Rule? **Date:** March 26, 2024 **Location:** Virtual **Registered Attendees**: 82

Event: Leadership Academy 23-24 Kickoff **Date:** September 13, 2023 **Location:** Virginia Beach, VA **Registered Attendees**: 30	**Event:** Effective Utility Management Panel Discussions V **Date:** March 27, 2024 **Location:** Virtual **Registered Attendees:** 51
Event: Cross Connection Control Training (16-hour course) **Date**: October 2-4, 2023 **Location**: Newport News **Registered Attendees**: 20	**Event:** Utility Business Continuity Virtual Roundtable **Date:** March 26, 2024 **Location:** Virtual **Registered Attendees:** 44
Event: 33rd Annual Water Distribution Seminar and Utility Rodeo **Date**: October 10-12, 2023 **Location**: Roanoke **Registered Attendees**: 173	**Event:** Leadership Academy 23-24: Crucial Conversations II **Date:** March 28, 2024 **Location:** Virtual **Registered Attendees**: 30
Event: Thoughtful Tuesday: Choosing Vulnerability - Engineering Trust, Credibility, and Connection **Date**: October 10, 2023 **Location**: Virtual **Registered Attendees**: 28	**Event:** Thoughtful Tuesday: Nourishing a Healthier Manhood by Breaking out of the Man Box **Date:** April 2, 2024 **Location:** Virtual **Attendees:** 27
Event: Lunch and Learn Asset Management Loudoun Water **Date**: October 13, 2023 **Location**: Virtual **Registered Attendees**: 24	**Event:** Leadership Academy 23-24: 5 Dysfunctions of A Team **Date:** April 17, 2024 **Location:** Newport News, VA **Registered Attendees**: 30
Event: Let's Talk Shop: The New Normal for Customer Service Professionals **Date**: October 13, 2023 **Location**: Virtual **Registered Attendees**: 27	**Event:** Roundtable Discussion- Upgrading for Redundancy **Date:** April 18, 2024 **Location:** Virtual **Registered Attendees:** 45
Event: Water Reuse and Groundwater Permitting Webinar **Date**: October 20, 2023 **Location**: Virtual **Registered Attendees**: 31	**Event:** Distribution Systems Spring Seminar **Date:** April 23, 2024 **Location:** Henrico **Attendees:** 55
Event: Successful Case Histories of Bioenergy Generation **Date**: November 2, 2023 **Location**: Virtual **Registered Attendees**: 33	**Event:** Webinar: PFAS 2024- The Evolving Path Forward **Date:** April 24, 2024 **Location:** Virtual **Attendees:** 82

Event: Leadership Academy 23-24 Real Colors Training **Date:** November 2, 2023 **Location:** Henrico, VA **Registered Attendees**: 30	**Event:** One Water, One Life- The Annual Drinking Water Quality and Research Seminar **Date:** April 30, 2024 **Location:** Richmond **Registered Attendees:** 73
Event: Fall 2023 Plant Operations Seminar **Date:** November 9, 2023 **Location:** Spring Hollow WTP, Salem **Registered Attendees:** 32	**Event:** Thoughtful Tuesday: Immigration Journeys: Supporting High-Skilled Professionals in a Sea of Paperwork and Uncertainties **Date:** April 30, 2024 **Location:** Virtual **Registered Attendees:** 30
Event: Operator Training For Small Systems **Date:** November 16, 2023 **Location:** Exmore, VA **Registered Attendees:** 25	**Event:** Lunch and Learn: Developing Effective Communication Strategies - Lead and Copper **Date:** May 1, 2024 **Location:** Virtual **Registered Attendees: 24**
Event: Roundtable Discussion- Digital Asset Management **Date:** November 16, 2023 **Location:** Virtual **Registered Attendees:** 77	**Event:** 24th Annual Plant Operations Conference **Date:** May 8-10, 2024 **Location:** Virginia Beach **Registered Attendees:** 73
Event: Cross Connection Devices: Inspection, Maintenance, and Testing- 16 Hours **Date:** December 5-7, 2023 **Location:** Henrico, VA **Registered Attendees:** 15	**Event:** Leadership Academy 23-24: Industry Leaders and Ethical Leadership **Date:** May 15, 2024 **Location:** Western Virginia Water Authority **Registered Attendees**: 30
Event: Roundtable Discussion- Recapping Technology Successes **Date:** January 18, 2024 **Location:** Virtual **Registered Attendees:** 50	**Event:** One Water Communities- Self-Assessment Framework and Rating System Webinar **Date:** May 15, 2024 **Location:** Virtual **Registered Attendees:** 23
Event: Leadership Academy 23-24: Crucial Conversations I **Date:** February 15, 2024 **Location:** Virtual **Registered Attendees**: 30	**Event:** Thoughtful Tuesday: Neurodiversity in the Workplace **Date:** June 4, 2024 **Location:** Virtual **Expected Attendees**: 40
Event: Thoughtful Tuesday: For the Love of Water **Date:** February 27, 2024 **Location:** Virtual **Registered Attendees:** 25	**Event:** Roundtable Discussion- Enhancing Operator Awareness with Anomaly Detection **Date:** June 13, 2024 **Location:** Virtual **Expected Attendees**: 50
Event: Effective Utility Management Panel Discussions I **Date:** February 28, 2024 **Location:** Virtual **Registered Attendees:** 53	**Event:** 2024 Safety Seminar: Safety *First*, Because Injuries *Last*! **Date:** June 27, 2024 **Location:** Roanoke, VA **Expected Attendees**: 60

Event: WaterJAM 2023 **Date:** September 11-14, 2023, **Location:** Virginia Beach, VA
Registered Attendees: 2477 **Technical Sessions:** 224 **Workshops:** 9 (194 attendees)
Continuing Education Hour Credits Issued: 4657 **Water Operator CPE Hours:** 1567.5
New Licensure Class: 60 Water Operator CPEs Technology Services Roundtable: Taming SCADA- An Overview of the ISA112 Lifecycle; 18-May-23

6.5.2. Virginia Rural Water Association (VRWA) Training

VRWA conducts training sessions throughout Virginia. VRWA continues to reach out to small systems and provide needed training to support operator certification, including several management courses in addition to courses that help prepare individuals to take the licensing exam. Most of the training courses are accepted by DPOR to meet the continuing education requirements for licensure renewal.

Table 6
Virginia Rural Water Association Training

Title	Date	Location	Attendees
Operator Math	7/19/2023	Burkeville	14
Overview of Electrical Safety	7/20/2023	Burkeville	12
Finding Your True North for Better Focus and Productivity	8/24/2023	Roanoke	56
Management, Leadership and Decision Making	8/24/2023	Roanoke	56
Regulatory Updates	8/24/2023	Roanoke	57
The Highs and Lows of Marijuana Legalization in VA	8/24/2023	Roanoke	50
Financing Alternatives for VA	8/25/2023	Roanoke	47
Roundtable Discussion	8/25/2023	Roanoke	31
Management in the Real World	9/25/2023	Bristol	5
Safety & Security for W/WW Operations	9/26/2023	Bristol	11
Basic VDOT Workzone & Flagger Certification	10/16/2023	Fishersville	13
Trenching & Excavations : Don't Get Trapped	10/17/2023	Fishersville	95
AASHTO M-306 Identifying and Understanding Regulations	10/17/2023	Fishersville	79
VA811 - One Quick Call	10/17/2023	Fishersville	96
Notes from the Field	10/17/2023	Fishersville	57
Pipeline Location & Leak Detection for W & WW	10/18/2023	Fishersville	78
Water Distribution Intervention w/o Service Disruption	10/18/2023	Fishersville	78
Selection & Implementation of a Successful SCADA System	10/18/2023	Fishersville	71
Basic Pump Class	10/24/2026	Eastville	6
Basic Pump Class	11/3/2023	Bridgewater	10
Automatic Control Valves and Pressure Management	11/8/2023	Dillwyn	3

Automatic Control Valves and Pressure Management	11/9/2023	Emporia	11
Building a Collaborative Work Team	11/16/2023	Webinar	17
Conflict Resolution	12/12/2023	Webinar	20
Introduction to Applied Leadership	1/12/2024	Verona	23
Safety & Security for W/WW Facilities	1/23/2024	Radford	7
Introduction to Applied Leadership	1/23/2024	New Market	5
Introduction to VRWA Apprenticeship Program	1/23/2024	New Market	5
Management of W/WW Facilities in the Real World	1/24/2024	Tappahannock	13
Utility Billing	1/26/2024	New Market	4
Pump Operations & Maintenance	2/7/2024	Big Stone Gap	20
Introduction to Applied Leadership	2/20/2024	St. Paul	13
Introduction to VRWA Apprenticeship Program	2/20/2024	St. Paul	3
Disaster Management for W/WW Utilities - Day 1	2/21/2024	St. Paul	31
Disaster Management for W/WW Utilities - Day 2	2/22/2024	St. Paul	31
Utility Billing	2/23/2024	St. Paul	8
Cross-Connections: Undetected is Unsafe	4/15/2024	Roanoke	57
Skills to Help you Advance as an Opertor	4/15/2024	Roanoke	49
Beyond Your CCR: Communications Strategies You Can Use	4/16/2024	Roanoke	31
Raccoon Creek WTP PFAS Removal Pilot Project	4/16/2024	Roanoke	71
Emergency Preparedness for Water / WW Utilities	4/16/2024	Roanoke	106
EPA Regulatory Updates: PFAS and LCR	4/16/2024	Roanoke	103
Utility Resilience is Built on Reliable Powere: More than Just Generators	4/16/2024	Roanoke	41
Proactive Approach to Cyber Defense of Critical Infrastructure	4/16/2024	Roanoke	74
The Benefit of Developing a CIP and Financial Model	4/16/2024	Roanoke	47
Understanding PVC Pipe: Design, Use, Specifications for W & WW	4/16/204	Roanoke	80
Virginia Commonwealth's Cyber Security Plan	4/16/2024	Roanoke	46
How Geologists Locate Groundwater Resources in Fractured Bedrock	4/16/2024	Roanoke	44
Small Town Serves Big Tech	4/16/2024	Roanoke	48
How to Have That Difficult Conversation	4/16/2024	Roanoke	76
A New Light in Turbidity Measurement	4/17/2024	Roanoke	32
Best Practices & Innovations in Pressure in Municipal W/WW Facilities	4/17/2024	Roanoke	75
Successful PFAS Crisis Communications	4/17/2024	Roanoke	57
To Inventory & Beyond! LCRR, Now LCRI	4/17/2024	Roanoke	60
The Importance of a Complete Locate System	4/17/2024	Roanoke	64
Financing Alternatives for Virginia	4/17/2024	Roanoke	34
Phosphorus - A Holistic Approach to Corrosion Control and Water Quality	4/17/2024	Roanoke	42

Chlorine, Chemical Metering Pumps, and Complimentary Control Equip	4/17/2024	Roanoke	47
USDA -RD Funding Opportunities	4/17/2024	Roanoke	35
Water Storage & Distribution System Maintenance	5/7/2024	St. Paul	11
Basic Pump Training Class	5/9/2024	Petersburg	16
VRWA Service Overview and Apprenticeship	5/14/2024	South Hill	12
The Empowered Team Project Intro	5/14/2024	South Hill	8
Cybersecurity	5/15/2024	South Hill	7
Effective Asset Management Practices for Your Water Storage System	5/16/2024	South Hill	8
Developing Your Public Service Awareness Plan	5/17/2024	South Hill	5
Water Storage & Distribution System Maintenance	6/13/2024	Bridgewater	Not Reported (RP)
VRWA Service Overview and Apprenticeship	6/25/2024	Warsaw	RP
Introduction to Applied Leadership	6/25/2024	Warsaw	RP
Reducing Your Water Loss: Why & How	6/26/2024	Warsaw	RP
Cybersecurity for Water Sectors	6/27/2024	Warsaw	RP
Effective Asset Management Practices for Your Water Storage System	6/28/2024	South Hill	RP

7.0 Recertification

The Licensing Board may allow for the recertification of operators who failed to renew their licenses by the license expiration date, in accordance with its regulations. The Licensing Board permits reinstatement if they receive the application for renewal more than 30 days late, but less than 12 months after the expiration date. The date on which the renewal application, any required documentation and the required fees are received determines whether the license is eligible for renewal. If still eligible, the operator pays a reinstatement fee as established in *18VAC160-30-40.* The board may deny recertification of a license for the same reasons as it may refuse initial licensure. DPOR provided no recertifications during the reporting period. There was a waiver in place because of the COVID-19 public health emergency that extended the validity of all licenses throughout the applicable reporting period, thus no licenses would have been subject to late renewal or reinstatement.

An individual who fails to renew his license within 12 months after the expiration date printed on the license is ineligible for reinstatement. The operator must then apply for a new license by examination in accordance with the *Regulations (18VAC160-30-20 et seq.).* However, the individual is eligible to sit for the examination in the same category and class of license as the expired license.

8.0 Stakeholder Involvement

8.1 Operator Training Stakeholder Advisory Group

Stakeholder committee members are responsible for giving their respective organizational input into the planning and evaluation of operator training programs. ODW formed a standing stakeholder group to address how to best train small waterworks operators and has met throughout the development and implementation phases. During the reporting period, the standing advisory group met on March 21, 2024.

Individual members change as their affiliations appoint replacements. The list of the current members/affiliations is below.

Table 7 Operator Training Advisory Group	
Member	**Affiliation**
Caleb Taylor	VT Continuing and Professional Education - Water Programs Director
Cary Hoge	VT Continuing and Professional Education - Water Programs Project Mgr. r
Madison Hanson	VT Continuing and Professional Education - Assistant
Bob Canova	Instructor, Virginia Western Community College
Tanya Pettus	DPOR
Rosa Lee Cooke	MECC
Geneva Hudgins	VA AWWA
Cynthia Barnes	VA AWWA
Joey Hiner	SERCAP
Kelsey Brooks	University of Maryland, Environmental Finance Center
Kathleen Banfield	Virginia Health Catalyst
Vacant	CDBG- Community Development
Mike Ritchie	VRWA
Nathan Coey	Moonshot Missions
Barry Matthews	Director – Training, Capacity Development & Outreach, ODW
Julie Floyd	ODW Training & Operator Certification Manager

8.2. Licensure Board

The VDH – ODW Director is a member of the DPOR Licensure Board. VDH-ODW's Training, Capacity Development and Outreach Manager attends the DPOR Licensure Board's Education Committee meetings and the Operator Training Coordinator serves as a consultant to the Licensure Board and provides guidance on operator certification and training when needed. The Operator Training Coordinator reports on training activities and stakeholder recommendations to the Licensure Board and participates on ad hoc committees and work groups to address topics such as review of training courses submitted for board approval.

8.3. Virginia Section-AWWA Education

ODW's Operator Training Coordinator attends the VA-AWWA Education Committee's meetings as a permanent appointee. The committee's goal is to ensure that the section meets identified training needs. The committee coordinates with other committees that provide training. The Education Committee offers webinars two to three times per year.

8.4. Waterworks Advisory Committee

The Waterworks Advisory Committee (WAC), is a standing committee appointed by the Commissioner and consists of 13 appointed members and 3 ex officio members specified below. Appointed members

serve at the discretion of the Commissioner with staggered terms that are three years in duration. The WAC makes recommendations to the Commissioner regarding waterworks and water supply policies and procedures, as well as ODWs programs.

The Commissioner appoints to the WAC one individual each from the following affiliations:

(a) a member of the VA-AWWA;
(b) a member of the Virginia Society of Professional Engineers;
(c) a member of the Virginia Water Well Association, Inc.;
(d) a member of the Consulting Engineers Council;
(e) a water treatment plant operator having a valid license of the highest classification in waterworks issued by the Licensure Board;
(f) a faculty member of a state university or college whose principal field of teaching is Environmental Engineering;
(g) a community waterworks owner;
(h) a nontransient noncommunity representative;
(i) a representative from Virginia Rural Water Association;
(j) a representative from Southeast RCAP;
(k) a representative from the Virginia Association of Counties; and (l) a citizen representative.

During the reporting period, the WAC met June 14, 2023, September 20, 2023, December 13, 2023, March 13, 2024, and June 12, 2024. (Next meeting is scheduled September 18, 2024) The meetings are open to the public.

8.5. Public Hearings

There were no Public Hearings during this reporting period.

9.0 Program Review

9.1. Licensure Board Meetings

There were four board meetings held during the reporting period: July 27, 2023, October 19, 2023, January 25, 2024, and April 11, 2024.

9.2. Licensure Examination Review Committee

Since the transition to the ABC examination, this committee is no longer in use.

9.3. Education and Training Committee of the WWWOOSSP Board

The Education and Training Committee met two times during the reporting period: July 27. 2023 and April 11, 2024. During these meetings, the Committee reviewed training program applications recommended them for Board approval as well as reviewed existing approved courses for the purpose of updating the number of training credits permitted for experience requirement substitutions.

9.4. Internal Review

VDH conducted an internal review as part of the March 21, 2024, stakeholders meeting. VDH staff and the stakeholder advisory group members reviewed all areas of the Operator Certification program (see Appendix A - Annual Operator Certification / Capacity Development Stakeholders Meeting).

9.5. Operator Certification Program External Review

As required by the Federal Guidelines, the next formal external review is due 2026.

Appendix A - Annual Operator Certification / Capacity Development Stakeholders Meeting

Annual Operator Certification / Capacity Development Stakeholders Meeting
March 21, 2024
Inn at Virginia Tech, Blacksburg, Virginia

Attending: Barry Matthews - Virginia Department of Health (VDH), Julie Floyd - (VDH), Tanya Pettus - DPOR, Joey Hiner - South East Rural Community Assistance Project (SERCAP), Mike Ritchie - Virginia Rural Water Association (VRWA), Caleb Taylor - Virginia Tech Continuing Professional Education (CPE), Cary Hoge - VT CPE, Madison Hanson – VT CPE, Rosa Lee Cooke - Mountain Empire Community College (MECC), Bob Canova - Virginia Western Community College, Nathan Coey – Moonshot Missions; Geneva Hudgins – Virginia Section AWWA (VAAWWA), Cynthia Barnes – VAAWWA, Kelsey Brooks – University of Maryland, Kathleen Banfield – Virginia Health Catalyst (Catalyst)

PRESENTER	AGENDA ITEM	DISCUSSION	ACTION ITEMS

Barry Matthews (10 min)	Welcome and Capacity Development Overview	• Changes in funding resulting from use of earmarks; set-asides have been cut more than in half with no guarantee they will come back. Affects all TAPs.
		• EPA is satisfied with having national technical service contracted to do work for states
		• VA General assembly gave ODW $2 million over 2 years for Equitable Access to Drinking Water Fund
		• DWSRF, Infrastructure, and BIL still being used for construction; These can't be used for operations/ maintenance
		• ODW- regulation revisions
		  ○ Regulations on the Waterworks Business Operations Plan (WBOP)
		  ○ WBOP was moved into construction permit section of waterworks regulation
		  ○ Working to place it back under Waterworks Permit section
		• WBOP forms revised; see ODW Capacity Development website
		• Discussion of ODW Staffing: Julie Floyd new Training Manager, Jarrett Talley promotion to Capacity Development Supervisor, Bailey Davis is new Chief of Field Operations and oversees PFAS work now, no longer Bob Edelman	

Julie Floyd (10 min)	Operator Certification Overview	• Julie Floyd started as ODW Training Manager in November
		• Key areas she is focusing on:
		  ○ Internal customer service and getting additional staff to lead trainings
		  ○ Working with staff to freshen slide decks
		  ○ Emphasizing development of training for what students need to know not what we want to tell them
		  ○ Implementing a more consistent look across trainings/presentations using new VDH Brand Guidelines
		  ○ MMM & ESSW – Will be incorporating WBOP into each module this year
		  ○ Lead and Copper training and inventory
		  ○ Looking for sanitary training for ODW staff	

Barry (10 min)	2023 Action Items	• Rosa-lee Cooke requested a Funding/Resource Workshop in Southwest VA– COMPLETED: AMP/Funding Workshop held in Big Stone Gap, October 2023 • Mike Ritchie to set up meeting to discuss Tutoring and Exam Prep as a Set-aside suggestion. - The tutoring has continued under one of VRWA's federal programs. Now that Betty Green is back with us, we will investigate offering exam prep with support of set aside funds. • Brian McReynolds to set-up meeting with Barry regarding VRWA Asset Management Plans - COMPLETED: Brian and Mike met with Barry at our Leadership Symposium and agreed on training topics to be conducted through the EPA T/TA program • Brian to send out information to group on the VRWA Apprenticeship Program- Betty Green to provide update on this program • Barry to ask Dwayne R. if he would like to kick off short school: COMPLETE • Barry to get Caleb the cybersecurity questions from the sanitary surveys: N/A: Due to changes in EPA deployment of the Cybersecurity program through sanitary surveys. Cybersecurity is on hold.	
Internal Review (2 hours)	Julie Floyd & Barry Matthews *Including group discussion*	Triennial Internal Review • What it is: Gathering feedback from this group on what is working well with the program and what needs work. o Last Internal Review – 2021 o No outstanding issues o Discussed challenges and successes • What is External review: An external party handles evaluation of the program; next due in 2025 External review recommendations from 2021 & results: 1. Develop a record system to quantify the yearly number of participants in each training program, whether online, in person or through broadcast a. We're exceeding this recommendation – Caleb's (VT) presentation of numbers of participants including fill rate, show rate, completion rate per class 2. Training courses not aligned with the licensure examination questions, there is no way to verify if the questions on the exam are the correct a. This is partly due to the nature of licensing exam process – we can't get the information because it puts at risk the licensing process b. ABC is testing different materials. c. We are making strides and addressing disconnect through modifications in training as we discover what needs improving Taskforce Initiative: Last year Water Licensure Taskforce was developed to improve operator licensure o Taskforce would like to see 40% pass rate	

		○ Focused on licensure, pass rates & preparatory strategies ○ Responding by changing teaching strategies to teach how to use the formula sheet and strategies for closed book exam ○ Changes from WPI coming Discussion and Feedback (all attendees) • Need approximately 40 more ODW staff to conduct business appropriately per EPA report (currently have 119 positions, not all filled) • Budget ○ Earmarks are paradigm shift and directly impact funding for Operator Certification ○ Budget is focused on infrastructure financing and not operator training • Regulation review ○ ODW working through regular updates to regulations ○ Proposed reduction in education and experience • Database Management ○ EPA product: SDWIS, no changes ○ New Online DWSRF application portal ○ No changes to DPOR databases • Outreach ○ Improve outreach needed to address staffing issues ▪ What's the most effective strategy? ▪ Directly contact administrators or operators? ▪ Could social media be leveraged? ▪ Newsletters (SERCAP has e-newsletter) ▪ Training email blast overload; hard to weed through ▪ Emails get caught in spam filters; how to avoid this? ○ Need more operators / getting them certified ○ All stakeholders are having similar issues keeping contact lists up-to-date & effective marketing reaching the correct demographic	

All Stakeholders (120 Min)	Reports	Virginia Tech CPE - Caleb Taylor • For 2023, there were 1,651 available spots for operators across all classes. Filled 1,413 creating an 85.6 fill rate • Reviewed in person courses by registered operators, number of people attended & number of available spaces. Most courses had zero or one no-shows. Two courses exceeded capacity. • Broadcast had considerably more registered than attended, however number attended was very close to amount budgeted. • Short School - filled 102 of 144 seats (there were 104 registered). 43 sat for exam.	

		• Discussed evaluation scores (participants' understanding of material before class vs. participants understanding of material after class.) All courses & broadcasts show an increase of understanding post-class.
		
		DPOR – State agency that regulates waterworks operators (Tanya Pettus)
		• Exam Taskforce created this year
		  o Addressing negative concerns
		  o Lots of moving parts in the testing industry
		  o Invites people with concerns to be a part of committee
		• Universal licensing passed last year
		  o If licensed in another state and took an exam in that state to get your licensed, you could receive a license in VA
		  ▪ SB 554 (in Tanya's pamphlet) passed Senate and House
		  o Waterworks and wastewater
		  ▪ Proposed amendments of regulations: Reducing entry and experience and education requirements
		  o Pass rate is 30-40% across the board
		  o DPOR sent out a study to determine study habits and who paid for the test
		• Continuing Education Units (CEUs) do not need to be approved by Board
		• Continuing Professional Education (CPE) units must be approved by the Board
		  o Can substitute CPE hours 1 hour for 1 month
		  o Can not substitute for experience when getting approval to sit for the exam
		
		Moonshot Missions -Nathan Cooey
		• Moonshot Missions is one of 4 national Environmental Finance Centers (EFC) in the US.
		• Experts in all technical, managerial evaluations of plants (Algal Blook toolkit is an example of their capability)
		• Creative ideas/partnerships with regional groups at no cost (Barry Matthews pointed out that ODW pays for this partnership)
		• One goal is to bring water and wastewater together to resolve issues
		• They are a national EFC but they are a sub of Environmental Science University of Maryland (a Regional EFC)
		
		Environmental Finance Center Network, University of Maryland - Kelsey Brooks
		• They are Region 3 EFC created through the Bipartisan Infrastructure Law
		• Their funding is temporary.
		• Community groups come to them for assistance
		• They a partner with the SRF program to supplement with capacity development training & resources.
			Tanya to share copy of the survey given at the end of short school exam addressing study habits and who paid for exam.
			
			Tanya to send copy of CPE approval form.

		• Will advocate to EPA for funds to continue
		• EPA didn't mandate a workflow but there are discussions for streamlining
		
		Virginia Health Catalyst (Catalyst) – Kathleen Banfield
		• Their focus is oral health being part of overall health with an eye to community water fluoridation
		• 2019 stats with distrust with tap water
		• Water Equity Taskforce- split off into project-based work
		• Released report
		  ○ Survey of water perceptions
		  ○ 70% trust their water
		  ○ Ask if they drink from tap- they are not sure if it is safe
		  ○ Communities of color and rural communities trust water less
		• Health equity focus
		  ○ Less on operator and more on consumer side
		• Water quality and communications toolkit- Catalysts website
		• Localize the message
		
		Virginia Section American Water Works Association (VA AWWA) – Geneva Hudgins & Cynthia Barnes
		• Partnership with ODW for cross connection control
		• Offer operator prep classes around state including a Hands-On Class with wet lab
		• 96% pass rates with class
		• Participate in career fairs, science fairs, model tower challenge, workforce development
		• 20% growth at annual meeting – 2024 conference in September at Virginia Beach
		• New things
		  ○ Credit review committee – 6 members
		  ○ Student awareness – giving out scholarship for non-traditional students
		  ○ Pre-con for internships and apprenticeship programs
		  ○ Resources have communication toolkits
		  ○ Career center on page: Send them jobs to post!
		
		Mountain Empire Community College (MECC) – Rosa Lee Cooke
		• Head count is down from last year in the Water Operator Course of study
		• Partnering with SERCAP to provide laptops & record lectures
		• Currently 12 students working through program
		• Working on creating a SCADA class for VCCS approval
		• Operators are working with tech schools to create bridge from high school to Mountain Empire Community College
			Kathleen to share water quality & communications toolkit
			
			Julie to put together list of all TAP websites and give to the group

		• 2 NSF programs – one with VT (algae blooms) and one with Central Carolina Technical College (water drops & helping students with math)
		• Waterworks internships through WVU & VT for Wise County offer paid internships
		
		Virginia Western Community College – Bob Canova
		• Offers two courses
		  ○ Math course, synchronous, 6-week course $85
		  ▪ 18 hours for CPE certificate
		  ▪ 3 hour a week webcast
		  ▪ 3 practice assignments
		  ▪ Practice exam
		
		Virginia Rural Water Association (VRWA) – Mike Ritchie & Betty Green
		• Offered 68 classes totaling 168 CPE's
		• Regional approach to classes offering a variety
		• Fully staffed
		• Offer 3 events annually (Annual conference, Leadership Symposium, Operation Expo)
		• Offer water loss/leak detection certification
		• Success with one-on-one tutoring
		• Betty Green – Approved 2-year apprentice program with 400 hours of on-the-job training (288 hours related to water/wastewater), cost is $3500 / year. Betty is visiting high schools to build interest
		
		SERCAP – Joey Hiner
		• Partnerships with MECC and VWCC
		• Offer for training operators & board members
		• Working with EFC – Region 3 (Kelsey)
		• Water is Life program is April 4th at Hotel Roanoke
			Betty to share apprenticeship info with Julie to share out with everyone
			
			Barry to talk to Mike Ritchie re: equipment needs
			
			Joey Hiner will send job openings to AWWA for website posting

Barry	Adjournment		

Here are links to the programs and tools we discussed during the meeting:

- **VDH – ODW**: Operator Certification and Capacity Development: https://www.vdh.virginia.gov/drinking-water/information-for-waterworks-operators/
- **Virginia Tech – Continuing & Professional Education**: https://register.cpe.vt.edu/contentManagement.do?method=load&code=CM000021
- **DPOR**: https://www.dpor.virginia.gov/Boards/WWWOOSSP
- **Moonshot Missions**: https://www.moonshotmissions.org/
    - HABs Toolkit: https://www.vdh.virginia.gov/content/uploads/sites/14/2024/01/Harmful-Algal-Blooms-Toolkit_December-2023.pdf
- **Maryland Environmental Finance Center**: https://arch.umd.edu/research-creative-practice/centers/environmental-finance-center
- **Virginia Health Catalyst**: https://vahealthcatalyst.org/
    - Communications Toolkit: https://vahealthcatalyst.org/wp-content/uploads/2023/02/Water-Quality-Toolkit-full-spread-2.pdf
- **Virginia AWWA**: https://www.vaawwa.org/
    - Career Center: https://www.vaawwa.org/page/career-center
- **Mountain Empire Community College**: https://water/mecc.edu
- **Virginia Western Community College**:
    - Using the ABC Water Formula Table Online Class: https://www.vdh.virginia.gov/drinking-water/using-the-abc-water-treatment-formula-table-distance-learning-course-for-water-operators/
- **Virginia Rural Water Association**: www.vrwa.org
    - Apprenticeship Program: https://www.vrwa.org/TrainingEvents/ApprenticeshipProgram.aspx
- **Southeast Rural Community Assistance Program**, Virginia: https://sercap.org/about/locations/virginia