

DATE: June 13, 2001

TO: OWP Professional Staff

THROUGH: Robert W. Hicks, Director  
Office of Environmental Health Services

Robert B. Taylor, P.E., Director  
Division of Water Supply Engineering

FROM: Mark C. Anderson, Technology Transfer Director  
Division of Water Supply Engineering

SUBJECT: Water – Policy – Interim Guidance on Waterworks Classification

Refer to Working Memo #842

## Background

As a result of the federal Operator Certification Guidelines, the Waterworks and Wastewater Operators Board (Board) revised its regulations. To meet the February 5, 2001, federal deadline, the Board accelerated revising its regulations to comply with the guidelines or Virginia would lose 20% of its Drinking Water State Revolving Fund. (The complete revision can be found at [http://www.state.va.us/dpor/www\\_reg.pdf](http://www.state.va.us/dpor/www_reg.pdf)). By expediting the process the Board revised its regulations well ahead of the *Waterworks Regulations* revision.

The new federal guidelines required all community water systems (CWS) and nontransient noncommunity systems (NTNC) to have certified operators— regardless of whether treatment was used. Under the *Code of Virginia*, the Board considered a system to be a waterworks if it served a population over 400. In meeting the federal guidelines, the Board now basically defines a waterworks as a CWS or NTNC (language does not match exactly our definitions). The Board created a Class VI classification to capture these previously nonclassified systems. These nonclassified systems, only if classified as a VI, are eligible to grandparent an existing operator (as of February 15, 2001).

Current *Waterworks Regulations* do not classify a waterworks below a Class IV. When the Board created the Class V license (primarily for operators of consecutive systems and for distribution system operators), the difference between regulations was covered by working memo #691. As the revisions to the *Waterworks Regulations* are several years away from becoming effective, the difference between the regulations of the two agencies will be addressed

in this new working memo. This memo provides interim guidance, until such time the revised regulations become effective, on how to classify previously unclassified waterworks. This working memo expires when the *Waterworks Regulations* become effective.

### **Scope of Work**

Many, if not all, of our systems that were nonclassified will have to be classified. This needs to be done by each field office over the next several months to enable an adequate review of the facility's complexity, compliance history, capability and stability of the operating staff, source water type, treatment techniques used (if any), and population served. It is more important to examine each nonclassified waterworks individually and to notify the owner of our determination than to issue a blanket classification of a Class IV, V, or VI solely based on guidance provided in the Board's revised regulations. The authority to classify a waterworks rests with the Board of Health, not the licensure board.

Yet, a sense of urgency exists to protect future drinking water state revolving funds and allow waterworks owners the time to grandparent an existing operator. There are many nonclassified waterworks owners who do not know about the revisions to the operator licensure regulations. In the meantime, field office staff should consider notifying each owner that his or her system may soon be classified and the ramifications that classification will have. Especially consider those owners who will have hardships in meeting the requirements and need as much time as possible to comply. As soon as the classification for a nonclassified waterworks is completed, notify the owner. At that time the owner will have to designate a licensed operator to be in responsible charge whether grandparented, contract, or new hire. As long as the waterworks is unclassified, there is no legal requirement for the owner to have a licensed operator in responsible charge and the Board cannot take enforcement actions against the operator.

### **Waterworks Classification**

**General.** Waterworks operation comprises the constant operation and management of facilities and personnel. Consideration must be given to such factors as competency of personnel, water quality (including drinking water standards) plant maintenance and cleanliness, analytical laboratory control, operation and maintenance of plant equipment, plant records and safety. As the complexity of operation increases, so does the expertise and skill required of the operating staff.

**Classification of Waterworks and Personnel.** The operation of waterworks, both small and large, must rest in the hands of qualified persons. The number and qualifications of persons constituting the operating staff at a waterworks depends principally upon the size, the quality of the raw water, and the type of treatment processes used and is reflected in the classification of the waterworks.

Classification of Waterworks. For the purposes of this section, all community and NTNC waterworks, including consecutive waterworks, fitting the classification scheme below shall be designated as classified waterworks. Transient noncommunity waterworks and those waterworks failing to fall within one of the below listed classifications shall be designated unclassified waterworks unless specified otherwise by the Commissioner on a case by case basis.

1. Class VI shall mean any waterworks as follows:

a. Waterworks serving fewer than 400 persons which (i) provide no treatment; or (ii) employ hypochlorination for disinfection; or (iii) employ corrosion control with calcite contactors and/or solution feed except with caustic; or

b. Waterworks designated by the Commissioner to be Class VI waterworks.

2. Class V shall mean any waterworks as follows:

a. Waterworks serving 400 or more persons which (i) provide no treatment or (ii) employ hypochlorination for disinfection or (iii) employ corrosion control with calcite contactors and/or by solution feed except with caustic soda; or

b. Waterworks designated by the Commissioner to be Class V waterworks.

3. Class IV shall mean any waterworks as follows:

a. Waterworks serving fewer than 5,000 persons or having a design hydraulic capacity of less than 0.5 mgd, whichever is greater, employing one or more of the following: (i) disinfection other than with hypochlorination, (ii) corrosion control, (iii) iron and manganese removal, (iv) ion exchange, (v) slow sand filtration, (vi) aeration, (vii) rechlorination other than with hypochlorination, (viii) activated carbon contactors or (ix) fluoridation with a saturator(s); or

b. Waterworks employing membrane technology without chemical coagulation or lime softening.

c. Waterworks designated by the Commissioner to be Class IV waterworks.

4. Class III shall mean any waterworks as follows:

a. Waterworks serving fewer than 5,000 persons or having a design capacity less than 0.5 mgd, whichever is greater, 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; or

b. Waterworks serving 5,000 or more persons or having a design hydraulic capacity of 0.5 mgd or more, whichever is greater, employing one or more of the following (i) disinfection other than with hypochlorination, (ii) corrosion control by other than solution feed/calcite contactor, (iii) iron and manganese removal, (iv) ion exchange, (v) slow sand filtration, (vi) aeration, (vii) rechlorination other than with hypochlorination, or (viii) activated carbon contactors; or

c. Waterworks employing diatomaceous earth filtration; or

d. Waterworks employing fluoridation with other than a saturator not covered by a higher classification; or

e. Waterworks designated by the Commissioner to be Class III waterworks.

5. Class II shall mean 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, whichever range applies, 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 technology; or

b. Waterworks serving fewer than 50,000 persons or having a design hydraulic capacity of less than 5.0 mgd which employ chemical coagulation or lime softening coupled with high rate filtration (rates above 2.0 gpm/sq ft) in combination with one or more of the following (i) sedimentation, (ii) fluoridation, (iii) disinfection, (iv) aeration, or (v) corrosion control; (vi) membrane technology; or

c. Waterworks employing biological activated carbon (BAC) contactors or

d. Waterworks designated by the Commissioner to be Class II waterworks.

6. Class I shall mean any waterworks as follows:

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 in combination with one or more of the following (i) sedimentation, (ii) rapid sand or high rate filtration, (iii) fluoridation, (iv) disinfection, (v) aeration (vi) corrosion control, or (vii) membrane technology; or

b. Waterworks designated by the Commissioner to be Class I waterworks.

Personnel and Operating Staff Requirements. This section addresses the license and attendance

requirements for operating staff at classified and unclassified waterworks. The number and class of operators and additional operating staff in attendance are the minimum needed to meet the requirements of protection of the public health and safety of the operating staff.

1. Classified Waterworks.

a. The operation permit for classified waterworks shall state the classification of the waterworks. When a change in classification occurs and a new permit is not reissued, the owner will be notified by letter of the change. The letter should be attached to the permit until such time that the permit is reissued. This classification determines the class operator required to be in responsible charge. A copy of this letter will be furnished to the Board.

b. All classified waterworks shall be operated by operators.

c. More than one licensed operator may be required at a classified waterworks, especially at a classified waterworks utilizing a water supply source(s) with varying water quality to ensure that pure water is consistently produced and to meet the attendance requirements contained in Table 1.

d. When no regularly employed operator is available, a substitute operator shall be designated by the owner.

e. The number of operating staff other than operators shall be based in part on the attendance requirements contained in Table 1. Operating staff, other than operators, shall be selected for their ability to provide support services to the licensed operator(s).

f. Two members or more of the operating staff shall be in attendance at all waterworks having a design capacity of 2.0 mgd or higher and utilizing chemical coagulation or lime softening in combination with granular standard or high rate filtration whenever the waterworks is in operation. One or more of these members shall be an operator. All other waterworks utilizing chemical coagulation or lime softening in combination with granular standard or high rate filtration shall have a minimum of one licensee of the operating staff in attendance whenever the waterworks is in operations.

g. Operating staff at classified waterworks who are not operators shall not operate the waterworks.

h. For waterworks employing treatment, the attendance requirements contained in Table 1 means physically present at the treatment works in order to inspect, monitor, and adjust the operation of the treatment processes.

2. Unclassified Waterworks. Licensed operators are not required at unclassified waterworks. The operation permit for any unclassified waterworks shall identify the waterworks as

unclassified.

**Table 1\***  
**Classification And Hours Of Attendance When In Operation**

PWS CLASS	PWS CAPACITY	EQUIVALENT POPULATION SERVED	TREATMENT PROCESSES EMPLOYED	LICENSED OPERATOR CLASS	MINIMUM ATTENDANCE HOURS BY OPERATING STAFF	
					LICENSED OPERATOR	OTHER STAFF**
I	5.0 MGD or more	50,000 or more	Conventional filtration treatment or high rate filtration treatment or lime softening in combination with one or more of the following: (i) fluoridation, (ii) disinfection, (iii) aeration, (iv) corrosion control, or (v) membrane technology.	I	When in operation.	When in operation at least one staff person required when PWS capacity is 2 MGD or greater
II	0.5 but less than 2.0 MGD	5,000 but less than 20,000	Conventional filtration treatment or lime softening in combination with one or more of the following: (i) fluoridation, (ii) disinfection, (iii) aeration, (iv) corrosion control, or (v) membrane technology.	II	When in operation or available.	When in operation and operator is not present (but is available)
II	2.0 but less than 5.0	20,000 but less than 50,000	Conventional filtration treatment or lime softening in combination with one or more of the following: (i) fluoridation, (ii) disinfection, (iii) aeration, (iv) corrosion control, or (v) membrane technology.	II	When in operation	When in operation.
II	Less than 5.0 MGD	Less than 50,000	High rate granular media filtration treatment in combination with one or more of the following: (i) fluoridation, (ii) disinfection, (iii) aeration, (iv) corrosion control, or (v) membrane technology.	II	When in operation.	When in operation at least one staff person required when PWS capacity is 2 MGD or greater.
II	Less than 5.0 MGD	Less than 50,000	Biological activated carbon (BAC) contactors.	II	Daily for sufficient time to check operations, perform testing and maintenance. Minimum of 4 hours/week if there are other operating staff.	When other operating staff are employed (at least one staff person required when PWS capacity is 2 MGD or greater), daily for sufficient time to check operations, perform testing and maintenance.
III	Less than 0.5 MGD	Less than 5,000	Conventional filtration treatment or lime softening in combination with one or more of the following: (i) fluoridation, (ii) disinfection, (iii) aeration, (iv) corrosion control, or (v) membrane technologies.	III	When in operation.	
III	0.5 MGD or more	5,000 or more	One or more of the following: (i) disinfection other than hypochlorination, (ii) corrosion control by other than solution feed/calcite contactor, (iii) iron and manganese removal, (iv) ion exchange, (v) membrane technologies with pH adjustment consisting of acid or caustic feed, (vi) slow sand filtration, (vii) aeration, (viii) rechlorination other than hypochlorination, or (ix) activated carbon contactors.	III	Daily for sufficient time to check operations, perform testing and maintenance. Minimum of 4 hours/week if there are other operating staff.	When other operating staff are employed, daily for sufficient time to check operations, perform testing and maintenance.

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III	No limit.	No limit	Membrane technologies requiring pretreatment consisting of coagulation, flocculation, and settling or diatomaceous earth filtration coupled with aeration, corrosion control, disinfection, or fluoridation.	III	Daily for sufficient time to check operations, perform testing and maintenance. Minimum of 4 hours/week if there are other operating staff.	When other operating staff are employed, daily for sufficient time to check operations, perform testing and maintenance.
III	No limit	No limit	Fluoridation with other than a saturator not covered by higher classification	III	Daily for sufficient time to check operations, perform testing and maintenance. Minimum of 2 hours/week if there are other operating staff.	When other operating staff are employed, daily for sufficient time to check operations, perform testing and maintenance.
IV	Less than 0.5 MGD	Less than 5,000	One or more of the following: (i) disinfection other than hypochlorination, (ii) rechlorination other than hypochlorination, (iii) membrane technologies with pH adjustment without acid or caustic feed, (iv) slow sand filtration, or (v) fluoridation with a saturator	IV	Daily for sufficient time to check operations, perform testing and maintenance. Minimum of 2 hours/week if there are other operating staff.	Other operationing staff not required.
IV	No Limit	No Limit	Membrane technology with pH adjustment without acid or caustic feed.	IV	Daily for sufficient time to check operations, perform testing and maintenance. Minimum of 2 hours/week if there are other operating staff.	When other operating staff are employed, daily for sufficient time to check operations, perform testing and maintenance.
IV	Less than 0.5 MGD	Less than 5,000	One or more of the following: (i) corrosion control other than by solution feed/calcite contactors, (ii) iron and manganese removal, (iii) ion exchange, (iv) aeration, or (v) activated carbon contactors.	IV	Daily for sufficient time to check operations, perform testing and maintenance. Minimum of 2 hours/week if there are other operating staff.	Other operationing staff not required.
V	None	400 or more	No treatment or hypochlorination for disinfection or corrosion control with calcite contactor and/or solution feed except caustic soda.	V	Daily for sufficient time to check operations, perform testing and maintenance.	Other operating staff not required.
VI	None	Less than 400	No treatment or hypochlorination for disinfection or corrosion control with calcite contactor and/or solution feed except caustic soda.	VI	Daily for sufficient time to check operations, perform testing and maintenance.	Other operating staff not required.

\* The table above is a quick reference chart for illustrative purposes only and may not address all possible variations, in which case the requirements, as specified under *Personnel and Operating Staff Requirements* will govern.

\*\* Includes licensed and unlicensed staff at or below the classification of the waterworks.



**Definitions**

**Licensed operator** means a waterworks licensee with a classification equal to or greater than the classification of the waterworks who is a member of the operating staff.

**Licensee** means an individual holding a valid waterworks license issued by the Board of Waterworks and Wastewater Works Operators.

**Operate** means the act of making a decision on one's own volition and without supervision which may have an impact on the finished water quality of a waterworks, such as (I) to place into or take out of service a unit process or unit processes or (ii) to make or cause adjustments in the operation of a unit process or unit processes at a waterworks.

**Operating staff** means individuals employed or appointed by an owner to work at a waterworks. Included in this definition are licensees whether their license is appropriate for the classification of the waterworks and unlicensed individuals.

**Operator** means a licensed operator employed or appointed by any owner and who is designated by such owner to have responsible charge and whose duties include testing or evaluation to control waterworks operations.

**Responsible charge** means the designation by the owner of any individual to have the duty and authority to operate a waterworks.

[EEFO Letterhead]  
[Address]  
[City, Virginia, Zip]

[Date]

Subject: Federal Operator Certification Guidelines

[Title] [Waterworks Owner]  
[Owner's address]  
[City, State, Zip]

[Salutation]:

Under the provisions of the Safe Drinking Water Act Reauthorization of 1996, all community and nontransient noncommunity waterworks are required to have licensed operators by February 5, 2001. Under previous regulations of the Waterworks and Wastewater Works Operator Board, your waterworks was unclassified and the person responsible for its operation was not required to have a license. The Virginia Department of Health is reviewing all nonclassified waterworks, including yours, to determine under what classification your waterworks will fall. All reviews should be completed in the next few months.

Until the Virginia Department of Health notifies you of your system's classification, you do not have to have a licensed operator in responsible charge. However, we advise you to start planning. You may be eligible to request of the Waterworks and Wastewater Works Operator Board that an operator of your system employed on or before February 15, 2001, receive a restricted license. You may know this as grandfathering or grandparenting.

Grandparenting allows the owner or an individual employed or appointed by the owner to receive a restricted-use license without having to initially take and pass an examination. A restricted use license expires at the end of three years. Upon expiration a grandparented operator will have to apply to sit for the Class VI examination. The application for a restricted use license requested of the Waterworks and Wastewater Works Operator Board must be made before February 15, 2003. This application deadline, for a restricted use license, does not postpone the requirement to have a licensed operator in responsible charge.

[Insert closing of your choice.] If you have questions, feel free to contact [insert contact].

Sincerely,

[signature block]