Preliminary Evaluation of the State Board of Waterworks and Waste Systems Operators

Recommendation: Full Evaluation

The Sunset Review Process

This evaluation was undertaken under the auspices of the Maryland Program Evaluation Act (§ 8-401 *et seq*. of the State Government Article), which establishes a process better known as "sunset review" because most of the agencies subject to review are also subject to termination. Since 1978, the Department of Legislative Services (DLS) has evaluated about 70 State agencies according to a statutory schedule as part of sunset review. The review process begins with a preliminary evaluation conducted on behalf of the Legislative Policy Committee (LPC). LPC decides whether to waive an agency from further (or full) evaluation. If waived, legislation to reauthorize the agency typically is enacted. Otherwise, a full evaluation typically is undertaken the following year.

The State Board of Waterworks and Waste Systems Operators last underwent a full evaluation as part of sunset review in 1989. The board also underwent a preliminary evaluation in 1998. The 1998 preliminary evaluation concluded that the board was successfully fulfilling its statutory responsibilities and that it should be waived from full evaluation but also recommended that a loophole regarding temporary certification be addressed. Based on the preliminary evaluation recommendation, the General Assembly extended the board's termination date to July 1, 2011.

In conducting its preliminary evaluation, DLS staff reviewed annual reports and minutes from board meetings from the past five years, Title 12 of the Environment Article, federal regulations, literature from affiliated professional associations, a prior preliminary sunset evaluation of the board, and the operating budget of the board. In addition, DLS staff conducted interviews with the secretary of the board and reviewed various files and data provided by the board.

The board reviewed a draft of this preliminary evaluation and provided the written comments attached at the end of this document as **Appendix 4**. Appropriate factual corrections and clarifications have been made throughout the document.

Prepared by: Evan Isaacson ● Department of Legislative Services ● Office of Policy Analysis ● December 2008

State Board of Waterworks and Waste Systems Operators

The State Board of Waterworks and Waste Systems Operators was created by Chapter 430 of 1957. The board was initially created to examine and certify the *supervisors* of waterworks and waste system facilities. A waterworks facility collects, stores, pumps, treats, or distributes water for human consumption. A wastewater facility collects, stores, pumps, treats, or discharges any liquid or waterborne waste.

In 1982 the board's regulatory purview increased to include *operators* in addition to the superintendents. An operator of either a waterworks or waste system facility participates in the control of the flow, treatment, or discharge of water or wastewater; a superintendent is certified as the individual who is in charge at the facility. By certifying operators, the State intends to more adequately protect the public from the harmful effects of ill-treated water.

The board operates under the provisions of Title 12 of the Environment Article and is housed within the Maryland Department of the Environment (MDE). Its general responsibilities include:

- reviewing and approving all applications for operator and superintendent certification and certification renewal;
- preparing and giving examinations to qualified applicants for certification;
- hearing appeals concerning certification requirements;
- investigating all reports of fraud or deception in obtaining or use of a certificate;
- investigating all reports of unsatisfactory performance in the operation or supervision of a waterworks, wastewater works, or industrial wastewater works facility;
- taking disciplinary action, including the reprimand of a certificate holder or suspension or revocation of a certificate; and
- recommending regulations for promulgation by the Secretary of the Environment.

The board consists of 11 members. The Secretary of the Environment appoints three members to the board: one engineer representative from MDE and two public members. With the advice and consent of the Senate and the Secretary of the Environment, the Governor appoints the other eight members, who represent one or more of the following:

- municipal government;
- county government;

- a sanitary or a metropolitan commission;
- waterworks supervision;
- wastewater works or industrial wastewater works supervision;
- agriculture;
- industrial wastewater works superintendents; and
- the Department of Natural Resources.

Members serve four-year terms, except for the MDE representative who serves at the pleasure of the Secretary. The board currently has three authorized staff members, one of whom is a support staff position shared among three boards.

Requirements for Certification

Under Title 12 of the Environment Article, the board has to certify an individual before that individual may be employed by a waterworks, waste waterworks, or industrial wastewater facility as a superintendent or operator. Nevertheless, as discussed later in this evaluation, many operators are not certified. A violation of the certification requirement is a misdemeanor and subject to a fine of up to $25 for each day of the violation.

To be certified, an individual must meet the continuing education and experience requirements and pass the appropriate written examination given by the board (for more details see **Appendix 1** and **Appendix 2**). For example, a certified superintendent must meet education and experience requirements, possess a valid operator's certificate from the State for each process used by the facility, and meet the appropriate training requirements. As shown in **Exhibit 1**, the board issues certificates for different positions based on several different categories of facilities. All certificates expire three years from the date of issuance.

Exhibit 1 also shows the five categories of facilities that the board oversees; two are waterworks and three are waste system facilities. Within these five broader categories are 24 different types of facilities, each with a unique certificate. As shown in **Appendix 3**, each of the 24 different types of facilities is defined by its treatment technology. In this way, each certificate is process specific, ensuring that operators are technically qualified for the process they are certified to operate. In total, the board oversees 3,800 certificate holders who hold approximately 8,100 certificates – with many individuals certified in multiple facility treatment technologies.

Exhibit 1
Certificates and Facility Categories

Certificates

Operator Certificate: Issued to an operator who has obtained the required education and experience and passed the appropriate examination.

Temporary Certificate: Issued to a newly hired operator or one transferring to a facility with a different classification. The temporary certificate holder must work under the direction of a holder of an operator or superintendent certificate.

Grandparented Certificate: Issued to an operator who was not required to be certified prior to February 5, 2001, and who meets the minimum education and experience requirements. The certificate is site-specific and also terminates if the facility changes to a different class.

Limited Certificate: Issued to an operator at a wastewater system who meets the minimum education and experience requirements for the particular waterworks or wastewater facility; the certificate is site-specific and terminates if the facility changes to a different class.

Superintendent Certificate: Issued to an operator who holds a valid operator certificate, has obtained the required education and experience for a superintendent, is appointed by an employer, and completes the mandatory superintendent training program. These certificates are issued for a specific category and facility.

Facility Categories

Water Distribution

Water Treatment

Wastewater Treatment

Wastewater Collection

Industrial Wastewater Treatment

Note: The board advises that no limited certificates have been issued.

Source: Maryland Center for Environmental Training

Many Operators Are Temporarily Certified or Grandparented

An operator is granted a temporary certificate while undergoing training for full operator certification. Some operators have also been granted a grandparented certificate if employed at a facility not required to employ certified operators prior to February 2001 as shown in **Exhibit 2**. In 2001 regulations recognized grandparented certificates and specified their conferral and termination. Grandparented certificates ceased to be granted as of February 5, 2003; thus, the percentage of operators with grandparented certificates has steadily declined. However, because holders of a grandparented certificate may continue to *renew* their certificate indefinitely, it may be decades before the grandparented certificate is completely phased out.

Exhibit 2
Certified Waterworks Operators by Certificate Type
Calendar 2002-2007

Year	Temporary Certificate	Operator Certificate	Grandparented Operator
2002	31.1%	54.6%	14.3%
2003	30.8%	55.1%	14.1%
2004	32.4%	54.7%	13.0%
2005	36.4%	55.7%	7.8%
2006	38.1%	55.0%	6.9%
2007	38.1%	55.9%	6.0%

Source: Maryland Department of the Environment Water Supply Program, *Maryland Operator Certification Annual Report* (to the U.S. Environmental Protection Agency), Annual Reports for 2002 through 2007

The board has two reasons for allowing grandparented operators to renew their certificates without being required to take the examination necessary for full operator certification as holders of temporary certificates must do. First, the board has determined that most grandparented certificate holders have a good understanding of the systems employing them and the record of compliance with water-related regulations at their facilities is generally satisfactory. Second, the board has noted that the grandparented certificate is very limited in that the holder cannot transfer that certificate to another facility and the certificate terminates should the holder's facility change its classification. In 2005 the board undertook a campaign to instruct grandparented operators in how to maintain their certification status.

Certification Examination Passage Rates Remain Low

Testing for operator certification is offered monthly at various locations across Maryland. To pass, an examinee must achieve a minimum score of 70 percent. An examinee who passes the exam and otherwise qualifies is certified for three years. When the certificate expires, the operator or superintendent must present evidence to the board that the continuing education requirements have been fulfilled prior to the board issuing the renewal certification.

At each board meeting, the board reviews test data from the previous six-month period. The average test score for all periods over the past five years is just under 35 percent. The average scores reported each month have ranged from a low of 30 percent to a high of 42 percent, with no clear trends emerging over the five-year span. The passage rate noted in the 1998 preliminary evaluation was 39 percent.

The board has recognized the low passage rates and has taken several actions to address the low rates. In 2005 the board conducted a survey of examinees on their opinions of the certification examinations. The survey indicated that available certification training is not specifically designed for test preparation. The survey also revealed that some examinees use their first administration of the exam as a learning experience to ascertain which subject areas they need to study further in order to pass. The board determined that, rather than attempting to alter the examination, it would prefer to ensure that the curriculum better prepares applicants for examination. New approaches to curriculum development have included week-long training sessions and new computer-based training products. In addition, the board continues to work closely with the three primary training centers to ensure progress in increasing passage rates.

The board has also studied the certification examination processes of other states to gain perspective on Maryland's shortcomings. The passage rate in Maryland is significantly lower than in surrounding states. The board has noted several potential reasons for this disparity. First, some states require a certain level of training to be completed before an operator is allowed to sit for an examination. Second, the board is not authorized to levy any sort of sanctions on operators who continue to fail the exam. Finally, many operators in Maryland have no financial incentive for becoming certified. The board has indicated, however, that the levying of sanctions and creation of financial incentives are actions best left to individual employers.

Board Oversees a Diverse Selection of Continuing Education Courses

One of the board's principal functions is to review and approve training courses. To this end, the board established the Training Review and Evaluation Committee to review the hundreds of training courses that come before it. At each meeting of the board, this committee presents its recommendation regarding whether the board should approve each of the training courses it reviews.

Several years ago the board adopted a policy that requires 50 percent of most operators' training to come from process-related courses. This change responded to the observation that many operators were satisfying the majority of their training requirements through the completion of federally mandated safety courses. Although it is beyond the scope of the board's authority to address local or national water quality issues, the board notes that it has approved many courses designed to educate operators and superintendents on such issues, including pharmaceuticals and chemicals in the water supply, infrastructure financing, the effect of climate change on water availability, and nutrient removal from the Chesapeake watershed.

Community Waterworks Are More Likely to Maintain Certified Operators

Public drinking water systems fall into three categories: community, nontransient noncommunity, and transient noncommunity. Community water systems serve year-round residents, nontransient noncommunity water systems serve consumers such as schools or daycare facilities, and transient noncommunity water systems serve different consumers each day, such as at a campground or restaurant.

As shown in **Exhibit 3**, the percentage of systems employing a certified operator is much greater for community water systems than for nontransient noncommunity water systems. The number of certified operators at all systems had been increasing steadily from 2002 through 2005. However, this number declined dramatically in 2006. According to the board, this abrupt decline may be attributed in part to the lapse of a large number of grandparented certificates issued in 2003. The most recent report indicates that the percentage of systems employing certified operators has increased from 59 percent of waterworks in the 2001 baseline to almost 80 percent of waterworks in 2007.

Exhibit 3
Operator Certification at Water System Facilities
Calendar 2002-2007

	2002	2003	2004	2005	2006	2007
Community	87.8%	88.8%	91.2%	99.2%	74.2%	86.2%
Nontransient Noncommunity	59.4%	70.0%	80.4%	80.3%	64.0%	74.4%
Both Systems	**72.7%**	**78.8%**	**85.4%**	**89.1%**	**68.7%**	**79.9%**

Source: Maryland Department of the Environment Water Supply Program, *Maryland Operator Certification Annual Report* (to the U.S. Environmental Protection Agency), Annual Reports for 2002 through 2007

Though operators are required to be certified before being employed by a facility, it is not the responsibility of the board to ensure that all facilities employ certified operators. Despite this, the board does conduct outreach to notify facilities of their duty to ensure that operators are certified. In addition, the board notes that, despite the significant number of facilities without a certified operator, the percentage of persons served by a facility without a certified operator is very low.

Small Systems Are Less Likely to Maintain a Certified Operator

The board has also noted a major disparity in the percentage of systems employing a certified operator between large systems and systems serving fewer than 100 people. Board statistics show that the larger the water system the more likely it is to be employing a certified operator. For example, all systems serving 10,000 or more people have employed a certified operator each year since 2002. The percentage of systems employing an operator decreases with smaller systems. **Exhibit 4** shows the disparity in operator certification at small systems as compared with the average of all systems for both community water systems and nontransient noncommunity water systems.

Exhibit 4
Operators in Systems Serving Fewer than 100 Persons
Calendar 2002-2007

	2002	2003	2004	2005	2006	2007
Community Systems						
Serving < 100 Persons	69%	73%	81%	97%	28%	66%
All Such Systems	88%	88%	91%	98%	74%	84%
Disparity	**19%**	**16%**	**10%**	**1%**	**46%**	**18%**
Nontransient Noncommunity Systems						
Serving < 100 Persons	41%	55%	63%	61%	51%	49%
All Such Systems	60%	70%	76%	80%	64%	74%
Disparity	**19%**	**15%**	**13%**	**19%**	**13%**	**25%**

Source: Maryland Department of the Environment Water Supply Program, *Maryland Operator Certification Annual Report* (to the U.S. Environmental Protection Agency), Annual Reports for 2002 through 2007

The board, as well as MDE, has focused significant attention on the failure of many small water systems to maintain certified operators. The board has requested assistance from the National Rural Water Association and has continued its campaign to notify operators at small systems in the State of their training and certification responsibilities. In 2008 the board contracted with a private firm to provide additional training opportunities for Eastern Shore small system operators, and MDE continues to provide funding to the Maryland Rural Water Association, which works with small systems in need of assistance. In addition, MDE has accepted the federal Operator Expense Reimbursement Grant. This multiyear grant is used to reimburse operators of small water systems for their certification expenses and to provide statewide training to assist small systems in educating and training operators.

Federal Regulatory Requirements

The Safe Drinking Water Act Reauthorization of 1996 requires states to develop, implement, and enforce operator certification regulations for waterworks facilities. There is no comparable federal oversight of certification for waste system facilities, though the board has overseen the examination and certification of waste systems for decades. The Code of Maryland Regulations for the Operator Certification Program was revised in January 2001 in response to these federal guidelines. The U.S. Environmental Protection Agency (EPA) approved Maryland's Operator Certification Program on July 13, 2001.

Pursuant to the federal guidelines, each state is required to provide annual reports to update EPA on the state's implementation of the Operator Certification Program for the previous year. Included in the reports are data on the number and percentages of community water systems and nontransient noncommunity water systems employing a certified operator. Submission of these reports is required in order to receive the full federal allocation under the Drinking Water State Revolving Fund. Allocation of this funding is not, however, contingent on the state ensuring that all or a certain percentage of operators are certified. In fact, neither federal nor State regulations contain punitive provisions for systems that do not maintain certified operators.

Few Complaints Have Been Filed with the Board

The board's general responsibilities include investigating reports of fraud or deception in obtaining a certificate and unsatisfactory performance in the operation or supervision of a waterworks or waste system facility. On finding a violation, the board may reprimand any certificate holder or suspend, revoke, or deny a certificate for any of the following reasons:

- if the certificate holder fraudulently or deceptively obtains, or attempts to obtain, a temporary or permanent certificate for himself or for another;

- professional incompetence;
- falsification of records;
- failure to submit required self-monitoring documents; or
- negligence in operation and maintenance of the works.

Between 2002 and 2008 only 10 complaints were filed for investigation by the board. This compares with eight complaints filed in the five years preceding the 1998 preliminary evaluation. As shown in **Exhibit 5**, complaints have included multiple reports of falsification of records and failure to submit required documents. Disciplinary measures by the board have included both actions taken against the subject's certificate as well as referral to the MDE Environmental Crimes Unit or the Office of the Attorney General.

Exhibit 5
Complaints Filed with the Board
Calendar 2002-2008

Year	Charge	Action
2002	(1) Falsification of Records	Referral to MDE Environmental Crimes Unit
	(2) Mistaken Grant of Certificate	Temporary Certificate issued
	(3) Failure to Submit Required Documents and Reports	Attorney General Consent Order
	(4) Failure to Submit Required Documents and Reports	Attorney General Consent Order
2003	(1) Falsification of Records	Referral to MDE Environmental Crimes Unit
2004	(1) Falsification of Records	Certification not renewed
	(2) Drug Use	Reviewed sufficiency of relevant regulations
2005	(1) Falsification of Records	Certificate relinquished
	(2) Falsification of Records	Referred to MDE Environmental Crimes Unit
2006	None	
2007	None	
2008	(1) Falsification of Records	Case pending

Source: State Board of Waterworks and Waste Systems Operators

The small number of complaints may be due in part to the nature of the self-reporting system in place. The board is tasked with investigating all reports of violations, but it is outside the scope of the board's mandate to proactively seek out violations. Therefore, the board is reliant upon the waterworks and waste systems facilities and others to report violations.

One-half of the cases investigated by the board involved a referral to the MDE Environmental Crimes Unit or legal action by the Office of the Attorney General. These cases often take many months or even several years to complete. However, cases handled internally may be prosecuted within several months. For example, one case in 2005 involving the falsification of records ended in the voluntary relinquishment of the operator's certificate fewer than five months after being reported to the board.

Board Revenues Have Not Covered Costs

The appropriation for the board comes from general funds. All the revenue that the board collects is deposited into the general fund. Although the board is not required to cover its expenditures by law, the 1989 sunset evaluation recommended that the board fully cover its costs through the collection of fees. The 1998 preliminary evaluation noted that the board had begun to cover its costs fully beginning in fiscal 1996. As shown by **Exhibit 6**, revenues fully covered costs in fiscal 2003 but have failed to do so each year from fiscal 2004 through 2008. Most board revenues are derived from testing, license renewal, and certificate fees. **Exhibit 7** shows the board's current fees.

Exhibit 6
Fiscal History of the Board of Waterworks and Waste Systems Operators
Fiscal 2003-2008

	2003	2004	2005	2006	2007	2008
Expenditures	$191,991	$206,926	$210,206	$232,972	$233,450	$232,554
Revenues	$227,759	$188,030	$191,109	$208,636	$213,415	$227,759
Surplus/(Gap)	**$35,768**	**($18,896)**	**($19,097)**	**($24,336)**	**($20,035)**	**($4,795)**
Coverage of Expenditures	118.6%	90.9%	90.9%	89.6%	91.4%	97.9%

Source: State Board of Waterworks and Waste Systems Operators

Exhibit 7

Fee Schedule for the Board of Waterworks and Waste Systems Operators

	Types of Certificates			
Service	**Operator**	**Temporary**	**Superintendent**	**Grandparented/ Limited**
Exam	$75	N/A	N/A	N/A
Certificate (Initial and Renewal)	75	75	75	75
Replacement Certificate	25	25	25	25
Reciprocity	75	N/A	N/A	N/A
Replacement Renewal Card	15	15	15	15
Late Renewal	150	150	150	150
Reinstatement	150	N/A	N/A	N/A

Source: Code of Maryland Regulations

The General Assembly has had a policy of regulatory boards being self-supporting to the extent possible. The fees generated by the board typically account for more than 90 percent of the board's expenses. These fees are deposited in the general fund. A way to close the gap between the board's expenses and revenue would be to increase the license fees. The last time the renewal fee was increased was January 1, 1997.

While the fees could be increased to cover the gap, doing so would not necessarily be the best course of action with this board. Most operators and superintendents are in the public sector. Because these operators and superintendents are serving local governments, it is not unreasonable for the State to cover a portion of the costs of the board. However, if the General Assembly decides that the board should be self-supporting, it is the renewal fee that should be increased. Although there is already an expense related to the education and experience requirements that must be met, increasing the renewal fee would place the burden of an increased fee on those who could best bear the cost, those who are already actively employed in the field.

Progress Since the 1998 Preliminary Evaluation

The 1998 preliminary evaluation recommended that the board address a loophole in the certification process. This loophole allowed an operator holding a temporary certificate to obtain a new temporary certificate as opposed to renewing the certificate, which requires the holder to be compliant with continuing education requirements. The board indicated that the loophole could be closed through a regulatory change. In 2001 the board promulgated a new regulation that prohibits the issuance of a temporary certificate to a holder who could have renewed an existing certificate. This and other regulatory and legislative changes are shown in **Exhibit 8**.

Exhibit 8
Legislative and Regulatory Changes Since the 1998 Preliminary Evaluation

Year	Chapter	Legislative Changes
1999	240	Extends the board's termination date by 10 years to July 1, 2011.
2000	590	Extends the deadline for evaluation of the board by 10 years to July 1, 2010.

Year	Section	Regulatory Changes
2001	26.06.01.05B, .07D-E	Recognizes "grandfathered" and "limited" certificates and establishes associated fees.
	26.06.01.6B	Closes temporary certificate loophole.
	26.06.01.10A	Permits temporary certificate holders to submit late examination applications.
	26.06.01.13	Requires that training used to renew a certificate be completed during the three-year period that precedes the expiration date of the certificate or during the late period for an applicant applying for a late renewal certificate.
2006	26.06.01.13G	Defines process-related training and specifies that a unit of training may not be applied to renewal requirements for both operator and superintendent certificates.

Source: Laws of Maryland; Code of Maryland Regulations

Recommendation

There is a continuing need for effective oversight of those responsible for delivering the drinking water and treating wastewater in Maryland. The board faces a number of challenges including encouraging the certification of operators at small water systems and addressing the deficiencies in the exam preparation curriculum**. Although the board has shown a high level of efficiency and professionalism in considering these issues**, **DLS recommends a full evaluation of the State Board of Waterworks and Waste Systems Operators to examine the impact, if any, on health and safety posed by the significant number of uncertified operators – particularly at small facilities.** The board's ability to inspect facilities and enforce the requirement that operators be certified should be assessed as well as labor market factors related to operators and superintendents. The full evaluation should also address whether renewal fees should be increased to cover board expenses.

Appendix 1. Experience and Renewal Training Requirements for Operators

Category and Classification	Experience *	Operator Certificate Renewal Training Units**	Temporary, Limited, and Grandparented Certificate Renewal Training Units**
Water Distribution	1 year	16	24
Wastewater Collection			
1	1 year	16	24
2	2 years	16	24
Water Treatment			
1	1 year	16	24
2	1 year	16	24
3	2 years	30	45
4	3 years	30	45
5	as determined by board	as determined by board	as determined by board
G	not specified	16	24
Wastewater Treatment			
1	1 year	16	24
2	1 year	16	24
3	2 years	30	45
4	3 years	30	45
5	3 years	30	45
6	as determined by board	as determined by board	as determined by board
S	3 years	16	24
A	3 years	16	24

Category and Classification	Experience *	Operator Certificate Renewal Training Units**	Temporary, Limited, and Grandparented Certificate Renewal Training Units**
Industrial Wastewater Treatment			
1	6 months	0	0
2	6 months	0	0
3	6 months	16	24
4	1 year	16	24
5	3 years	30	45
6	2 years	16	24
7	as determined by board	as determined by board	as determined by board

Education Requirement – All operators must have completed high school or equivalency.

* For most classifications, 1,800 hours of actual work experience are equal to one calendar year of experience. The following operator classifications have special requirements that do not use this equivalency:

Industrial Wastewater Treatment
Class 1, 2, and 3: 250 hours or 6 months, based on 1 hour / day operation.
Class 4: 500 hours or 1 year, based on 2 hours / day operation.

Water Treatment
Class 1 and 2: 500 hours or 1 year, based on 2 hours / day operation.
Class 3: 1,800 hours or 2 years, based on 3.5 hours / day operation.

Wastewater Treatment
Class 1 and 2: 500 hours or 1 year, based on 2 hours / day operation.
Class 3: 1,800 hours or 2 years, based on 3.5 hours / day operation.

**Training unit equivalencies = 1 unit per 1 hour training or 1.5 units per 1 hour training with successfully completed final examination

Note: To be consistent with facility classifications, "G" has been included with water treatment facilities rather than wastewater treatment facilities.

Source: Laws of Maryland; Code of Maryland Regulations

Appendix 2. Education and Experience Requirements for Superintendents

Category and Classification	Education	Experience *
Water Distribution	Completion of high school or equivalency	1 year
Wastewater Collection		
1	Completion of high school or equivalency	none
2	Completion of high school or equivalency	1 year
Water Treatment		
1	Completion of high school or equivalency	none
2	Completion of high school or equivalency	1 year
3	1 year college	1 year
4	2 years college	2 years
5	as determined by board	as determined by board
G	not specified	not specified
Wastewater Treatment		
1	Completion of high school or equivalency	none
2	Completion of high school or equivalency	none
3	Completion of high school or equivalency	1 year
4	2 years college	2 years
5	2 years college	2 years
6	as determined by board	as determined by board
S	2 years college	2 years
A	2 years college	2 years
Industrial Wastewater Treatment		
1	Completion of high school or equivalency	none
2	Completion of high school or equivalency	none
3	Completion of high school or equivalency	none
4	Completion of high school or equivalency	none
5	2 years college	2 years
6	1 year college	1 year
7	as determined by board	as determined by board

Superintendent Certificate Renewal Training Requirement – all superintendent certificates (except Industrial Wastewater Treatment Classes 1 and 2) require 7 units of " superintendent-approved" training review.

*For most classifications, 1,800 hours of actual work experience are equal to one calendar year of experience. The following superintendent classifications have special requirements that do not use this equivalency:

Water Treatment

Class 2: 500 hours or 1 year, based on 2 hours / day operation

Class 3: 900 hours or 1 year, based on 3.5 hours / day operation

Wastewater Treatment

Class 3: 900 hours or 1 year, based on 3.5 hours / day operation

Note: To be consistent with facility classifications, "G" has been included with water treatment facilities rather than wastewater treatment facilities.

Source: Laws of Maryland; Code of Maryland Regulations

Appendix 3. Classification of Facilities

Water Treatment Plants

Class of Plants	Type of Treatment Systems	Typical Processes Included in the System
1	Disinfection	Chlorination
2	Chemical Treatment	Chlorination, pH control, and fluoridation
3	Simple Iron Removal	Chlorination, pH control, fluoridation, filtration, and iron removal utilizing ion exchange or contact oxidation processes
4	Complete Treatment	Chlorination, pH control, fluoridation, aeration, coagulation, sedimentation, filtration, and complex iron removal
5	Site Specific	Site specific: any alternative technological plants not covered under the classification system
G	No Chemical Treatment	Well, storage tanks, UV disinfection

Water Distribution Systems (one class only)

Industrial Wastewater Treatment Plants

Class of Plants	Type of Treatment Systems	Typical Processes Included in the System
1	Basic Treatment	Petroleum base oil separators, liquid cooling, and pH control
2	Physical Treatment	Sedimentation, screening, pH control, and solids removal
3	Land Treatment	Primary treatment, sedimentation, solids removal, pumping, and land treatment

Class of Plants	Type of Treatment Systems	Typical Processes Included in the System
4	Biological Lagoons	Aerobic or anaerobic waste stabilization lagoons, disinfection, and chemical addition
5	Activated Sludge	Primary treatment, sedimentation, activated sludge, and sludge handling
6	Physical Chemical Treatment	Reduction of chemical and toxic substances including but not limited to cyanide and chromium, acid-alkali neutralization, coagulation, and flocculation
7	Site Specific	Plants other than the first six types covered under these regulations

Wastewater Treatment Plants

Class of Plants	Type of Treatment Systems	Typical Processes Included in the System
1	Lagoons	Aerated or nonaerated lagoons, filtration, disinfection, and land or wetland treatment
2	Physical/Biological	Primary treatment, sand filter, land or wetland treatment, and disinfection
3	Package Activated Sludge Plants	Screening, activated sludge, sedimentation, filtration, disinfection, chemical addition, sludge handling, pumping, and land or wetland treatment
4	Trickling Filters Rotating Biological Filters (RBC)	Preliminary treatment, primary treatment, sedimentation, trickling filters, RBC, chemical addition, disinfection, sludge handling, and pumping
5	Activated Sludge	Preliminary treatment, primary treatment, sedimentation, activated sludge, oxidation ditches, filtration, chemical addition, disinfection, sludge handling, and pumping

Class of Plants	Type of Treatment Systems	Typical Processes Included in the System
6	Site Specific	Other alternative technology systems not covered under this classification system
S	Solids Handling	Chemical conditioning, sludge thickening, sludge digestion, thermal treatment, chlorine treatment, filtration, dewatering, incineration, composting, and land application
A	Advanced Wastewater Treatment	Filtration, activated carbon adsorption, nitrification, denitrification, phosphorus removal, ammonia stripping, chemical feeding and conditioning, coagulation, and flocculation

Wastewater Collection Systems

Class	Type of Collection Systems
1	Gravity Flow
2	Gravity Flow and Pumped or Vacuum Flow

Source: Laws of Maryland; Code of Maryland Regulations

Appendix 4. Written Comments of the State Board of Waterworks and Waste Systems Operators

MDE

MARYLAND DEPARTMENT OF THE ENVIRONMENT
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Martin O'Malley.
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Deputy Secretary

December 2, 2008

Department of Legislative Services
Office of Policy Analysis
Attention: Ms. Laura J. McCarty, Legislative Mgr.
Legislative Services Building
90 State Circle
Annapolis, Maryland 21501-1991

Dear Ms. McCarty:

The Maryland Board of Waterworks and Waste Systems Operators has received the draft report of the preliminary evaluation of the Board that was prepared by the Department of Legislative Services (DLS). We appreciate the time and attention that was spent reviewing the Board's activities.

The report notes that there is a high level of efficiency and professionalism in the Board, but also concludes that the impact on health and safety of having a large number of small water treatment facilities without certified operators should be studied. The Board agrees such an investigation appears worthwhile. However, Environment Article Title 12, Annotated Code of Maryland does not give the Board power or authority to execute such an investigation. **The Board depends on the water programs in MDE which have the authority to require certified operators at facilities. Through ongoing enforcement efforts, MDE is assisting facilities with technical assistance (including free water operator training) to ensure compliance.**

Finally, the report notes "The Board's ability to inspect facilities and enforce the requirements that operators be certified should be assessed as well as labor market factors related to operators and superintendents." The Maryland Board of Waterworks and Waste Systems Operators is a licensing agency. Its legislative authority is to provide the process for determining whether an individual is capable of operating various water and wastewater treatment facilities. The DLS report has correctly noted the labor market issue that the Board and the federal Environmental Protection Agency have already noted. Many current water and wastewater treatment operators and superintendents are retiring from the field, and most will be able to leave during the next 3-5 years which is a common concern for many industries. This is of paramount concern for the Board, MDE, and the future of water and wastewater treatment operations in Maryland. The Board will continue to work with the MDE Water Management Administration to address these issues.

The draft report was reviewed and the Board's comments are enclosed for your consideration. If you have any questions, please contact Mr. E. Lee Haskins, the Board Secretary on 410-537-3594.

Sincerely,

William A. Shreve, Chairman
Maryland Board of Waterworks & Waste Systems Operators

Attachment

cc: Secretary Shari T. Wilson