

<b>Regulatory Analysis Form</b>		This space for use by IRRC
(1) Agency  Department of Environmental Protection		RECEIVED  2005 JAN -5 PM 3: 29  INSTITUTION OF REGULATORY REVIEW COMMISSION
(2) I.D. Number (Governor's Office Use)  #7-392		IRRC Number: 2454
(3) Short Title  Environmental Laboratory Accreditation Regulation		
(4) PA Code Cite  25 Pa Code Chapter 252	(5) Agency Contacts & Telephone Numbers  Primary Contact: Marjorie Hughes, 783-8727  Secondary Contact: Michele Tate, 783-8727	
(6) Type of Rulemaking (Check One)  <input checked="" type="checkbox"/> Proposed Rulemaking <input type="checkbox"/> Final Order Adopting Regulation <input type="checkbox"/> Final Order, Proposed Rule Omitted		(7) Is a 120-Day Emergency Certification Attached?  <input checked="" type="checkbox"/> No <input type="checkbox"/> Yes: By the Attorney General <input type="checkbox"/> Yes: By the Governor
(8) Briefly explain the regulation in clear and nontechnical language.  This is an entirely new set of regulations. These regulations provide the requirements for an environmental laboratory accreditation program for laboratories that test or analyze samples that are used to comply with statutes administered by the Department. These requirements are outlined very specifically with regard to the scope of accreditation, application procedures, fees, standards for accreditation - including personnel requirements, essential quality control procedures, proficiency test studies, on-site assessments, record keeping, and reporting and notification requirements.		
(9) State the statutory authority for the regulation and any relevant state or federal court decisions.  1. The Act of June 29 2002 (P.L. 596, No. 90) (dealing with Environmental Laboratory Accreditation) (Title 27 Pa. C.S. §§ 4101 - 4113) 2. Section 1920-A of the Administrative Code, April 9, 1929 (P.L. 177, No. 175), as amended, 71 P.S. Sec. 510-20.		

## Regulatory Analysis Form

(10) Is the regulation mandated by any federal or state law or court order, or federal regulation? If yes, cite the specific law, case or regulation, and any deadlines for action.

Yes. 27 Pa. C.S. §§4103(a); 4104(1); and 4105(a)

(11) Explain the compelling public interest that justifies the regulation. What is the problem it addresses?

Valid and accurate laboratory data are essential to assure compliance with the laws administered by the Department. Additionally, throughout Pennsylvania, numerous decisions made everyday by the public, the regulated community, and the government are based upon data generated by environmental laboratories. Recently, several highly publicized instances of laboratory fraud or faulty data have undermined the public's confidence in the data generated by environmental laboratories both here in Pennsylvania and throughout the United States.

Only the Drinking Water Program and the Oil and Gas Program currently address the issue of data quality through a laboratory accreditation program. At this time, the quality of laboratory data used to determine compliance with the remaining Department regulations is unknown. The proposed regulations would address this deficiency by requiring environmental laboratories that test or analyze non-potable (wastewater), solid and chemical materials, or drinking water samples to undergo periodic on-site inspections that will evaluate the laboratory procedures in place in that facility. These on-site inspections, coupled with other requirements in the proposed regulations will help to ensure accurate and valid data, and therefore, enable the Department and the regulated community to meet their environmental protection goals.

(12) State the public health, safety, environmental or general welfare risks associated with non-regulation.

Non-regulation would leave in place a system that does not ensure the procedures that produce the overwhelming majority of data used for environmental decisions in the Commonwealth are performed accurately. Without periodic in-depth on-site laboratory evaluations, the Department cannot have confidence in the data submitted. Unless the specific requirements contained in these regulations are adopted, environmental laboratories would continue to be able to produce data of unknown quality with very little regulatory oversight.

## Regulatory Analysis Form

(13) Describe who will benefit from the regulation. (Quantify the benefits as completely as possible and approximate the number of people who will benefit.)

These regulations will benefit all data users and anyone who lives in the Commonwealth. These data users include the Department, facilities that rely on laboratories to demonstrate compliance with their permits, geologists, and engineers. The citizens of the Commonwealth depend on environmental laboratories to accurately test environmental samples to protect their health, safety, and welfare. The environment will benefit because more accurate and reliable data will result in better regulatory decision making and better compliance with environmental laws.

(14) Describe who will be adversely affected by the regulation. (Quantify the adverse effect as completely as possible and approximate the number of people who will be adversely affected.)

No individual, facility, or environmental laboratory will be adversely affected by the regulation. An environmental laboratory that is accredited-by-rule will incur no additional compliance costs. For other environmental laboratories, the direct costs for compliance will be payment of the required fees and the purchase of proficiency test samples. These costs will vary depending upon the type of testing and analyses that the environmental laboratory chooses to perform. The annual application fees will range from \$1,000 to \$17,400. The cost for the proficiency test samples range from less than \$100 to approximately \$13,000. The Department believes that the accreditation requirements will not result in prohibitive cost increases for any environmental laboratory. The Department is required to set fees in an amount sufficient to cover the cost of establishing and maintaining a laboratory accreditation program.

These regulations contain a fee structure that is responsive to the needs of small laboratories. Categories of testing are included for basic drinking water parameters and for basic wastewater parameters as a group. These groupings include the tests usually performed by the smaller drinking water and wastewater facilities. Additionally, it has been the Department's experience in the drinking water laboratory accreditation program that accreditation is affordable for many small laboratories. Many small and municipal laboratories have met similar requirements under the Drinking Water Program Regulations, 25 Pa. Code Chapter 109.

## **Regulatory Analysis Form**

(15) List the persons, groups or entities that will be required to comply with the regulation.  
(Approximate the number of people who will be required to comply.)

Those persons, groups, or entities affected by this regulation include any person, facility, or group that performs testing or analysis on drinking water, non-potable water, and/or solid and chemical material environmental samples required by Department statutes or regulations. This regulation lists 12 specific statutes that will be included in the scope of this regulation.

The proposed regulations specifically exclude the following testing:

1. Corrosion protection system testing or testing of a storage tank system for tightness or structural soundness under Chapter 245 (relating to the Administration of the Storage Tank and Spill Prevention Program).
2. Routine release detection monitoring under § 245.442 (relating to requirements for petroleum underground storage tank systems), § 245.443 (relating to requirements for hazardous substance underground storage tank systems), § 245.444 (relating to methods of release detection for tanks), § 245.445 (relating to methods of release detection for piping), § 245.543 (relating to leak detection requirements), and § 245.613 (relating to monitoring standards).
3. Analyses to determine the acceptability of soils for protective, daily, intermediate and final cover material, subbase, clay liner, clay cap, attenuating soil base and liner system construction material pursuant to chapters 271-285 (relating to municipal waste) and chapters 287 – 299 (relating to residual waste).
4. Testing or analysis of the physical, chemical, mechanical, and thermal properties of liners, liner systems, leachate detection zones and barriers pursuant to chapters 271-285 (relating to municipal waste) and chapters 287 – 299 (relating to residual waste.)

Approximately 750 laboratories will be required to comply with this regulation. Of those 750 laboratories, approximately 225 laboratories are currently regulated under the Safe Drinking Water Program (25 Pa Code Chapter 109, Subchapter H) or the Oil and Gas Program (25 Pa Code Chapter 78, Subchapter F).

## Regulatory Analysis Form

(16) Describe the communications with and input from the public in the development and drafting of the regulation. List the persons and/or groups who were involved, if applicable.

The Laboratory Accreditation Advisory Committee (LAAC) provided technical assistance in development of the draft regulations. The committee met approximately every other month from August 2002 through April 2004. Additionally, the LAAC and the Certification Program Advisory Committee (CPAC) met jointly on January 23, 2004 to discuss several key concepts associated with these regulations. The LAAC reviewed the draft proposed rulemaking on April 13, 2004, and supported moving the draft regulations forward to the EQB.

The CPAC and the State Board for Certification of Water and Wastewater Systems Operators reviewed the draft proposed rulemaking on April 29, 2004 in a joint meeting and supported moving the draft regulations forward to the EQB. The CPAC and the State Board for Certification of Water and Wastewater Systems Operators voted to not support including fee increases that are linked to the Consumer Price Index.

Department representatives also met with the:

- Agricultural Advisory Board
- Air Quality Technical Advisory Committee
- Oil & Gas Technical Advisory Board
- Radiation Protection Advisory Committee
- Small Business Compliance Advisory Committee
- Solid Waste Advisory Committee
- Storage Tank Advisory Committee
- Technical Assistance Center for Small Water Systems
- PA Municipal Authorities Association (PMAA)
- PA Water Environment Association (PWEA)
- Pennsylvania Association of Accredited Environmental Laboratories (PaAAEL)
- Eastern, Central, and Western Sections of the Water Pollution Control Operators Associations

(17) Provide a specific estimate of the costs and/or savings to the regulated community associated with compliance, including any legal, accounting or consulting procedures which may be required.

It is not anticipated that additional legal, accounting or consulting procedures will be required. However, the fees associated with the regulatory requirements are an annual application fee that depends on the number of methods and the desired scope of accreditation (see Attachment A fee table) and participation in annual proficiency test studies. It is difficult to quantify the benefit or savings to the regulated community of improved data quality in specific dollar amounts. One way to partially quantify the benefit is to examine the extra costs associated with unacceptable data. Fines assessed against environmental laboratories guilty of producing fraudulent data or data that does not meet the regulatory requirements range from several thousand dollars to over 9 million dollars. These fines reflect the amount of harm done to the environment or to public health by poorly operated laboratories. When laboratories fail to provide accurate and valid data, additional testing and analysis and costly remediation is often required. An environmental laboratory accreditation program is a proactive approach designed to prevent problems before they become critical.

## Regulatory Analysis Form

(18) Provide a specific estimate of the costs and/or savings to local governments associated with compliance, including any legal, accounting or consulting procedures which may be required.

There are no additional costs or savings for local governments to comply with these regulations. The cost of accreditation for local governments is the same as those for the rest of the regulated community. See (17) above.

(19) Provide a specific estimate of the costs and/or savings to state government associated with the implementation of the regulation, including any legal, accounting or consulting procedures which may be required.

There is no net cost or benefit to state government agencies associated with implementing these regulations. The Environmental Laboratory Accreditation Act requires the Department to establish fees at a level that covers the cost of administering the accreditation program. Commonwealth agencies are not required to pay the accreditation fees. A saving which can not be quantified is the saving in Department staff time dealing with questionable data from environmental laboratories that are not currently required to be accredited. Often the Department or the regulated entity is required to perform additional testing and analyses and thereby incur additional costs associated with this repeat sampling, testing and analyses. An effective laboratory accreditation program is a proactive measure to help ensure that the data used to make critical decisions about the environment are of known and documented quality.

(20) In the table below, provide an estimate of the fiscal savings and cost associated with implementation and compliance for the regulated community, local government, and state government for the current year and five subsequent years.

	Current FY Year	FY +1 Year	FY +2 Year	FY +3 Year	FY +4 Year	FY +5 Year
<b>SAVINGS:</b>	**	**	**	**	**	**
Regulated Community	**	**	**	**	**	**
Local Government	**	**	**	**	**	**
State Government	**	**	**	**	**	**
Total Savings	**	**	**	**	**	**
<b>COSTS:</b>	**	**	**	**	**	**
Regulated Community	**	**	**	**	**	**
Local Government	**	**	**	**	**	**
State Government	**	**	**	**	**	**
Total Costs	**	**	**	**	**	**
<b>REVENUE LOSSES:</b>	**	**	**	**	**	**
Regulated Community	**	**	**	**	**	**
Local Government	**	**	**	**	**	**
State Government	**	**	**	**	**	**
Total Revenue Losses	**	**	**	**	**	**

**\*\* Undetermined**

## Regulatory Analysis Form

(20a) Explain how the cost estimates listed above were derived.

See comments above in Sections 17 through 19.

(20b) Provide the past three year expenditure history for programs affected by the regulation.

Program	FY-3 2001-2002	FY-2 2002-2003	FY-1 2003-2004	Current FY 2004-2005
General Government Operations	\$18,833,000	\$20,256,000	*	*
Environmental Protection Operations	*	*	\$72,665,000	\$85,897,000

\* Prior to July 1, 2004, this program was funded from General Government Operations. Beginning July 1, 2004, the program will be funded under Environmental Protection Operations

(21) Using the cost-benefit information provided above, explain how the benefits of the regulation outweigh the adverse effects and costs.

It is difficult to quantify the benefit or savings to the regulated community of improved data quality in specific dollar amounts. One way to partially quantify the benefit is to examine the extra costs associated with unacceptable data. Fines assessed against environmental laboratories guilty of producing fraudulent data or data that does not meet the regulatory requirements range from several thousand dollars to over 9 million dollars. These fines reflect the amount of harm done to the environment or to the public health by poorly operated laboratories. When laboratories fail to produce accurate and valid data, additional testing and analysis and costly remediation is often required. An environmental laboratory accreditation program is a proactive approach designed to prevent problems before they become critical.

(22) Describe the nonregulatory alternatives considered and the costs associated with those alternatives. Provide the reasons for their dismissal.

There are no equivalent non-regulatory alternatives. Optional training programs will be offered, but training alone will not assure compliance with the promulgated laboratory methods.

## Regulatory Analysis Form

(23) Describe alternative regulatory schemes considered and the costs associated with those schemes. Provide the reasons for their dismissal.

There are no cost effective regulatory alternatives. The National Environmental Laboratory Accreditation Conference (NELAC) developed a standard for the accreditation of environmental laboratories performing testing and analysis of environmental samples. At the time the current NELAC Standard was being developed, NELAC was a voluntary organization of State and Federal environmental officials and interest groups purposed primarily to establish mutually acceptable standards for accrediting environmental laboratories. The NELAC Standard was developed using a consensus-based approach. The alternative to the proposed regulations would be adoption or incorporation of the NELAC Standard into this regulation. The requirements outlined in this regulation for the State environmental laboratory accreditation are less stringent than the NELAC Standard. Currently, a relatively small number of Pennsylvania accredited laboratories are accredited by NELAC. The costs associated with complying with the NELAC Standard are higher than those anticipated with this regulation. To meet the requirements contained in the NELAC Standard, an environmental laboratory is required to participate in at least double the number of proficiency test (PT) studies. The cost of the PT studies varies widely depending on the laboratory's scope of accreditation. The cost ranges from \$88 for a single microbiology PT to approximately \$13000 to acquire PT samples for the entire scope of PT samples available for accreditation. NELAC accredited laboratories must implement a very rigorous quality system that requires highly specific documentation and quality assurance procedures. The cost for an environmental laboratory to become accredited under the NELAC program is significantly higher than the anticipated cost for the proposed regulations.

(24) Are there any provisions that are more stringent than federal standards? If yes, identify the specific provisions and the compelling Pennsylvania interest that demands stronger regulation.

Yes. There are no federal standards for accreditation of environmental laboratories testing for non-potable water (wastewater) and solid and chemical materials. The federal program only regulates drinking water analysis and consists of requiring the use of promulgated methods for testing and analysis and recommended laboratory practices. The proposed regulations contain the minimum requirements for an environmental laboratory performing testing or analysis on wastewater and solid and chemical materials as well as drinking water. Several of the requirements listed in these regulations are more stringent than the federal standards for the accreditation of environmental laboratories performing testing or analysis on samples from public drinking water suppliers. However, the Department has used these standards to certify or accredit drinking water laboratories since 1984. These regulations will not impose any new requirements on drinking water laboratories. Pennsylvania needs regulations for the testing and analyses required by these programs because without the mandatory specific requirements contained in this regulation, an environmental laboratory would be free to produce data with very little regulatory oversight from the Department. The quality of the data used to make important decisions about the environment and the health, safety, and welfare of the citizens of the Commonwealth would continue to be of unknown quality.

## Regulatory Analysis Form

(25) How does the regulation compare with those of other states? Will the regulation put Pennsylvania at a competitive disadvantage with other states?

This regulation is very comparable to other state accreditation programs for drinking water, wastewater, and solid and chemical materials. A survey of 40 other states indicated that at least 22 states have mandatory wastewater and solid and chemical materials accreditation programs. All environmental laboratories that perform testing or analysis on samples from public drinking water suppliers must be accredited either by a state or the US Environmental Protection Agency. The costs of the laboratory accreditation programs in other states vary widely and largely depend on the mechanism each state uses to fund the program. Some states require that the fees charged to the environmental laboratories cover the cost of the laboratory accreditation program while other states provide funding for the program from general revenue. The actual fee structures vary. The regulation should give Pennsylvania laboratories an advantage with regard to competition with other states. Many Pennsylvania laboratories are already certified for testing and analysis of wastewater and solid and chemical materials in and through other states. The institution of an environmental laboratory accreditation program should lower the number of laboratories that are required to seek accreditation for wastewater and solid and chemical materials from other states. As a result, this should also lower some of the costs charged to those laboratories with respect to reimbursing the other states for travel expenses. This regulation should also lower the number of on-site evaluations in which some laboratories are required to participate.

(26) Will the regulation affect existing or proposed regulations of the promulgating agency or other state agencies? If yes, explain and provide specific citations.

No. This regulation references other regulations, but does not affect them in any way. The laboratory certification regulations in Subchapter H of 25 Pa. Code Chapter 109 will be deleted and the requirements of those regulations are included in this regulation.

(27) Will any public hearings or informational meetings be scheduled? Please provide the dates, times, and locations, if available.

No.

(28) Will the regulation change existing reporting, record keeping, or other paperwork requirements? Describe the changes and attach copies of forms or reports which will be required as a result of implementation, if available.

Yes. Environmental laboratories will be required to apply and annually renew their accreditation on forms provided by the Department (see Attachment B application). Previously unregulated environmental laboratories will be required to retain records for five years.

## Regulatory Analysis Form

(29) Please list any special provisions which have been developed to meet the particular needs of affected groups or persons including, but not limited to, minorities, elderly, small businesses, and farmers.

To the extent possible, the unique needs of small businesses, municipalities, municipal authorities and in-house laboratories (hereafter referred to as "small laboratories") have been considered and are addressed throughout the proposed regulations where compatible with the goals of an effective and appropriate environmental laboratory accreditation program. The goal of the environmental laboratory program and these regulations is to assure the quality of the data used to make environmental decisions and thus better protect the environment and the public health, safety, and welfare of the citizens of the Commonwealth. These regulations include only those items that are essential for the production of good quality data.

While certain minimum requirements are necessary to ensure quality data, these regulations contain several provisions that specifically address the needs of small laboratories. These provisions include: an accreditation-by-rule section that addresses the testing and analyses conducted by many of the smallest laboratories; laboratory supervisor qualifications that are tailored to the complexity of the analysis; provisions concerning certified operators and experienced supervisors; and a fee structure that addresses the needs of laboratories that perform only a few types of tests.

A section outlining accreditation-by-rule is included to specifically address the unique needs of small laboratories. Accreditation-by-rule is a mechanism to permit an environmental laboratory to perform testing or analysis with only minimal oversight by the Department.

(30) What is the anticipated effective date of the regulation; the date by which compliance with the regulation will be required; and the date by which any required permits, licenses or other approvals must be obtained?

It is anticipated that the proposed regulations will be published in the *Pennsylvania Bulletin* for a 30-day comment period. The final rulemaking will become effective upon publication in the *Pennsylvania Bulletin*, which is anticipated to occur in the spring of 2005. An environmental laboratory will have 6 months from the effective date of the regulations to apply for accreditation. The submission of an application will provide interim authorization to continue operations until the Department takes final action on the application.

(31) Provide the schedule for continual review of the regulation.

This regulation will be reviewed in accordance with the sunset review schedule published by the Department to determine whether the regulation effectively fulfills the goals for which it was intended.

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REVIEW COMMISSION

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# 2454

Copy below is hereby approved as to form and legality.  
Attorney General

By: *Anthony J. Elliott*  
(Deputy Attorney General)

JUL 17 2004

DATE OF APPROVAL

Check if applicable  
Copy not approved. Objections attached.

Copy below is hereby certified to be true and  
correct copy of a document issued, prescribed or  
promulgated by:

DEPARTMENT OF ENVIRONMENTAL  
PROTECTION  
ENVIRONMENTAL QUALITY BOARD

(AGENCY)

DOCUMENT/FISCAL NOTE NO. 7-392

DATE OF ADOPTION August 17, 2004

BY *Kathleen A. McGinty*

TITLE **KATHLEEN A MCGINTY  
CHAIRPERSON**

EXECUTIVE OFFICER CHAIRMAN OR SECRETARY

Copy below is hereby approved as to form and legality  
Executive or Independent Agencies

BY *Tanya C. Gendron*

11.16.04

DATE OF APPROVAL

ASST. (Deputy General Counsel)  
(Chief Counsel - Independent Agency)  
(Strike inapplicable title)

Check if applicable. No Attorney General Approval  
or objection within 30 days after submission.

**NOTICE OF PROPOSED RULEMAKING**

**DEPARTMENT OF ENVIRONMENTAL PROTECTION  
ENVIRONMENTAL QUALITY BOARD**

**Environmental Laboratory Accreditation Regulations**

**25 Pa. Code, Chapter 252**

# PROPOSED RULEMAKING

## ENVIRONMENTAL QUALITY BOARD

[25 Pa. Code Ch. 252]

### Environmental Laboratory Accreditation

#### PREAMBLE

The Environmental Quality Board (Board) proposes to amend 25 Pa. Code by adding Chapter 252 (relating to environmental laboratory accreditation). The proposed rulemaking will add a new chapter delineating the requirements for accreditation of environmental laboratories.

This order was adopted by the Board at its meeting of August 17, 2004.

#### A. *Effective Date*

The proposed rulemaking will go into effect upon final publication in the *Pennsylvania Bulletin*.

#### B. *Contact Persons*

For further information contact Richard H. Sheibley, Chief, Laboratory Accreditation Program, P.O. Box 1467, Evangelical Press Building, Harrisburg, PA 17105-1467, (717) 705-2425, or Scott Perry, Assistant Counsel, Bureau of Regulatory Counsel, P.O. Box 8464, Rachel Carson State Office Building, Harrisburg, PA 17105-8464, (717) 787-7060. Persons with a disability may use the AT&T Relay Service by calling (800) 654-5984 (TDD users) or (800) 654-5988 (voice users). This proposal is available electronically through the Department of Environmental Protection's (Department) website <http://www.dep.state.pa.us>.

#### C. *Statutory Authority*

This proposed rulemaking is being made under the authority of § 4103 (a) of the Act of June 29, 2002 (P.L. 596, No. 90) (dealing with Environmental Laboratory Accreditation) (Title 27 Pa. C.S. §§ 4101 – 4113), which directs the Department to establish an accreditation program for environmental laboratories, § 4104 which directs the Department to establish, administer and enforce an environmental laboratory accreditation program which shall include the standards necessary for a State certification program, § 4105, delegating the Board the power to adopt the regulations of the Department to implement the Act, and § 1920-A of The Administrative Code

of 1929 (71 P.S. §510-20), authorizing and directing the Board to adopt regulations necessary for the proper performance of the work of the Department.

#### *D. Background and Purpose*

Over the past 25 years, the General Assembly of Pennsylvania and the United States Congress have enacted numerous statutes protecting our air, water, and soil and regulating activities that might otherwise pose a threat to the environment. Valid and accurate laboratory data are essential to assure compliance with the laws administered by the Department. Additionally, throughout Pennsylvania numerous decisions made everyday by the public, the regulated community, and the government are based upon data generated by environmental laboratories. Recently however, several highly publicized instances of laboratory fraud or reliance on faulty data have undermined the public's confidence in the data generated by environmental laboratories. Presently, in Pennsylvania only the Drinking Water Program and the Oil and Gas Program address the issue of data quality through a laboratory accreditation program. The quality of laboratory data used to determine compliance with the remaining Department regulations is unknown. Without these regulations, verification of the accuracy of data submitted to the Department is a very costly and time-consuming task.

The goal of the proposed regulations is to assure the quality of the data used to make environmental decisions and thus better protect the environment and the health, safety, and welfare of the citizens of the Commonwealth. This goal is achieved by requiring affected environmental laboratories to perform proficiency test samples, data verification requirements, and undergo periodic on-site inspections where the Department evaluates laboratory procedures in place in that facility. These regulations include only those items that are essential for the production of good quality data.

The proposed regulations apply to environmental laboratories that test or analyze non-potable water (wastewater), solid and chemical materials, or drinking water samples as required by the following statutes:

1. The Oil and Gas Act, Act of December 19, 1984, P.L. 1140, No. 223, as amended, 58 P.S. §§ 601.101-601.605.
2. The Clean Streams Law, Act of June 22, 1937, P.L. 1987, No.394, as amended, 35 P.S. §§ 691.1-691.1001.
3. The Hazardous Sites Cleanup Act, Act of October 18, 1988, P.L. 756, No. 108, 35 P.S. §§ 6020.101-6020.1305.
4. The Land Recycling and Environmental Remediation Standards Act, Act of May 19, 1995, P.L. 4, No. 2, 35 P.S. §§ 6026.101-6026.908.
5. The Pennsylvania Safe Drinking Water Act, Act of May 1, 1984, P.L. 206, No. 43, 35 P.S. §§ 721.1-721.17.
6. The Solid Waste Management Act, Act of July 7, 1980, P.L. 380, No. 97, as amended, 35 P.S. §§ 6018.101-6018.1003.
7. The Storage Tank and Spill Prevention Act, Act of July 6, 1989, P.L. 169, No. 32, as amended, 35 P.S. §§ 6021.101-6021.2104.
8. The Pennsylvania Bituminous Coal Mine Act, Act of July 17, 1961, P.L. 659, No. 339, as amended, 52 P.S. §§ 701.101-701.706.

9. The Surface Mining Conservation and Reclamation Act, Act of May 31, 1945, P.L. 1198, No. 418, as amended, 52 P.S. §§ 1396.1-1369.31.
10. The Coal Refuse Disposal Control Act, Act of September 24, 1968, P.L. 1040, No. 318, as amended, 52 P.S. §§ 30.51-30.206.
11. The Bituminous Mine Subsidence and Land Conversion Act, Act of April 27, 1966, Special Sess. No. 1, P.L. 31, as amended, 52 P.S. §§ 1406.1-1406.21.
12. The Noncoal Surface Mining Conservation and Reclamation Act, Act of December 19, 1984, P.L. 1093, No 219, as amended, 52 P.S. §§ 3001-3326.

The Chapter 252 regulations would transfer the laboratory accreditation program, currently under the Safe Drinking Water Program (25 Pa Code Chapter 109), to these regulations. The federal Safe Drinking Water Act requires that laboratories performing drinking water analysis be accredited. The federal program consists of requiring the use of promulgated methods for testing and analysis and recommending good laboratory practices, including the use of appropriate quality control measures. There are no federal standards for accreditation of an environmental laboratory testing non-potable water (wastewater) and solid and chemical materials.

The National Environmental Laboratory Accreditation Conference (NELAC) developed a set of standards for the accreditation of environmental laboratories performing testing and analysis of environmental samples. At the time the current NELAC Standard was being developed, NELAC was a voluntary organization of State and Federal environmental officials and interest groups. NELAC's primary mission was to establish mutually acceptable standards for accrediting environmental laboratories. The NELAC Standard provides uniform requirements for accreditation of environmental laboratories and facilitates mutual recognition among laboratory accreditation programs using the NELAC Standard. The NELAC Standard was developed using a consensus-based approach. The Department would offer a dual accreditation system whereby accreditation to the NELAC Standard is available as a voluntary option for environmental laboratories.

At the request of small laboratories, the requirements outlined in the proposed regulations for the State environmental laboratory accreditation are less stringent than the NELAC Standard. Currently, a relatively small number of Pennsylvania accredited laboratories are accredited to the NELAC Standard. The costs associated with complying with the NELAC Standard are higher than those anticipated with this regulation. To meet the requirements contained in the NELAC Standard, an environmental laboratory is required to participate in at least double the number of proficiency test (PT) studies. The cost of the PT studies varies widely depending on the laboratory's scope of accreditation. The cost ranges from \$88 for a single microbiology PT to approximately \$13000 to acquire PT samples for the entire scope of PT samples available for accreditation. An environmental laboratory accredited to the NELAC Standard must implement a very rigorous quality system that requires highly specific documentation and quality assurance procedures. The cost for an environmental laboratory to become accredited to the NELAC Standard is significantly higher than the anticipated cost for the proposed regulations.

The proposed regulation is very comparable in terms of the range and stringency of requirements to other state (non-NELAC based) laboratory accreditation programs for drinking water, wastewater, and solid and chemical materials. A survey of 40 other states indicated that at least

22 states have mandatory accreditation programs for environmental laboratories testing wastewater and solid and chemical materials.

An environmental laboratory may choose Pennsylvania State accreditation, described by these regulations, or seek accreditation using the NELAC Standard as a voluntary alternative to these regulations. Accreditation to either set of standards would be equivalent and acceptable and meet the requirements for accreditation required by the Environmental Laboratory Accreditation Act. An environmental laboratory may be accredited to the NELAC Standard and also be accredited pursuant to Pennsylvania State accreditation standards described by these regulations for fields of accreditation not included under the NELAC Standard.

The Laboratory Accreditation Advisory Committee (LAAC) provided technical assistance throughout the development of the draft regulations. The LAAC met approximately every other month from August 2002 through April 2004 and advised the Department on the development of Chapter 252. Additionally, the LAAC and the Certification Program Advisory Committee (CPAC) met jointly on January 23, 2004 to discuss and provide recommendations on several key concepts (fee structure, qualifications of a laboratory supervisors, and parameters to be included in accreditation-by-rule) associated with these regulations. Essentially all of the recommendations from the joint meeting have been incorporated into these regulations.

The LAAC reviewed the draft proposed rulemaking on April 13, 2004, and unanimously supported moving the draft regulations forward to the Environmental Quality Board. The CPAC and the State Board for Certification of Water and Wastewater Systems Operators (State Board) reviewed the draft proposed rulemaking on April 29, 2004 and supported moving the draft regulations forward to the Environmental Quality Board. However, the CPAC and the State Board opposed the use of the Consumer Price Index (CPI) as a means to automatically adjust accreditation fees to cover changes in the costs of administering the program due to inflation. Instead, the CPAC and the State Board recommended that fee increases occur through the regulation process. The proposed regulations retain the CPI fee adjustment language.

To the extent possible, the unique needs of small businesses, municipalities, municipal authorities and in-house laboratories (hereafter referred to as "small laboratories") have been considered and addressed throughout these regulations where compatible with the goals of creating an effective and sensible environmental laboratory accreditation program. Specific provisions that address these unique needs include: an accreditation-by-rule section addressing the testing and analyses conducted by many of the smallest laboratories; laboratory supervisor qualifications tailored to the complexity of the analysis; provisions concerning certified operators and experienced supervisors; and a fee structure that addresses the needs of laboratories that perform only a few types of tests.

A section outlining accreditation-by-rule is included in Chapter 252 to specifically address the unique needs of small laboratories. Accreditation-by-rule is a mechanism permitting an environmental laboratory to perform testing or analysis with only minimal oversight by the Department. Therefore, only certain tests or analyses are appropriate for inclusion under accreditation-by-rule.

The LAAC recommended to the Department that in order to be accredited-by-rule, a test parameter must meet at least one of the following criteria:

1. A test with a holding time of two hours or less.
2. A non-instrumental observational test.
3. A screening test to determine if further laboratory testing is required, except for those required for compliance determinations.
4. The sample cannot be transferred/transported without degradation.
5. Process testing used for immediate decision-making purposes.
6. A test allowed by another program regulation.

Additionally, the Department identified two additional criteria for evaluating the tests or analyses to include under accreditation-by-rule. The additional criteria are:

1. The test or analysis is relatively easy to perform, and
2. An improperly performed test has minimal impact on the environment or the public health, safety, and welfare.

The proposed accreditation-by-rule section continues the exemptions provided in the current Drinking Water Program Regulations (25 Pa Code Chapter 109) under §§ 109.304(c) and 109.704. Reference is made in these regulations to the Chapter 109 drinking water regulations. Because of the significance of these parameters in assessing environmental quality and because of the technical skills necessary to perform these tests correctly, the following are not included under accreditation-by-rule, total residue testing, biochemical oxygen demand (BOD) testing, and fecal coliform testing.

Consistent with the requirements of the Environmental Laboratory Accreditation Act, the regulations establish qualifications for laboratory supervisors. The laboratory supervisor may have different titles in different laboratories, such as lead analyst or technical director. The Environmental Laboratory Accreditation Act identifies a laboratory supervisor as the individual who supervises laboratory procedures and reporting of analytical data. Specific educational qualifications are not established for other technical personnel or analysts in the laboratory. The unique needs of small laboratories are addressed by basing the laboratory supervisor requirements upon the testing or analysis performed in the laboratory. A person who is functioning as a laboratory supervisor now would be able to continue in that position pursuant to the grandparent provision as provided § 303 of the proposed regulations.

These regulations also recognize that a drinking water or wastewater operator with a valid treatment plant operator's certificate for laboratory supervisor in the appropriate water or wastewater sub-classification would qualify as a laboratory supervisor. In order to provide a smooth transition during the period when the laboratory supervisor sub-classification may not be available, a contingency provision is included in the regulations. These regulations provide that for the period up to 12 months after a certificate for laboratory supervisor in the appropriate water or wastewater sub-classification becomes available from the Department, two years of experience performing testing or analysis of environmental samples using the methods and procedures currently in use by the environmental laboratory may be substituted for a laboratory supervisory certificate.

All laboratory supervisors will be required to have experience in the areas for which they will be responsible. In addition, minimum levels of college credits in basic science are identified for laboratory supervisors, where appropriate. Consistent with the requirements of the Environmental Laboratory Accreditation Act, these regulations identify the responsibilities of a laboratory supervisor. These regulations provide that a person may be a supervisor of more than one laboratory under certain conditions.

#### *E. Summary of Regulatory Requirements*

##### Subchapter A.

§ 252.1 The definitions section explains the intended meaning for all terms used in the regulation.

§ 252.2 This section explains that the purpose of these regulations is to protect public health, safety, welfare, and the environment by ensuring the accuracy, precision, and reliability of data generated by environmental laboratories by establishing an accreditation program for environmental laboratories. These regulations provide the minimum requirements for an environmental laboratory to obtain and maintain accreditation in Pennsylvania.

§§ 252.3 & 4 All environmental laboratories performing analysis of solids, liquids, or other specimens for the purpose of testing or analysis as required by an environmental statute listed in this section must meet the requirements of these regulations. The scope of these regulations is limited to drinking water, non-potable water (wastewater), and solid and chemical materials.

§ 252.5 An environmental laboratory may choose Pennsylvania State accreditation, described by these regulations, or seek accreditation using the National Environmental Laboratory Accreditation Conference Standard as a voluntary alternative to these regulations. Accreditation to either set of standards would be equivalent and acceptable and meet the requirements for accreditation required by the Environmental Laboratory Accreditation Act. An environmental laboratory may be accredited to the NELAC Standard and also be accredited pursuant to Pennsylvania State accreditation standards described by these regulations for fields of accreditation not included under the NELAC Standard.

§ 252.6 Accreditation-by-rule is offered to any facility performing testing or analysis of samples for the tests specifically listed in this section. The accreditation-by-rule provision requires analysis of all parameters by the promulgated analytical method, when specified; proper sample handling and preservation; compliance with all other applicable environmental law; and documentation of all tests and results. . The Department may require an environmental laboratory that is accredited-by-rule to apply for, and obtain, environmental laboratory accreditation when the laboratory is not in compliance with the conditions of the accreditation-by-rule provision.

The Safe Drinking Water regulatory requirements for accreditation-by-rule are listed by reference. An environmental laboratory must meet the requirements of Chapter 109 as well as those listed in these regulations in order to be accredited-by-rule for drinking water parameters.

In addition to the tests specifically listed in this section, industrial wastewater treatment facility laboratories and wastewater treatment facility laboratories are accredited-by-rule to perform tests that are not mandated by the Department.

An environmental laboratory deemed to be accredited-by-rule under these regulations is not required to meet any other requirements of the regulation, including laboratory supervisor requirements, fees, on-site assessments, and quality manuals.

#### Subchapter B.

§§ 252.201, 202, 203 Each environmental laboratory accredited under this regulation is required to complete an initial application for accreditation, an annual renewal application, and notify the Department of any change or transfer of ownership. Failure to submit an application for renewal of accreditation within 60 days of the expiration date of the current certificate of accreditation may result in a lapse in accreditation.

§ 252.204 An environmental laboratory will pay an initial application fee and annual renewal fees to the Department. Pursuant to the Environmental Laboratory Accreditation Act, the fees provided in this section must be sufficient to pay the Department's cost of implementing and administering the accreditation program including processing applications for certificates of accreditation, the issuance, renewal, modification or other action relating to the certificate. The laboratories pay fees based on the number and complexity of the methods for which they request accreditation. The cost of each fee category is determined based on the number of assessor hours necessary to accredit an environmental laboratory for a method in that given category.

The fee structure is responsive to the needs of small laboratories. Categories of testing are included for basic drinking water parameters and for basic wastewater parameters as a group. Included in these groupings are the tests usually performed by the smaller drinking water and wastewater facilities.

The fees will change every three years based on the percentage change in the Consumer Price Index (CPI). The CPI would be used to offset the effects of inflation. The first change will be based on the increase in the CPI from on June 30, 2005 to June 30, 2008. The Department will use that figure to calculate the fees for the year beginning January 1, 2009. The Department will publish the revised fee table in the Pennsylvania Bulletin not less than 90 days prior to the effective date of the revision. This allows time for budget planning and was added in direct response to comments offered by LAAC. The Department will develop a guidance document that will list equivalent methods for which one method fee will be charged when several methods are technically similar but are assigned different method identifiers.

§ 252.205 This section outlines the mechanism by which an out-of-State environmental laboratory may apply for and obtain accreditation from the Department. An out-of-State environmental laboratory performing testing or analysis covered by these regulations will be required to maintain accreditation according to these regulations. Out-of-State laboratories will pay the same fees as in-State laboratories. The Department will recognize accreditation granted

by a NELAP accrediting authority in another state for the same fields of accreditation for which the Department is a primary NELAP accrediting authority. The laboratory requesting secondary NELAP accreditation through the Pennsylvania program must submit an application, appropriate fee, copies of a valid accreditation certificate and on-site assessment from the primary accrediting authority, and all proficiency test sample results.

§ 252.206 An out-of-State environmental laboratory requiring an on-site evaluation will reimburse the Department for all expenses associated with the on-site evaluation including travel, subsistence, and lodging. The reimbursement rate for the travel time for each assessor is based upon salary and benefit costs for an assessor and would be \$50 per hour.

#### Subchapter C.

§ 252.301 These regulations specify the responsibilities of the laboratory supervisor, including the direct supervision of the testing analysis and reporting of data and certifying that each test or analysis is accurate and valid. The laboratory supervisor is responsible for the data generated in the laboratory. Specific qualifications are not established for other technical personnel in the laboratory.

§ 252.302 These regulations establish qualification requirements for laboratory supervisors. The laboratory supervisor qualifications vary depending on the type of laboratory and the scope of its requested accreditation. All laboratory supervisors shall have experience in the areas for which they are responsible. Drinking water or wastewater operators with a valid treatment plant operator's certificate as a laboratory supervisor would qualify as a laboratory supervisor for an appropriately classified laboratory in accordance with their plant operators certificate.

If the laboratory supervisor sub-classification is not be available by the time these regulations become effective, these regulations provide that for the period up to 12 months after a certificate for laboratory supervisor in the appropriate water or wastewater sub-classification becomes available from the Department, two years of experience performing testing or analysis of environmental samples using the methods and procedures currently in use by the environmental laboratory may be substituted for a laboratory supervisory certificate.

§ 252.303 The grandparent provision allows laboratory supervisors acting in that capacity at least 12 months before adoption of these regulations to continue in that position at that facility without meeting the educational requirements listed in the laboratory supervisor section. Approval under this provision will be limited to the current facility and may not be transferred to a different environmental laboratory.

§ 252.304 The personnel requirements for the technical staff of an environmental laboratory, including responsibility for compliance with quality assurance and quality control requirements of the regulations, methods, and laboratory are set forth in this section. The laboratory management shall define the minimum level of qualification, experience, and skills necessary for all positions; document the required training and demonstrations of capability required before analysis of environmental samples; and ethics training.

§ 252.305 The laboratory must assure that the facility does not introduce contamination to the samples or compromise sample results.

§ 252.306 The laboratory must have the necessary equipment to perform the testing or analysis for which accreditation is sought. The environmental laboratory shall maintain records of each item of equipment including maintenance, calibration, and history of damage, malfunction, or repair. Specific requirements are outlined for the calibration and maintenance of laboratory support equipment.

§ 252.307 The laboratory shall select analytical methods that are appropriate for the analyte and sample matrix, comply with applicable state or federal regulation, and that produce the appropriate quantitative levels. The laboratory must develop and maintain standard operating procedures (SOPs) for all fields of accreditation. The SOPs must adequately address method requirements and reflect the laboratory specific procedures. The laboratory SOP may be a separately prepared document, a copy of a standard procedure, or a cut and paste copy of a method. The regulations specify 11 basic items required in the laboratory SOP. All SOPs must be available to the analysts employed by the environmental laboratory. Each analyst must adequately demonstrate capability for each field of accreditation before sample analysis through acceptable completion of an initial demonstration of capability study.

#### Subchapter D.

§ 252.401 An environmental laboratory shall develop and maintain a quality manual appropriate to the type, range, and volume of testing and analysis of environmental samples. The quality manual includes procedures for document control, sample handling and acceptance policies, ethics policy statements, and management's processes and procedures for permitting departures from the established procedures. Each section outlines the essential quality control requirements for chemistry, toxicity, microbiology, and radiochemistry.

§ 252.402 The essential quality control requirements for chemistry include information detailing initial calibration, calibration verifications, method blanks, laboratory control samples, duplicates, surrogate spikes, detection limits, and selectivity.

§ 252.403 The essential quality control requirements for toxicity testing section specifies requirements for positive and negative controls, sensitivity, reagent water, test organisms, sample holding times, and testing conditions.

§ 252.404 The essential quality control requirements for microbiology section includes requirements for autoclaves, ovens, miscellaneous equipment, reagent water, media, positive and negative controls, and test variability.

§ 252.405 The essential quality control requirements for radiochemistry section specifies requirements for initial calibration, instrument stability verification and background measurement, method blanks, laboratory control samples, duplicates, tracers, carriers, and detection limits.

#### Subchapter E.

§ 252.501 Each laboratory must participate in proficiency test (PT) studies, where available, for each field of accreditation that the laboratory seeks to obtain or maintain accreditation. In order for continued accreditation for a particular field of accreditation, a laboratory must successfully analyze one PT study for each field of accreditation every 12 months. The closing date of each PT study for a particular field of accreditation may not be more than 13 months apart. The PT studies shall be managed, analyzed, and reported in the same manner as real environmental samples. The environmental laboratory shall utilize the same staff, instrumentation, quality control, and frequency of analyses when analyzing PT study samples.

#### Subchapter F.

§ 252.601 Each laboratory applying for accreditation under these regulations would undergo on-site assessments. The Department may conduct announced or unannounced on-site assessments of an environmental laboratory to ensure compliance with the conditions of accreditation, this chapter, or orders issued by the Department. During the on-site assessment, the laboratory's processes and procedures would be reviewed. Analyst interviews, training, method reviews, data audits, and documentation procedures are all areas of evaluation during the on-site assessment. The Department would supply a written report outlining the environmental laboratory's deficiencies. The laboratory must respond to the deficiency report within 60 days and correct all deviations within 120 days of receipt of the on-site report.

#### Subchapter G.

§§ 252.701, 702, 703, 704, 705 These sections explain application procedures including expiration, denial, suspension, revocation, and voluntary relinquishment of accreditation. Each section details the procedures the laboratory must understand and the grounds for which the Department may implement the listed procedures.

§ 252.707 Laboratories must follow specific record keeping procedures. These procedures include maintaining records in a manner that allows reconstruction of all laboratory activities. The environmental laboratory must maintain the records required by these regulations for a minimum of five years. The laboratory shall have a written plan that specifies how records will be maintained or transferred in the event that the laboratory transfers ownership or terminates operations.

§ 252.708 The environmental laboratory shall indicate the subcontracted laboratory on the final report. The environmental laboratory may not subcontract testing or analysis covered under these regulations to an environmental laboratory that is not accredited and in compliance with these regulations.

§ 252.709 These regulations incorporate the reporting and notification requirements for the Safe Drinking Water regulations, 25 Pa Code Chapter 109, by reference. This section also outlines the requirements for laboratories to notify the Department of any personnel changes including laboratory supervisors and analysts, equipment and/or facility changes that affect the accredited

fields of accreditation, legal name changes of the applicant laboratory, structural changes, and/or relocations. Out-of-State environmental laboratories with either primary or secondary accreditation shall notify the Department of any changes of accreditation from any other primary accrediting authority within 48 hours of the change.

#### *F. Benefits, Costs and Compliance*

##### *Benefits*

The most significant benefit of these regulations will be an improvement in the overall quality of the data produced by environmental laboratories. Improved data quality will allow the Department, the regulated community, and the citizens of the Commonwealth to make better decisions concerning the protection of the environment and protecting public health, safety, and welfare. Accurate laboratory results are critical to achieving the goals of the environmental laws.

It is difficult to quantify the benefits of Chapter 252 in specific dollar amounts. One approach to partially quantify the benefit is to examine the extra costs associated with unacceptable data. Fines assessed against environmental laboratories guilty of producing fraudulent data or of producing data that does not meet the regulatory requirements range from several thousand dollars to over \$9 million. These fines reflect the amount of harm done to the environment or to public health by poorly operated laboratories. When an environmental laboratory fails to provide accurate and valid data, additional testing and analysis and costly remediation is often required. This environmental laboratory accreditation program is a proactive approach designed to prevent problems before they become critical and responds to the mandate given by the General Assembly to the Department.

##### *Compliance Costs*

An environmental laboratory that is accredited-by-rule will incur no additional compliance costs. For other environmental laboratories, the direct costs for compliance will be payment of the required fees and the purchase of proficiency test samples. These costs will vary depending upon the type of testing and analyses that the environmental laboratory chooses to perform. The annual application fees will range from \$1,000 to \$17,400. The cost for the proficiency test samples range from less than \$100 to approximately \$13,000. The Department believes that the accreditation requirements will not result in prohibitive cost increases for any environmental laboratory. The Department is required to set fees in an amount sufficient to cover the cost of establishing and maintaining a laboratory accreditation program.

These regulations contain a fee structure that is responsive to the needs of small laboratories. Categories of testing are included for basic drinking water parameters and for basic wastewater parameters as a group. These groupings include the tests usually performed by the smaller drinking water and wastewater facilities. Additionally, it has been the Department's experience in the drinking water laboratory accreditation program that accreditation is affordable for many

small laboratories. Many small and municipal laboratories have met similar requirements under the Drinking Water Program Regulations at 25 Pa. Code Chapter 109.

Laboratories performing testing in the wastewater program are already required to use approved methods, many of which have requirements similar to the proposed regulations. Also, many of the laboratories performing testing in the wastewater program currently participate in proficiency test studies.

### *Compliance Assistance Plan*

The ultimate goal of the compliance assistance effort will be improving an environmental laboratory's ability to produce valid and defensible data for use by the Department, the regulated community, and the public. Several areas where compliance assistance is necessary are general laboratory operation, correct performance of specific test procedures, and documentation of laboratory activities. These areas, as well as others yet to be identified, will be provided to all environmental laboratories regardless of size or location within the Commonwealth. Several different ways of providing assistance have been identified.

The Department will develop a compliance guide to help an environmental laboratory understand the compliance requirements associated with any proposed or newly adopted regulations. Initially, the compliance guide would be tailored to the smallest wastewater and drinking water environmental laboratories because these laboratories are expected to be the least familiar with the requirements of a laboratory accreditation program. The guide would address the requirements for the basic testing performed by these smaller laboratories. Eventually the compliance guide may be expanded to larger laboratories. Additionally, the Department will develop and provide formal training courses or seminars that would assist environmental laboratories as they prepare for accreditation.

The training courses or seminars would present information that would be applicable to all environmental laboratories, regardless of size and would be presented across the Commonwealth at numerous locations. Possible sites include the Department's laboratory and regional and district offices, colleges or universities, hotels, and other training facilities. The seminars and courses may be presented in conjunction with existing organizations, such as the Pennsylvania Rural Water Association, the Pennsylvania Association of Accredited Environmental Laboratories, and the Pennsylvania Municipal Authorities Association.

Finally, a periodic newsletter may also be developed to provide updates about the environmental laboratory accreditation program in Pennsylvania. The Department may also expand the use of technology-based solutions to provide additional mechanisms for asking for and receiving assistance. Possible mechanisms for providing and making compliance assistance materials available include the use of the Department's website, electronic mail, and a toll-free telephone number.

### *Paperwork Requirements*

An application for accreditation must be submitted each year. On the application for accreditation, the environmental laboratory will be asked to supply the Department with information about the laboratory supervisor, the areas for which accreditation is being requested, and basic information about the environmental laboratory, such as the address, telephone number, and hours of operation.

An environmental laboratory will be required to follow specific record keeping procedures. An environmental laboratory is required to maintain documentation that describes the testing and analysis performed and to permit a scientist to reconstruct all activities associated with producing the reported result. The environmental laboratory must maintain the records for a minimum of five years and the laboratory shall have a written plan that specifies how records will be maintained or transferred in the event that the laboratory transfers ownership or terminates operations.

Basic documentation includes a document describing the policies and procedures that an environmental laboratory instituted to insure the production of good quality data. This document is generally referred to as a quality manual. An environmental laboratory is also required to maintain standard operating procedures describing how the laboratory performs the test or analysis. The quality manual and standard operating procedures may be separately prepared documents, a copy of a standard policy or procedure, or a cut and paste copy of a method or manual. The only specific requirement is that it accurately reflects and fully describes the operation of the environmental laboratory. Thus, small laboratories that perform a limited number of tests will only need to develop a quality manual and standard operating procedures suited to their particular circumstances. In addition to assuring quality data and consistency among analysts, these documents may provide significant benefits to small laboratories in the event of staff turnover because the “institutional memory” of the laboratory will be preserved.

#### *G. Sunset Review*

These regulations will be reviewed in accordance with the sunset review schedule published by the Department to determine whether the regulations effectively fulfill the goals for which they were intended.

#### *H. Regulatory Review*

Under § 5(a) of the Regulatory Review Act (71 P. S. § 745.5(a)), on January 5, 2005 the Department submitted a copy of the proposed rulemaking to the Independent Regulatory Review Commission (IRRC). Delivery will be made to the Chairpersons of the House and Senate Environmental Resources and Energy Committees following appointment. In addition to submitting the proposed amendments, the Department has provided IRRC and will be provided to the Committees a copy of a detailed regulatory analysis form prepared by the Department. A copy of this material is available to the public upon request.

Under § 5(g) of the Regulatory Review Act, IRRC may convey any comments, recommendations, or objections on the proposed rulemaking within 30 days of the close of public comment period. The comments, recommendations, or objections shall specify

the regulatory review criteria that have not been met. The Regulatory Review Act specifies detailed procedures for review by the Department, the General Assembly and the Governor prior to final publication of these regulations.

#### *I. Public Comments*

*Written Comments*--Interested persons are invited to submit comments, suggestions or objections regarding the proposed rulemaking to the Environmental Quality Board, P. O. Box 8477, Harrisburg, PA 17105-8477 (express mail: Rachel Carson State Office Building, 15th Floor, 400 Market Street, Harrisburg, PA 17105-2301). Comments submitted by facsimile will not be accepted. The Board must receive comments, suggestions or objections by February 22, 2005. Interested persons may also submit a summary of their comments to the Board. The summary may not exceed one page in length and must also be received by February 22, 2005. The one-page summary will be provided to each member of the Board in the agenda packet distributed prior to the meeting at which the final regulations will be considered.

*Electronic Comments*--Comments may be submitted electronically to the Board at [RegComments@state.pa.us](mailto:RegComments@state.pa.us) and must also be received by the Board by February 22, 2005. A subject heading of the proposal and a return name and address must be included in each transmission. If an acknowledgement of electronic comments is not received by the sender within 2 working days, the comments should be retransmitted to ensure receipt.

KATHLEEN A. McGINTY

Chairperson  
Environmental Quality Board

## **CHAPTER 252. ENVIRONMENTAL LABORATORY ACCREDITATION**

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## Subchapter A. GENERAL PROVISIONS

### § 252.1 Definitions:

<i>Acceptance criteria—</i>	Specified limits placed on a measurement, quality control sample, or process.
<i>Accreditation—</i>	A determination by the Department that an environmental laboratory is capable of performing one or more classes of testing or analysis of environmental samples in accordance with the Act and this chapter.
<i>Accreditation-by-rule—</i>	Accreditation which an environmental laboratory is deemed to have for the fields of accreditation identified in § 252.6 upon compliance with that section.
<i>Accrediting authority—</i>	A territorial, state, or federal agency having responsibility and accountability for environmental laboratory accreditation and which grants accreditation.
<i>Act—</i>	The Act of June 29, 2002 (P.L. 596, No. 90) (dealing with environmental laboratory accreditation) (27 Pa C.S. §§ 4101 – 4113).
<i>Analysis day—</i>	A continuous 24-hour period during which testing or analysis of environmental samples is performed.
<i>Analyst—</i>	An individual who performs the analytical methods and associated techniques and who is responsible for applying the required laboratory practices and quality controls to meet the required level of quality.
<i>Analyte—</i>	The component, compound, element, or isotope to be identified or quantified using a test or analysis.
<i>Batch—</i>	Environmental samples that are prepared or analyzed together using the same procedures, personnel, lot(s) of reagents and standards.
<i>Batch, analytical—</i>	A batch composed of prepared environmental samples that are analyzed together as a group. An analytical batch may contain samples originating from various environmental matrices and can exceed 20 samples.

<b><i>Batch, preparation—</i></b>	A batch composed of 1 to 20 environmental samples of the same matrix with a maximum time between the start of processing of the first and last sample in the batch to be 24 hours.
<b><i>Calibration verification standard—</i></b>	A standard used to confirm the validity of a previously performed initial calibration of a measurement process.
<b><i>Certificate of accreditation—</i></b>	A document issued by the Department certifying that an environmental laboratory has met standards for accreditation.
<b><i>Commonwealth agency—</i></b>	An agency that is a commonwealth agency as that term is defined under 62 Pa C.S. § 103 (relating to definitions.)
<b><i>Confirmation—</i></b>	Verification of the identity of an analyte through the use of a test or analysis using a different scientific principle from the original test or analysis.
<b><i>Deficiency—</i></b>	A deviation from acceptable procedures or practices.
<b><i>Detection limit—</i></b>	The lowest concentration or amount of the target analyte that can be identified, measured, and reported with confidence that the analyte concentration is not zero.
<b><i>Drinking water—</i></b>	Any aqueous sample that has been collected for the purposes of demonstrating compliance with the Pennsylvania Safe Drinking Water Act (35 P.S. §§ 721.1-721.17) or is from a potable or potential potable water source.
<b><i>EC<sub>p</sub>—</i></b>	Effective concentration percent – the concentration that affects the test variable at p percent from the control value.
<b><i>Environmental laboratory—</i></b>	A facility engaged in the testing or analysis of environmental samples.
<b><i>Environmental sample—</i></b>	A solid, liquid, gas, or other specimen taken for the purpose of testing or analysis as required by an environmental statute.
<b><i>Environmental statute—</i></b>	A statute administered by the Department relating to the protection of the environment or of public health, safety, and welfare.

<i>Facility—</i>	A sole proprietor, partnership, corporation, association, institution, cooperative enterprise, municipal authority, political subdivision, federal government or agency, state institution or agency or other legal entity which is recognized by law as the subject of rights and duties.
<i>Field of accreditation—</i>	A combination of matrix; method and/or technology; and analyte or analyte group for which an environmental laboratory may be accredited. Examples are: <ul style="list-style-type: none"> <li>▪ Non-potable water; GC/MS, US EPA Method 625; benzo(a)pyrene</li> <li>▪ Drinking water; ICP, US EPA Method 200.7; magnesium</li> <li>▪ Drinking water; GC/MS, US EPA Method 524.2; total trihalomethanes</li> </ul>
<i>Holding time—</i>	The maximum elapsed time from sample collection to initiation of testing or analysis.
<i>ICp—</i>	Inhibition concentration percent – the concentration that inhibits the test variable at p percent from the control value.
<i>Industrial wastewater treatment facility—</i>	Any facility that treats industrial waste or pollution, but not sewage, as those terms are defined in the Act of June 22, 1937 (P.L. 1987, No. 394), known as “The Clean Streams Law,” as amended.
<i>Initial calibration—</i>	Determination by measurement or comparison with a standard of known concentration the correct value or response of each scale reading on a meter, instrument, or other device. Comparison of a measurement standard or instrument with another standard or instrument to report or eliminate by adjustment any variation in the accuracy of the item being compared.
<i>Initial demonstration of capability—</i>	A procedure to establish the ability of an analyst, technical staff member, or work cell to generate data of acceptable accuracy and precision.
<i>Laboratory control sample—</i>	A sample of a controlled matrix known to be free of the analyte of interest, to which a known and verified concentration of analyte has been added and that is taken through all preparation and analytical steps in the method.

<b>Laboratory management—</b>	An individual or individuals responsible for the overall operation, all personnel, and the physical plant of an environmental laboratory. Laboratory management includes the laboratory supervisor.
<b>Laboratory notebook—</b>	A chronological record of observations, results of testing or analysis, equipment maintenance or calibration, or other environmental laboratory data.
<b>Laboratory supervisor—</b>	A technical supervisor of an environmental laboratory who supervises laboratory procedures and reporting of data.
<b>LCp—</b>	Lethal concentration percent – the concentration that is lethal to p percent of the test organisms from the control organisms.
<b>Linear range—</b>	The range of concentrations over which the instrument response is directly proportional to the analyte concentration.
<b>Matrix or matrices—</b>	The media of an environmental sample that includes drinking water, non-potable water, and solid and chemical materials.
<b>Matrix spike—</b>	A sample prepared by adding a known mass of target analyte to a specified amount of environmental sample.
<b>MCL—Maximum Contaminant Level—</b>	The maximum permissible level of a contaminant in water which is delivered to a user of a public water system, and includes the primary and secondary MCLs established under the Safe Drinking Water Act (42 U.S.C.A. §§ 300f–300j -10) and MCLs adopted under the Pennsylvania Safe Drinking Water Act, Act of May 1, 1984, P.L. 206, No. 43, 35 P.S. §§ 721.1-721.17 and the regulations promulgated thereunder.
<b>Method—</b>	The scientific technique used to perform testing or analysis on an environmental sample.
<b>Method blank—</b>	A sample of a known matrix, similar to the associated samples, and known to be free of the analyte of interest.

<i>Mobile laboratory—</i>	A portable enclosed structure within which testing or analysis of environmental samples occurs. Examples include trailers, vans, and skid-mounted structures configured to house environmental testing equipment and personnel.
<i>Negative culture control—</i>	An organism selected to demonstrate that the medium does not support the growth of non-target organism(s) or does not demonstrate the typical positive reaction of the target organism(s).
<i>NELAC—</i>	National Environmental Laboratory Accreditation Conference.
<i>NELAP—</i>	National Environmental Laboratory Accreditation Program.
<i>NELAP accrediting authority—</i>	An accrediting authority that has been recognized as meeting the requirements of the NELAC standards and has the authority to grant NELAP accreditation.
<i>NIST—</i>	The National Institute of Standards and Technology of the US Department of Commerce's Technology Administration.
<i>NOAEC—</i>	No observed adverse effect concentration.
<i>NOEC—</i>	No observed effect concentration.
<i>Non-potable water—</i>	Any aqueous sample excluded from the definition of drinking water matrix. Includes wastewater, ambient water, surface water, groundwater, effluents, water treatment chemicals, and toxicity characteristic leaching procedure or other extracts.
<i>Positive culture control—</i>	An organism selected to demonstrate that the medium can support the growth of the target organism(s) and that the medium produces the specified or expected reaction to the target organism.
<i>Primary accreditation—</i>	Accreditation received from the Department that is not based upon accreditation from another accrediting authority.
<i>Proficiency test study—</i>	A sample or group of samples, the composition of which is unknown to the environmental laboratory and the analyst.
<i>Promulgated method—</i>	A protocol for testing or analysis a specific analyte that is approved for use by a state or federal regulation.

<b><i>Quality manual—</i></b>	A document stating, or making reference to, the policies, objectives, principles, responsibilities, accountability, implementation plans, methods, operating procedures, or other documents of an environmental laboratory for ensuring the quality of its testing and analysis.
<b><i>Quantitation limit—</i></b>	The minimum concentration or activity of the component, compound, element, or isotope that can be reported with a specified degree of confidence. Typically it is the concentration that produces a signal ten standard deviations above the reagent water blank signal.
<b><i>Range of quantitation—</i></b>	The concentration range between which an environmental laboratory reports results quantitatively which is defined by a low concentration standard and a high concentration standard.
<b><i>Reagent water—</i></b>	Water with no detectable concentration of the component, compound, element, or isotope to be analyzed and that is free of substances that interfere with the method. Reagent water may be prepared by distillation, ion exchange, adsorption, reverse osmosis or a combination thereof.
<b><i>Relative standard deviation—</i></b>	The coefficient of variation expressed as a percentage.
<b><i>Revocation—</i></b>	Removal by the Department of one or more fields of accreditation from an environmental laboratory.
<b><i>Sample Duplicate—</i></b>	Replicate aliquots of the same sample taken through the entire analytical procedure.
<b><i>Secondary accreditation—</i></b>	Accreditation received from the Department based upon the accreditation status granted by another accrediting authority.
<b><i>Solid and chemical materials—</i></b>	Soils, sediments, sludges, solid waste, drill cuttings, overburden, minerals, coal ash, and products and by-products of an industrial process that result in a matrix that is not otherwise defined.
<b><i>Solid waste—</i></b>	Any waste, including but not limited to, municipal, residual, or hazardous wastes, including solid, liquid, semisolid, or contained gaseous materials as that term is defined in The Solid Waste Management Act, Act of July 7, 1980, P.L. 380, No. 97, as amended, 35 P.S. §§ 6018.101-6018.1003.

<b><i>Standard operating procedure—</i></b>	A written document that provides detailed instructions for the performance of all aspects of test, analysis, operation, or action.
<b><i>Suspension—</i></b>	The temporary removal by the Department of one or more fields of accreditation from an environmental laboratory for a period not to exceed six months.
<b><i>Technical staff—</i></b>	Employees of an environmental laboratory that perform any portion of testing or analysis of environmental samples, including the analysts of the environmental laboratory.
<b><i>Test—</i></b>	A technical operation that consists of the determination of one or more characteristics or performance of a given product, material, equipment, organism, physical phenomenon, process or service according to a specified procedure.
<b><i>US EPA—</i></b>	United States Environmental Protection Agency.
<b><i>Wastewater—</i></b>	A substance that contains the waste products or excrement or other discharge from the bodies of human beings or animals and noxious or deleterious substances being harmful or inimical to the public health, or to animal or aquatic life, or to the use of water for domestic water supply or for recreation, or which constitutes pollution under the act of June 22, 1937 (P.L.1987, No.394), known as "The Clean Streams Law."
<b><i>Wastewater facility—</i></b>	A facility that operates a system designed to collect, convey, or treat wastewater and from which effluent is discharged into waters of the Commonwealth.
<b><i>Work area—</i></b>	The areas in an environmental laboratory necessary for testing and analysis and related activities. These areas include sample receipt area, sample storage area, chemical and waste storage area, data handling area, and analytical areas.
<b><i>Work cell—</i></b>	A defined group of analysts that together perform testing or analysis of environmental samples.

## **§ 252.2 Purpose.**

The purpose of this chapter is to protect public health, safety, welfare, and the environment by ensuring the accuracy, precision, and reliability of data generated by environmental laboratories by establishing an accreditation program for environmental laboratories.

## **§ 252.3 Scope.**

- (a) This chapter applies to facilities that test or analyze environmental samples in the matrices listed in subsection (b) for the purpose of complying with following environmental statutes:
- (1) The Oil and Gas Act, Act of December 19, 1984, P.L. 1140, No. 223, as amended, 58 P.S. §§ 601.101-601.605.
  - (2) The Clean Streams Law, Act of June 22, 1937, P.L. 1987, No.394, as amended, 35 P.S. §§ 691.1-691.1001.
  - (3) The Hazardous Sites Cleanup Act, Act of October 18, 1988, P.L. 756, No. 108, 35 P.S. §§ 6020.101-6020.1305.
  - (4) The Land Recycling and Environmental Remediation Standards Act, Act of May 19, 1995, P.L. 4, No. 2, 35 P.S. §§ 6026.101-6026.908.
  - (5) The Pennsylvania Safe Drinking Water Act, Act of May 1, 1984, P.L. 206, No. 43, 35 P.S. §§ 721.1-721.17.
  - (6) The Solid Waste Management Act, Act of July 7, 1980, P.L. 380, No. 97, as amended, 35 P.S. §§ 6018.101-6018.1003.
  - (7) The Storage Tank and Spill Prevention Act, Act of July 6, 1989, P.L. 169, No. 32, as amended, 35 P.S. §§ 6021.101-6021.2104.
  - (8) The Pennsylvania Bituminous Coal Mine Act, Act of July 17, 1961, P.L. 659, No. 339, as amended, 52 P.S. §§ 701-101 - 701-706.
  - (9) The Surface Mining Conservation and Reclamation Act, Act of May 31, 1945, P.L. 1198, No. 418, as amended, 52 P.S. §§ 1396.1-1369.31.
  - (10) The Coal Refuse Disposal Control Act, Act of September 24, 1968, P.L. 1040, No. 318, as amended, 52 P.S. §§ 30.51-30.206.

(11) The Bituminous Mine Subsidence and Land Conversion Act, Act of April 27, 1966, Special Sess. No. 1, P.L. 31, as amended, 52 P.S. §§ 1406.1-1406.21.

(12) The Noncoal Surface Mining Conservation and Reclamation Act, Act of December 19, 1984, P.L. 1093, No 219, as amended, 52 P.S. §§ 3001-3326.

(b) *Matrix*: The following matrices are included:

- (1) Drinking Water.
- (2) Non-Potable Water.
- (3) Solid and Chemical Materials.

(c) The following testing and analysis is specifically excluded from the requirements of this chapter:

- (1) Corrosion protection system testing or testing of a storage tank system for tightness or structural soundness under Chapter 245 (relating to the Administration of the Storage Tank and Spill Prevention Program.)
- (2) Routine release detection monitoring under § 245.442 (relating to requirements for petroleum underground storage tank systems), § 245.443 (relating to requirements for hazardous substance underground storage tank systems), § 245.444 (relating to methods of release detection for tanks), § 245.445 (relating to methods of release detection for piping), § 245.543 (relating to leak detection requirements), and § 245.613 (relating to monitoring standards.)
- (3) Analyses to determine the acceptability of soils for protective, daily, intermediate and final cover material, subbase, clay liner, clay cap, attenuating soil base, and liner system construction material pursuant to chapters 260 – 270 (relating to hazardous waste), chapters 271-285 (relating to municipal waste), and chapters 287 – 299 (relating to residual waste.)
- (4) Testing or analysis of the physical, chemical, mechanical, and thermal properties of liners, liner systems, leachate detection zones, and barriers pursuant to chapters 260 – 270 (relating to hazardous waste), chapters 271-285 (relating to municipal waste), and chapters 287 – 299 (relating to residual waste.)

#### **§ 252.4 General Requirements.**

(a) Testing or analysis of environmental samples within a matrix identified in § 252.3 (relating to scope) and in order to comply with a statute listed in § 252.3 shall be performed by an environmental laboratory accredited under this chapter.

(b) An environmental laboratory testing or analyzing environmental samples in a matrix identified in § 252.3 (relating to scope) and required by a statute identified in § 252.3 shall be accredited and in compliance with this chapter in order to generate data and perform analysis used to comply with an environmental statute listed in § 252.3.

#### **§ 252.5 NELAP Equivalency.**

(a) An environmental laboratory may apply to the Department for NELAP accreditation for the fields of accreditation for which the Department offers accreditation.

(b) An environmental laboratory seeking NELAP accreditation shall:

(1) Submit a complete application as provided in Subchapter B (relating to application, fees, and supporting documents).

(2) Comply with Subchapter G (relating to miscellaneous provisions).

(c) An environmental laboratory receiving NELAP accreditation from the Department may only test or analyze environmental samples within the fields of accreditation authorized by the NELAP accreditation received from the Department.

(d) An environmental laboratory receiving NELAP accreditation from the Department may apply for accreditation under the remainder of this chapter for the fields of accreditation that are not included in NELAP accreditation and for which the Department offers accreditation.

#### **§ 252.6 Accreditation-by-Rule.**

(a) *Purpose.* Environmental laboratories performing testing or analysis described in this section shall be deemed to have accreditation-by-rule if the following general requirements are met:

(1) When required by state or federal laws, regulations, an order, or permit conditions, the environmental laboratory shall perform the testing or analysis in conformance with promulgated methods and guidelines established by the Department.

(2) The environmental laboratory assures that samples for testing or analysis are properly preserved, are in proper containers, do not exceed maximum holding times between collection and

analysis, and are handled in accordance with guidelines governing quality control established by the Department.

- (3) The environmental laboratory has the other necessary permits under the applicable environmental protection acts and is operating under the acts and regulations promulgated thereunder and the terms and conditions of permits.
- (4) Records pertaining to the testing or analysis of environmental samples are retained on-site and in accordance with § 252.707 (relating to record keeping). Records shall be made available to the Department upon request.
- (5) The environmental laboratory is reporting the results of the testing or analysis of environmental samples in conformance with the applicable state or federal laws, regulations, orders, or permit conditions.

(b) *Inappropriate activity.* The Department may require an environmental laboratory deemed to have accreditation-by-rule to apply for, and obtain, environmental laboratory accreditation pursuant to Subchapter B (relating to application, fees, and supporting documents), or take other appropriate action, when the environmental laboratory is not in compliance with the conditions of accreditation-by-rule or is conducting an activity that harms or presents a threat of harm to the health, safety, or welfare of the people or the environment of this Commonwealth.

(c) *Public water suppliers.* An environmental laboratory using an individual meeting the requirements specified in § 109.704 (relating to operator certification) and in compliance with subsections (a) and (b) shall be deemed to be accredited under this chapter to perform those measurements identified in Chapter 109, Subchapter C (relating to monitoring requirements) as measurements that may be performed by a person meeting the requirements of § 109.704.

(d) *Industrial Wastewater Treatment Facility Laboratory.* An environmental laboratory operated by an industrial wastewater treatment facility in compliance with subsections (a) and (b) shall be deemed to be accredited under this chapter to perform testing or analysis not mandated by the Department and those tests identified in subsection (f).

(e) *Wastewater Facility Laboratory.* An environmental laboratory operated by a wastewater facility in compliance with subsections (a) and (b) shall be deemed to be accredited under this chapter to perform testing or analysis not mandated by the Department and those tests identified in subsection (f).

**(f) *Other testing and analysis.*** With the exception of environmental laboratories identified in subsection (c) above, an environmental laboratory in compliance with subsections (a) and (b) shall be deemed accredited under this chapter for the following tests or analyses:

- (1) Alkalinity,**
- (2) Carbon dioxide (CO<sub>2</sub>),**
- (3) Color,**
- (4) Conductivity,**
- (5) Dissolved oxygen,**
- (6) Field radioactivity using hand held survey instruments,**
- (7) Flash point and total halogen determination on waste oil by a waste oil transporter or waste oil transfer facility as required by § 298.44 (relating to rebuttable presumption for waste oil and flash point screening),**
- (8) Flow,**
- (9) Foam,**
- (10) Hardness,**
- (11) Odor,**
- (12) Oxidation reduction potential,**
- (13) Paint filter test,**
- (14) pH,**
- (15) Residual disinfectant concentration,**
- (16) Settleable solids,**
- (17) Sheen,**
- (18) Sludge volume index,**
- (19) Specific Gravity,**
- (20) Sulfite,**
- (21) Taste,**

(22) Temperature,

(23) Turbidity,

(24) Vapor analysis using hand held survey instruments,

(25) Volatile acids in wastewater.

(g) An environmental laboratory deemed to be accredited pursuant to this section is not required to meet any other requirements in this chapter.

## **Subchapter B. APPLICATION, FEES, AND SUPPORTING DOCUMENTS**

### **§ 252.201 Application and Supporting Documents.**

(a) An environmental laboratory seeking accreditation for one or more fields of accreditation within a matrix described in § 252.3 (relating to scope), or that seeks to add a field of accreditation, shall apply to the Department for accreditation in writing on forms provided by the Department. The applicant shall provide other relevant material requested by the Department.

(b) An application for accreditation shall include the appropriate application fee in accordance with § 252.204 (relating to fees.)

(c) Environmental laboratories maintained on separate premises shall maintain distinct accreditation. Separate accreditation is not required for environmental laboratories in different buildings on the same or adjoining grounds, provided the laboratories are operated under the same management.

(d) Separate accreditation is required for a mobile laboratory.

### **§ 252.202 Application for Transfer of Laboratory Accreditation.**

(a) The new owner of an accredited environmental laboratory shall notify the Department in writing within ten calendar days following a change in laboratory ownership. Within 30 calendar days following the change in laboratory ownership, an accredited environmental laboratory shall do the following:

(1) Submit an ownership transfer application, indicating any changes in the equipment, methodology, and staffing.

(2) Pay the application fee for ownership transfer.

(3) Agree to correct any violations that exist at the time of the sale or transfer in accordance with a schedule that is acceptable to the Department.

(b) All open or pending enforcement actions will be transferred with the accreditation.

(c) Failure to comply with this section will cause the previous accreditation to expire.

(d) An environmental laboratory may operate under the previous accreditation until the Department makes a final decision on the transfer application. If the Department denies the transfer application, the environmental laboratory is no longer accredited and the new owner shall submit an application under § 252.201 (relating to application and supporting documents).

**§ 252.203 Accreditation Renewal.**

(a) Applications for accreditation renewal shall be submitted annually to the Department at least 60 calendar days prior to the expiration date of the current certificate of accreditation on forms provided by the Department.

(b) Failure to submit an application for renewal in accordance with this section will result in a lapse in accreditation if the Department has not approved the renewal application prior to the expiration of the current certificate of accreditation. If a lapse in accreditation occurs, the environmental laboratory shall cease all testing or analysis of environmental samples for the affected fields of accreditation.

**§ 252.204 Fees.**

(a) The appropriate fee in accordance with the following schedule shall accompany the application for accreditation. The Department may establish a list of equivalent methods that will be considered a single method with regard to fees. A check shall be payable to "Commonwealth of Pennsylvania."

Fee effective through December 31, 2008:

<b>CATEGORY</b>	<b>FEE</b>
Application fee - initial and renewal	\$700
Application fee - ownership transfer	\$150
Application fee - addition of fields of accreditation	\$150
Basic non-potable water category (Fecal coliform bacteria, BOD, CBOD, residue, nitrate, ammonia, total nitrogen, phosphorus)	\$750

<b>CATEGORY</b>	<b>FEE</b>
Basic drinking water category (Total coliform bacteria, fecal coliform bacteria, heterotropic bacteria, nitrate, nitrite, fluoride, cyanide)	\$700
Asbestos category	\$500
Microbiology - basic, first method (includes 1 method each for total coliform, fecal coliform, <i>E.coli</i> , and heterotropic bacteria)	\$300
Microbiology -basic, each additional method	\$100
Microbiology - non-basic each method	\$250
Maximum fee for microbiology category	\$1,000
Trace metal category, first method	\$350
Trace metal category each additional method	\$150
Maximum fee for trace metal category	\$1,200
Inorganic non-metal category, first method	\$350
Inorganic non-metal category, each additional method	\$100
Maximum fee for inorganic non-metal category	\$2,500
Gas chromatography – volatiles category, first method	\$400
Gas chromatography – volatiles category, each additional method	\$100
Maximum fee for gas chromatography - volatiles category	\$1,000
Gas chromatography/mass spectrometry – volatiles category, first method	\$450
Gas chromatography/mass spectrometry – volatiles category, each additional method	\$150
Maximum fee for gas chromatography/mass spectrometry - volatiles category	\$1,000
Gas chromatography – extractable category, each method	\$400
Maximum fee for gas chromatography extractable category	\$3,000
Gas chromatography/mass spectrometry – extractable category, first method	\$500
Gas chromatography/mass spectrometry – extractable category, each additional method	\$250
Maximum fee for gas chromatography/mass spectrometry extractable category	\$2,000
Other organic including liquid chromatography, each method	\$350
Maximum fee for other organic category	\$2,000
Dioxin category, each method	\$500
Radiochemical category, first method	\$500
Radiochemical category, each additional method	\$250
Maximum fee for radiochemical category	\$1,500
Whole effluent toxicity testing category	\$500

(b) The fees imposed under subsection (a) shall be increased every three years beginning January 1, 2009. The initial fee increase shall be by the percentage, if any, by which the Consumer Price Index for the calendar year 2008 exceeds the Consumer Price Index for the calendar year 2005.

Subsequent fee increases shall be by the percentage, if any, by which the Consumer Price Index for the current calendar year exceeds the Consumer Price Index for the calendar year of the previous fee increase. For the purposes of this subsection:

- (1) The Consumer Price Index for any calendar year is the average of the Consumer Price Index for All-Urban Consumers, published by the United States Department of Labor, as of the close of the 12 month period ending on June 30.
  - (2) The revision of the Consumer Price Index that is most consistent with the Consumer Price Index for calendar year 2005 shall be used.
  - (3) The Department will publish the revised fee table in the *Pennsylvania Bulletin* not less than 90 days prior to the effective date of the revision.
- (c) An environmental laboratory owned or operated by a Commonwealth agency is exempt from this fee requirement, but shall apply for accreditation under this chapter.
- (d) Fees are non-refundable.
- (e) In addition to the nonrefundable application fee, an out-of-State environmental laboratory shall reimburse the Department for the costs associated with on-site assessments necessitated by accreditation as specified § 252.206 (relating to out-of-state on-site reimbursement.)

#### **§ 252.205 Out-of-State Laboratories.**

- (a) Out-of-State environmental laboratories may apply for primary accreditation or secondary accreditation from the Department.
- (1) *Primary Accreditation.* Out-of-State environmental laboratories may apply to the Department for primary accreditation under the provisions of this chapter.
  - (2) *Secondary Accreditation.*
    - (i) The Department will recognize accreditation granted by a primary NELAP accrediting authority for the same fields of accreditation for which the Department is a primary NELAP accrediting authority.
    - (ii) The Department may recognize the accreditation of an environmental laboratory by another state accrediting authority if the standards for accreditation are substantially equivalent to those established under this chapter and the

laboratory is physically located within the state granting accreditation.

- (iii) An environmental laboratory seeking secondary accreditation from the Department shall:
  - (A) Submit a properly completed application on forms provided by the Department.
  - (B) Pay the appropriate fee.
  - (C) Submit a copy of a valid accreditation certificate from the primary accrediting authority.
  - (D) Submit a copy of all on-site assessment reports conducted by the primary accrediting authority within the last three years.
  - (E) Submit copies of all proficiency test sample results reported to the primary accrediting authority within the past 12 months.
  - (F) Submit any other material relevant to accreditation, upon request of the Department.

(b) The Department may conduct an on-site assessment or require analysis of a proficiency test study by an out-of-State environmental laboratory seeking secondary accreditation for reasons which may include addressing complaints from the public, requests from Department personnel, discrepancies with environmental sample results, on-site assessment deficiencies, frequent errors in reporting data to the Department, and suspicions of fraud regarding data quality. If the Department determines that an on-site assessment is required, the environmental laboratory shall pay the Department's travel costs associated with the on-site assessment in accordance with § 252.206 (relating to out-of-State on-site reimbursement).

(c) If any portion of the out-of-State environmental laboratory's accreditation is denied, revoked, or suspended by the primary accrediting authority, the laboratory's authorization to perform testing or analysis is automatically revoked for the same fields of accreditation.

#### **§ 252.206 Out-of-State On-Site Reimbursement.**

In addition to the nonrefundable application fee, an out-of-State environmental laboratory shall reimburse the Department for the following costs associated with on-site assessments necessitated by accreditation:

- (a) Transportation costs, including airfare, mileage, tolls, car rental, public transportation, and parking.
- (b) Meals and lodging.
- (c) Travel time for each assessor at a rate of 50 dollars per hour (\$50.00/hour).
- (d) The fee imposed under subsection (c) shall be increased every three years beginning January 1, 2009. The initial fee increase shall be by the percentage, if any, by which the Consumer Price Index for the calendar year 2008 exceeds the Consumer Price Index for the calendar year 2005. Subsequent fee increases shall be by the percentage, if any, by which the Consumer Price Index for the current calendar year exceeds the Consumer Price Index for the calendar year of the previous fee increase. For the purposes of this subsection:
  - (1) The Consumer Price Index for any calendar year is the average of the Consumer Price Index for All-Urban Consumers, published by the United States Department of Labor, as of the close of the 12 month period ending on June 30.
  - (2) The revision of the Consumer Price Index that is most consistent with the Consumer Price Index for calendar year 2005 shall be used.
  - (3) The Department will publish the revised fee table in the *Pennsylvania Bulletin* not less than 90 days prior to the effective date of the revision.

### **Subchapter C. General Standards for Accreditation**

#### **§ 252.301 Laboratory Supervisor.**

- (a) Testing, analysis and reporting of data by an environmental laboratory shall be under the direct supervision of a laboratory supervisor.
- (b) The laboratory supervisor shall certify that each test or analysis is accurate and valid and the test or analysis was performed in accordance with all conditions of accreditation.
- (c) The Department may disqualify a laboratory supervisor who is responsible for the submission of inaccurate test or analysis results.
- (d) The Department will disqualify a laboratory supervisor convicted of any crime or offense related to violations of state or federal laws or

regulations related to the provision of environmental laboratory services or reimbursement for such services.

(e) An environmental laboratory may appoint one or more laboratory supervisors for the appropriate fields of accreditation for which they are seeking accreditation.

(f) An environmental laboratory shall designate another staff member meeting the qualifications of a laboratory supervisor to temporarily perform this function when a laboratory supervisor is absent for a period of time exceeding 15 consecutive calendar days. If this absence exceeds 30 consecutive calendar days, the environmental laboratory shall notify the Department in writing pursuant to § 252.709 (relating to reporting and notification requirements).

(g) An individual may not be the laboratory supervisor of more than one environmental laboratory without authorization from the Department. Circumstances to be considered in the decision to grant such authorization will include at least the following:

- (1) The extent to which operating hours of the laboratories to be supervised overlap.
- (2) The adequacy of supervision in each laboratory.

#### **§ 252.302 Qualifications of the Laboratory Supervisor.**

(a) A laboratory supervisor of an environmental laboratory engaged in chemical analysis shall have the following qualifications:

- (1) A bachelor's degree in chemistry, biochemistry, physics, environmental science, biology, microbiology, physical sciences, or engineering.
- (2) At least 24-college semester credit hours in chemistry.
- (3) At least two years of experience in the testing or analysis of environmental samples in representative inorganic and organic fields of accreditation for which the environmental laboratory seeks to obtain or to maintain accreditation. An earned master's or doctoral degree in chemistry, biochemistry, physics, environmental science, biology, microbiology, physical sciences, or engineering may be substituted for one year of experience.

(b) A laboratory supervisor of an environmental laboratory limited to the basic non-potable water category or the basic drinking water category, shall have the following qualifications:

- (1) At least 16-college semester credit hours in chemistry, biochemistry, physics, environmental science, biology, microbiology, physical sciences, or engineering.
  - (2) At least two years of experience in the testing or analysis of environmental samples in representative fields of accreditation for which the environmental laboratory seeks to obtain or to maintain accreditation.
- (c) A laboratory supervisor of an environmental laboratory limited to inorganic chemical analysis, other than metals analysis, shall have the following qualifications:
  - (1) At least an earned associate's degree in chemistry, biochemistry, physics, environmental science, biology, microbiology, physical sciences, or engineering, or two years of equivalent and successful college education.
  - (2) At least 16-college semester credit hours in chemistry.
  - (3) At least two years of experience in the testing or analysis of environmental samples in representative fields of accreditation for which the environmental laboratory seeks to obtain or to maintain accreditation.
- (d) A laboratory supervisor of an environmental laboratory engaged in microbiological or biological analysis shall have the following qualifications:
  - (1) A bachelor's degree in chemistry, biochemistry, physics, environmental science, biology, microbiology, physical sciences, or engineering.
  - (2) At least 16-college semester credit hours in general microbiology and biology.
  - (3) At least two years of experience in the testing or analysis of environmental samples in representative microbiological or biological fields of accreditation for which the environmental laboratory seeks to obtain or to maintain accreditation. A master's or doctoral degree in chemistry, biochemistry, physics, environmental science, biology, microbiology, physical sciences, or engineering may be substituted for one year of experience.
- (e) A laboratory supervisor of an environmental laboratory engaged in microbiological analysis limited to fecal coliform, total coliform and heterotrophic bacteria shall have the following qualifications:

- (1) At least an associate's degree in chemistry, biochemistry, physics, environmental science, biology, microbiology, physical sciences, or engineering.
  - (2) A minimum of four-college semester credit hours in general microbiology.
  - (3) Two years of equivalent and successful college education, including a minimum of four-college semester credit hours in general microbiology, may be substituted for the associate's degree.
  - (4) At least two years of experience in the testing or analysis of environmental samples in representative fields of accreditation for which the environmental laboratory seeks to obtain or to maintain accreditation.
- (f) A laboratory supervisor of an environmental laboratory engaged in radiological analysis shall have the following qualifications:
- (1) A bachelor's degree in chemistry, biochemistry, physics, environmental science, biology, microbiology, physical sciences, or engineering.
  - (2) At least 24-college semester credit hours in chemistry.
  - (3) At least two years of experience in the testing or analysis of environmental samples in representative radiological fields of accreditation for which the environmental laboratory seeks to obtain or to maintain accreditation. An earned master's or doctoral degree in chemistry, biochemistry, physics, environmental science, biology, microbiology, physical sciences, or engineering may be substituted for one year of experience.
- (g) A laboratory supervisor of an environmental laboratory engaged in microscopic examination of asbestos or airborne fibers shall have the following qualifications:
- (1) For procedures requiring the use of a transmission electron microscope, a bachelor's degree, successful completion of formal course work in the use of the instrument, and one year of experience, under supervision, in the use of the instrument. Such experience shall include the identification of minerals.
  - (2) For procedures requiring the use of a polarized light microscope, an associate's degree or two years of college study, successful completion of formal coursework in polarized light microscopy, and one year of experience, under supervision, in the use of the

instrument. Such experience shall include the identification of minerals.

- (3) For procedures requiring the use of a phase contrast microscope, an associate's degree or one year of college study, documentation of successful completion of formal coursework in phase contrast microscopy, and one year of experience, under supervision, in the use of the instrument.

(h) Notwithstanding any other provision of this section, an employee of a drinking water, wastewater, or industrial waste treatment facility meeting the following requirements shall be deemed qualified as a laboratory supervisor of an environmental laboratory:

- (1) The employee holds a valid treatment plant operator's certificate under the Water and Wastewater Systems Operators' Certification Act (63 P.S. §§ 1001 –1015.1) in the appropriate water or wastewater sub-classification for the facility.
- (2) The employee holds a valid certificate under the Water and Wastewater Systems Operators' Certification Act (63 P.S. §§ 1001 – 1015.1) for laboratory supervisor in the appropriate water or wastewater sub-classification.
- (3) Until 12 months after a certificate under the Water and Wastewater Systems Operators' Certification Act (63 P.S. §§ 1001 –1015.1) for laboratory supervisor in the appropriate water or wastewater sub-classification becomes available from the Department, two years of experience performing testing or analysis of environmental samples using the methods and procedures currently in use by the environmental laboratory may be substituted for a laboratory supervisory certificate.

(i) Approval as a laboratory supervisor under subsection (h) shall be limited to the fields of accreditation required by the scope of that facility's regulatory permit.

### **§ 252.303 Grandparent Provisions.**

(a) A person who does not meet the education credential requirements for a laboratory supervisor but possesses the requisite years of experience required by § 252.302 (relating to Qualifications of the Laboratory Supervisor) shall qualify as laboratory supervisor subject to the following conditions:

- (1) The person shall be a laboratory supervisor of the environmental laboratory on the date the environmental laboratory becomes subject to accreditation.

(2) The person shall have been a laboratory supervisor of the environmental laboratory for at least 12 months for the fields of accreditation for which the environmental laboratory is applying.

(b) A person will be approved as a laboratory supervisor only for those fields of accreditation for which the person has been laboratory supervisor of the environmental laboratory for at least 12 months.

(c) The Department may approve a person, qualified as a laboratory supervisor under this section, for additional fields of accreditation if the person has the appropriate knowledge, skills, and abilities to perform and supervise the testing or analyses on environmental samples for the requested fields of accreditation.

**§ 252.304 Personnel Requirements.**

(a) *General Requirements for Technical Staff:*

- (1) An environmental laboratory shall have sufficient personnel with the necessary education, training, technical knowledge and experience for their assigned functions.
- (2) Each member of the environmental laboratory technical staff shall be responsible for complying with quality assurance and quality control requirements that pertain to their organizational or technical function.
- (3) Each environmental laboratory technical staff member shall have a combination of experience and education to adequately demonstrate a specific knowledge of their particular function and a general knowledge of laboratory operations, test methods, quality assurance and quality control procedures and records management.

(b) *Laboratory Management Responsibilities.* The environmental laboratory management shall be responsible for:

- (1) Defining the minimal level of qualification, experience and skills necessary for all positions or work cells in the environmental laboratory.
- (2) Ensuring that the environmental laboratory technical staff members or work cells have demonstrated capability in the activities for which they are responsible. Such demonstration shall be documented.

- (3) Ensuring and documenting that the training and competency of each member of the environmental laboratory technical staff is kept up to date by maintaining records demonstrating the following:
- (i) That each employee has read, understood, and is using the latest version of the environmental laboratory's quality manual that relates to each employee's job responsibilities.
  - (ii) That each employee has read, understood, and is using the latest versions of the environmental laboratory's standard operating procedures that relate to each employee's job responsibilities.
  - (iii) Participation in training courses or workshops on specific equipment, analytical techniques or laboratory procedures that relate to each employee's job responsibilities.
  - (iv) Participation in training courses in ethical and legal responsibilities including the potential liabilities for improper, unethical, or illegal actions.
  - (v) That each employee has read, understood, and acknowledged their personal ethical and legal responsibilities including the potential punishments and penalties for improper, unethical, or illegal actions.
  - (vi) An initial demonstration of capability for each method that relates to the employee's job responsibilities.
  - (vii) A demonstration of continued proficiency by at least one of the following every 12 months for each method that relates to the employee's job responsibilities:
    - (A) Another initial demonstration of capability.
    - (B) Acceptable performance of blind performance sample(s) (single blind to the analyst.)
    - (C) Successful analysis of blind proficiency test sample(s) on a similar test method using the same technology (for example, GC/MS volatiles by purge and trap for US EPA Methods 524.2, 624 or 5035/8260 would require documentation for only one of the test methods.)
    - (D) At least four consecutive laboratory control samples with acceptable levels of precision and accuracy.

- (E) Analysis of at least ten authentic samples with results statistically indistinguishable from those obtained by another trained analyst. The samples shall include samples free of the analyte of interest and samples containing the analyte of interest at measurable concentrations.
- (4) Documenting analytical and operational activities of the laboratory.
- (5) Supervising personnel employed by the laboratory.
- (6) Establishing and implementing procedures and processes for permitting departures from documented policies and procedures.
- (7) Ensuring that sample acceptance criteria are verified and that samples are logged into the sample tracking system and properly labeled and stored.
- (8) Documenting the quality of data reported by the laboratory.
- (9) Developing a proactive program for prevention and detection of improper, unethical, or illegal actions. Components of this program may include the following:
  - (i) Internal proficiency testing (single and double blind).
  - (ii) Post-analysis electronic data and magnetic tape audits or reviews.
  - (iii) Separate standard operating procedures identifying appropriate and inappropriate laboratory and instrument manipulation practices.
- (c) An environmental laboratory shall maintain records on initial demonstrations of capability, demonstrations of continued proficiency, proficiency test samples for each laboratory method, and the qualifications, training, skills, and experience of the laboratory technical staff members.

**§ 252.305 Physical Facilities.**

- (a) An environmental laboratory shall have accommodations, work areas, energy sources, lighting, heating, and ventilation necessary to assure proper performance of tests and analyses.
- (b) The environment in which testing or analysis of environmental samples is undertaken shall not adversely affect the results of the testing or analysis or the required accuracy of measurement.

- (c) An environmental laboratory shall document its monitoring and control of environmental conditions where monitoring or control of environmental conditions is specified in a method or by regulation.
- (d) There shall be effective separation between neighboring work areas and between work areas and non-work areas when the activities performed in the different areas are incompatible.
- (e) Adequate measures shall be taken to ensure that contamination does not adversely affect data quality.

**§ 252.306 Equipment, Supplies, and Reference Materials.**

- (a) An environmental laboratory shall be furnished with all items of equipment, including reference materials, required for the correct performance of tests or analyses for which accreditation is sought.
- (b) An environmental laboratory shall maintain records of each item of equipment significant to the testing or analysis performed. These records shall include documentation on the following:
  - (1) The name of the item of equipment.
  - (2) The manufacturer's name, type identification, and serial number or other unique identification.
  - (3) Date received and date placed in service (if available).
  - (4) Current location, where appropriate.
  - (5) If available, condition when received (for example, new, used, reconditioned).
  - (6) Copy of the manufacturer's instructions, where available.
  - (7) Dates and results of calibrations or verifications.
  - (8) Manufacturer's instructions, if available, or reference their location.
  - (9) Details of maintenance performed.
  - (10) History of damage, malfunction, modification, or repair.
- (c) An environmental laboratory shall assure that the test instruments consistently operate within the specifications required of the application for which the equipment is used.
- (d) Equipment shall be properly maintained, inspected, and cleaned.

(e) Any item of equipment that has been subjected to overloading, mishandling, gives suspect results, or has otherwise been shown to be defective, shall be taken out of service and clearly identified until it has been repaired and shown by calibration, verification or test to perform satisfactorily. The laboratory shall examine the effect of this defect on previous testing or analysis.

(f) The following pieces of equipment shall be maintained according to this subsection.

(1) Certified NIST-reference thermometer.

(i) A certified NIST-reference thermometer shall have appropriate graduations and a range that spans the requirements of the method.

(ii) The certified NIST-reference thermometer shall be recalibrated at least once every five years at the temperature(s) of use.

(iii) An environmental laboratory shall retain a certificate documenting traceability of the calibration to NIST standards.

(2) Working thermometers.

(i) Working thermometers shall have appropriate graduations and a range that spans the requirements of the method.

(ii) Working thermometers may be glass, dial or electronic and shall be calibrated against a certified NIST-reference thermometer as follows:

(A) Glass and electronic thermometers and continuous recording devices shall be calibrated every 12 months at the temperature used.

(B) Dial thermometers shall be calibrated every three months at the temperature used. Dial thermometers that cannot be calibrated may not be used.

(C) An environmental laboratory shall maintain records in a laboratory notebook for each working thermometer that documents the date of calibration, NIST reference thermometer identification, working thermometer identification, reference thermometer temperature reading, working thermometer temperature reading, correction factor, and the initials of the individual conducting the calibration.

(D) Working thermometers shall be uniquely identified and labeled with the date of calibration and correction factor.

(iii) The fluid column in glass thermometers may not be separated.

(iv) A working thermometer that differs by more than 1.0°C from the reference thermometer may not be used.

(3) ASTM type 1, 2, or 3 (Class S or S-1) certified reference weights.

(i) The mass of ASTM type 1, 2, or 3 (Class S or S-1) certified reference weights shall be recertified at least once every five years.

(ii) An environmental laboratory shall retain a certificate documenting traceability of the calibration to ASTM standards.

(4) Analytical or pan balances.

(i) Analytical or pan balances shall provide sufficient accuracy and sensitivity for the weighing needs of the method.

(ii) An environmental laboratory shall verify the calibration of an analytical balance daily or before each use, whichever is less frequent.

(iii) An environmental laboratory shall verify the calibration of a pan balance monthly or before each use, whichever is less frequent.

(iv) A reference weight that is damaged or corroded may not be used for calibration of balances.

(v) Balance calibration shall be verified using a minimum of three ASTM type 1, 2, or 3 (Class S or S-1) certified reference weights that bracket the effective range of the balance's use.

(vi) An environmental laboratory shall maintain records in a laboratory notebook of balance calibrations that document the balance identification, date of calibration verification, reference weights used, and initials of the individual performing the calibration. Correction factors shall be documented and used.

(vii) A qualified person shall service and calibrate analytical balances at least once per year.

(viii) Records of annual service shall be maintained and the service date shall be recorded on the balance.

**(5) pH meter.**

- (i) A pH meter shall be equipped with an appropriate electrode and have scale graduations and accuracy appropriate to the method.**
- (ii) An environmental laboratory shall utilize either a thermometer or a temperature sensor for automatic compensation to make corrections for pH measurements.**
- (iii) The pH meter shall be standardized daily or before each use, whichever is less frequent, as follows:**
  - (A) With at least three standard buffers which are at least three pH units apart and which bracket the expected pH range of the samples, or**
  - (B) Use a pH 7.0 and either a pH 4.0 or 10.0 standard buffer; whichever range covers the desired pH range of use.**
- (iv) Aliquots of standard buffers may not be used for longer than one analysis day.**
- (v) Records of pH meter standardization shall be maintained in a laboratory notebook that documents the date of standardization, calibration buffers used, and initials of the individual conducting the standardization.**

**(6) Conductivity meter.**

- (i) A conductivity meter shall have a probe of sufficient sensitivity for the method. The scale shall have readability in appropriate units, for example micromhos or microsiemens per centimeter.**
- (ii) An in-line conductivity meter that cannot be calibrated may not be used.**
- (iii) An environmental laboratory shall calibrate the conductivity meter daily or before each use, whichever is less frequent, as follows:**
  - (A) With certified and traceable standard solutions within the range of interest, or**
  - (B) By determining the cell constant utilizing the method described in currently approved editions of Standard Methods for the Examination of Water and Wastewater (available from American Public Health Association, 1015 Fifteenth Street NW, Washington, D.C. 20005.)**

(iv) Records of conductivity meter calibrations shall be maintained in a laboratory notebook that documents the date of calibration, standards used, results of calibration or cell constant determined, and the initials of the individual conducting the calibration.

**(7) Refrigeration equipment and freezers.**

(i) An environmental laboratory shall maintain one thermometer immersed in liquid (except electronic thermometers) to the appropriate immersion line for each refrigerator or freezer. The thermometer shall be graduated in increments no larger than 1°C.

(ii) Calibration-corrected temperatures for each refrigerator and freezer shall be recorded once a day for each day in use for all laboratory activities. The date, refrigerator or freezer identification, calibration corrected temperature, and initial of responsible individual shall be recorded.

(iii) Samples and standards shall be stored in separate refrigerators where the potential for cross-contamination exists.

(iv) Samples which require thermal preservation shall be stored at a temperature which is  $\pm 2^\circ\text{C}$  of the specified preservation temperature unless method specific criteria exist. For samples with a storage temperature of 4°C, storage at a temperature of 0.5°C to 6°C shall be acceptable.

(v) Freezer temperatures shall be less than 0°C.

**(8) Incubators, water baths, and heating blocks.**

(i) An environmental laboratory shall control and monitor the temperature of incubators, water baths, and heating blocks in accordance with the method or as specified by regulations.

(ii) An environmental laboratory shall maintain a minimum of one thermometer per incubator, water bath, or heating block immersed in liquid (except electronic thermometers) to the appropriate immersion line. When used as an incubation unit for microbiology, a minimum of one working thermometer shall be on the top and bottom shelf of the use area in each incubator.

(iii) When used as an incubation unit for microbiology, a water bath shall be equipped with a gable cover and a pump or paddles to circulate the water.

(iv) Calibration-corrected temperatures for each incubator, water bath, or heating block shall be recorded once a day for each day in

use for all laboratory activities. When used as an incubation unit for microbiology, the calibration-corrected temperature shall be recorded at least twice per day in use with the readings separated by at least four hours. The incubator, water bath, or heating block identification, date, time, calibration corrected temperature, and the initials of the responsible individual shall be recorded.

- (9) Except for Class A glassware, mechanical volumetric dispensing devices including burettes, autopipetors, and dilutors, shall be of sufficient sensitivity for the application. Delivery volumes of mechanical volumetric dispensing devices shall be checked using a gravimetric method at least once every three months.
  - (10) When graduation marks on clear glass or plastic funnels or sample bottles are used to measure sample volume, an environmental laboratory shall verify and document the accuracy of the volume of each lot or at least once per year, whichever is more frequent.
  - (11) Visual comparison devices shall be calibrated according to the manufacturer's specifications and/or test methods. An environmental laboratory shall maintain records of such calibrations.
- (g) An environmental laboratory shall maintain records for all reference materials, reagents, and support services utilized by the laboratory for testing or analysis.
- (h) Reference materials and reagents used for environmental testing shall meet the following minimum requirements:
- (1) Analytical reagent grade chemicals or equivalent are acceptable, unless a method specifies other reagent purity grade requirements.
  - (2) Reagent and standard solutions shall be checked regularly for signs of decomposition, evaporation, and expiration. An environmental laboratory shall maintain standard and reagent preparation logs for all stock and working standard solutions in a laboratory notebook. Standards and reagent preparation logs shall contain identification of the compound, concentration, date prepared, initials of the individual preparing the solution, and expiration date.
  - (3) All reagent and standard solution containers shall be labeled with identification of the compound, concentration, date prepared, initials of the individual who prepared the solution, and expiration date.
  - (4) Purchased chemicals, solutions, and standards shall be labeled with date of receipt and the date when the container is opened. Purchased chemicals, solutions, and standards without an expiration

date on the original container shall be discarded after ten years from the date of receipt.

- (5) When reagents are removed from a container, the amount removed shall be used entirely or the unused portion discarded.
- (6) Compressed gases shall be of commercial grade, unless a method specifies other requirements.
- (i) Plastic and Glassware Cleaning – Plastic and glassware shall be cleaned to meet the sensitivity of the test method. Any cleaning and storage procedures that are not specified by the method shall be documented in a laboratory standard operating procedure.

**§ 252.307 Methodology.**

- (a) An environmental laboratory shall follow the requirements for testing or analysis, sample collection, sample preservation, and holding times specified in this section.
- (b) An environmental laboratory shall select an analytical method for a specific test or analysis that meets the following criteria:
  - (1) The method is appropriate for the analyte and sample matrix.
  - (2) The method is required by applicable state or federal regulations, a permit, an order, or is an approved alternate method under subsection (c).
  - (3) The method enables the laboratory to quantitate at required levels.
- (c) Alternate test approval. When a method meeting the requirements of subsection (b) is not available, an environmental laboratory may apply to the Department to use alternate or experimental procedures.
  - (1) The Department will approve the use of alternate methodologies if the US EPA has approved their use. An environmental laboratory shall submit a copy of US EPA's written approval for the use of the alternate method to the Department.
  - (2) The Department may allow alternate methods that use new or innovative technologies on a case-by-case basis.
  - (3) An environmental laboratory shall submit a request for use of new or innovative technology in writing to the Department. The request shall include the reasons for proposing the method and the potential scope of use for the method.

- (4) The Department will establish criteria for validating the method.**
  - (5) Upon receipt of the method validation data that meets the established criteria, the Department will approve or deny the request within 90 days. The evaluation for approval will include consideration of the demonstrated need for the new or innovative technology, reasons for using the method, performance of the method, method validation data, and applicability of the method to the matrix.**
- (d) An environmental laboratory shall develop and maintain written standard operating procedures for all fields of accreditation.**
- (1) The environmental laboratory's standard operating procedures shall accurately reflect all aspects of the testing or analysis for the field(s) of accreditation, including:**
    - (i) Identification of the method,**
    - (ii) Effective date,**
    - (iii) Scope, including applicable matrix or matrices,**
    - (iv) Equipment and supplies,**
    - (v) Reagents and standards,**
    - (vi) Quality control,**
    - (vii) Calibration and standardization,**
    - (viii) Analytical procedure,**
    - (ix) Calculations,**
    - (x) Corrective actions or contingencies for handling out-of-control or unacceptable quality control data, and**
    - (xi) Reporting of results.**
  - (2) The standard operating procedures may consist of copies of published or referenced test methods or standard operating procedures that have been written by the environmental laboratory. Where modifications to the published or referenced method have been made by the laboratory or where the published or referenced method is ambiguous or provides insufficient detail, the changes or clarifications shall be clearly described.**

(e) An environmental laboratory shall make copies of the standard operating procedures, the promulgated method, Department regulations, and Department guidance pertaining to testing or analysis of environmental samples available to the technical staff.

(f) When an environmental laboratory collects a sample to be analyzed, the sample collection method required by applicable state and federal laws, regulations, or permit conditions shall be followed.

(g) An environmental laboratory shall follow the sample container, preservation procedures, and holding times required by state and federal regulations. If the sample container, preservation procedures, and holding times are not required by state or federal regulations, an environmental laboratory shall follow the sample container, sample preservation procedures, and holding time established in the method.

(h) The range of quantitation and detection limit shall be determined for each analyte reported by an environmental laboratory in accordance with a method specified by the Department.

(i) When a method specifies a validation procedure, the validation procedure shall be completed before environmental samples may be analyzed and reported. The results of this validation procedure shall be documented and kept on file for the duration of use of the method and for at least five years after the method is no longer in use.

(j) Initial Demonstration of Capability.

(1) Prior to the use of any method, an initial demonstration of capability is required.

(2) An initial demonstration of capability shall be completed each time there is a change in instrument type, personnel, or method.

(3) An initial demonstration of capability shall include all sample preparation and analytical steps contained in the method.

(4) If the method or state or federal regulations specify a procedure for the initial demonstration of capability, that procedure shall be followed, otherwise, an initial demonstration of capability shall be performed as follows:

(i) The analyte shall be diluted in a volume of clean matrix sufficient to prepare four aliquots at the concentration specified in the method. If the method does not specify a concentration, the concentration shall be approximately ten times the detection limit.

- (ii) At least four aliquots of the quality control sample shall be prepared and analyzed according to the method.
  - (iii) Using all of the results, calculate the mean recovery and the standard deviation of the mean recovery for the population sample in the same units used to report environmental samples. When it is not possible to determine mean and standard deviation, such as for presence – absence and logarithmic values, the environmental laboratory shall assess method performance using criteria from the method or other established and documented criteria.
  - (iv) Compare the information from subsection (iii) to the corresponding acceptance criteria for precision and accuracy in the method. To be considered acceptable, an initial demonstration of capability shall meet all acceptance criteria.
- (5) Where a method has been in use by an environmental laboratory prior to January 1, 2005, and there have been no changes in instrument type, personnel, or method, an initial demonstration of capability is not required. An environmental laboratory shall have records on file to demonstrate that an initial demonstration of capability is not required.
- (6) The laboratory shall retain all data necessary to reproduce the initial demonstration of capability.
- (7) Work Cells.
  - (i) The work cell as a unit shall meet the requirements of this subsection.
  - (ii) When a member of a work cell changes, the new employee shall work with an experienced analyst in the work cell.
  - (iii) When a member of a work cell change, the new work cell shall demonstrate capability by means of acceptable quality control performance checks on four consecutive batches. The acceptable performance shall be documented. If any quality control performance check within the four consecutive batches following the change in personnel fails to meet acceptance criteria, an initial demonstration of capability shall be completed.
  - (iv) If the entire work cell is changed, an initial demonstration of capability shall be completed.

## **Subchapter D. QUALITY ASSURANCE AND QUALITY CONTROL REQUIREMENTS**

### **§ 252.401 Basic Requirements.**

- (a) An environmental laboratory shall develop and maintain a quality manual appropriate to the type, range, and volume of testing and analysis of environmental samples. The quality manual shall be available to and used by environmental laboratory personnel.
- (b) The quality manual shall state the environmental laboratory's policies, operational procedures, protocols, and practices established in order to meet the requirements of this chapter.
- (c) An environmental laboratory shall have a document control system that provides procedures for control and maintenance of all documents. The document control system shall ensure that standard operating procedures, methods, manuals, or documents clearly indicate the time period during which the procedure or document was in force.
- (d) An environmental laboratory shall develop and maintain an ethics policy statement relevant to the employee's duties and responsibilities under the Act. The laboratory shall have procedures for educating and training personnel in their ethical and legal responsibilities under the Act.
- (e) An environmental laboratory shall maintain records of the technical personnel, which shall include dates of employment, signatures, initials, and a list of persons authorized to approve or release reports of testing or analysis of environmental samples.
- (f) An environmental laboratory shall establish procedures for handling environmental samples.
- (g) An environmental laboratory shall have a sample acceptance policy that clearly outlines the circumstances under which environmental samples will be accepted or rejected. The environmental sample acceptance policy shall include the following areas:
  - (1) Sample identification, location, date and time of collection, collector's name, preservation type, and sample type;
  - (2) Sample labeling;
  - (3) Use of appropriate containers and sample preservation method.

- (4) Adherence to holding times specified in the regulation and where not specified by the regulation adherence to the holding times specified by the method;
  - (5) Adequate sample volume. Sufficient sample volume shall be available to perform the necessary testing and analysis, including any required quality control testing or analysis; and
  - (6) Procedures to be used when samples show signs of damage, contamination, or inadequate preservation;
- (h) An environmental laboratory shall document the laboratory management's processes and procedures for permitting departures from the method, quality manual, established policies and procedures, or standard operating procedures.
- (i) An environmental laboratory shall establish procedures for detecting when departures from the method or quality manual have occurred. These procedures shall include the following:
- (1) Identify the individual(s) responsible for assessing each quality control type;
  - (2) Identify the individual(s) responsible for initiating and/or recommending corrective actions;
  - (3) Define how the analyst shall treat the results of testing or analysis of environmental samples if the associated quality control measures fail to meet the requirements of the method;
  - (4) Specify how out-of-control situations and subsequent corrective actions are to be documented; and
  - (5) Specify procedures for the laboratory supervisor to review corrective action reports.
- (j) An environmental laboratory shall develop procedures for reporting results of testing or analysis of environmental samples.
- (k) An environmental laboratory shall implement procedures or practices to monitor the quality of the laboratory's analytical activities. Examples of such procedures or practices are:
- (1) Internal quality control procedures using statistical techniques;
  - (2) Participation in proficiency testing, other interlaboratory comparisons, or round robin testing;

- (3) Analysis of split samples by different laboratories;
- (4) Use of certified reference materials or in-house quality control using secondary reference materials or both;
- (5) Replicate testing using the same or different test methods;
- (6) Retesting of retained samples; and
- (7) Correlation of results for different but related analysis of a sample (for example, total phosphorus should be greater than or equal to orthophosphate).

(l) To the extent possible, results of testing or analysis of environmental samples shall be reported only if all quality control measures are acceptable. If a quality control measure is found to be out of control and the results of the testing or analysis of environmental samples are to be reported, all environmental samples associated with the failed quality control measure shall be documented and the results flagged in an unambiguous manner on the sample analysis report with the appropriate data qualifier(s).

(m) Policies, procedures, protocols, and practices specified in this section shall be in writing and shall be followed.

#### **§ 252.402 Essential Quality Control Requirements – Chemistry.**

(a) In addition to the requirements of § 252.401 (relating to basic requirements), laboratories performing testing or analysis of environmental samples in the area of chemistry shall comply with this section.

(b) Where the method selected by an environmental laboratory in accordance with § 252.307 (relating to methodology) contains more stringent requirements than the requirements of this section, the environmental laboratory shall follow the more stringent requirements contained in the method.

(c) Initial Calibration.

(1) An environmental laboratory shall follow the initial calibration requirements of the method.

(2) The results of testing or analysis of environmental samples shall be determined from an initial calibration and may not be determined from any continuing calibration verification, unless otherwise required by regulation, method, or program.

- (3) The details of the initial calibration procedures including calculations, integrations, acceptance criteria, and associated statistics shall be included or referenced in the laboratory's standard operating procedure.
  - (4) Raw data records shall be retained to permit reconstruction of the initial calibration.
  - (5) All initial calibrations shall be verified with a standard obtained from a second manufacturer or with a standard from the same manufacturer if the verification standard is documented by the manufacturer as prepared independently of the standard used during initial calibration.
  - (6) Results not bracketed by the initial calibration standards shall be reported with appropriate qualifiers.
  - (7) The lowest standard used for initial calibration may not be below the detection limit. The lowest standard must be at or below the lower limit of the range of quantitation.
- (d) Initial Calibration Using Multiple Concentrations of Standards: Except for methods that explicitly allow initial calibration using a single concentration of standard, initial calibration shall be done using multiple concentrations of standards according to the requirements of this subsection.
- (1) Unless otherwise specified in the method, the initial calibration shall meet one of the following criteria:
    - (i) A relative standard deviation of less than 20% for the calculated response factors;
    - (ii) A correlation coefficient ( $r$ ) of 0.99 for a linear calibration curve; or
    - (iii) A correlation coefficient ( $r$ ) of 0.999 for a non-linear calibration curve or as otherwise specified by the Department.
  - (2) If the initial calibration fails to meet established acceptance criteria, corrective action shall be performed and all associated environmental samples must be reanalyzed after an acceptable initial calibration is obtained. If reanalysis of the environmental samples is not possible, a new environmental sample shall be collected.

- (3) If the results of testing or analysis of environmental samples that are below the initial calibration range are reported, the results shall be reported with appropriate data qualifiers.
- (4) If the results of testing or analysis of environmental samples are above the initial calibration range, the environmental sample shall be diluted and reanalyzed or the results reported with appropriate data qualifiers. Sample results within the established calibration range will not require data qualifiers.
- (5) The lowest calibration standard may not be below the detection limit and may not be above the maximum contaminant level.
- (6) If the method does not specify the number of calibration standards, the minimum number of calibration standards, not including blanks or a zero standard, shall be determined as follows:
  - (i) For an initial calibration covering a range up to 20 times the lowest quantitation level, a minimum of three calibration standards shall be used;
  - (ii) For an initial calibration covering a range from greater than 20 times and up to 50 times the lowest quantitation level, a minimum of four calibration standards shall be used;
  - (iii) For an initial calibration covering a range greater than 50 times and up to 100 times the lowest quantitation level, a minimum of five calibration standards shall be used.
- (e) Initial Calibration Using a Single Concentration of Standard: For a method that explicitly allows calibration using a single concentration of a standard, not including a blank or zero concentration standard, the initial calibration shall meet the requirements of this subsection.
  - (1) Prior to the testing or analysis of environmental samples, the linear range of the instrument shall be established by analyzing a series of standards, one of which shall be at the lowest quantitation level.
  - (2) An initial calibration using a single calibration standard and a zero point shall be performed at the beginning of each analysis day.
  - (3) A standard corresponding to the lowest quantitation level must be analyzed with each analytical batch and must meet the acceptance criteria established by the method. Where there are no established criteria in the method, an environmental laboratory shall determine internal criteria and document the procedure used to establish the acceptance limits.

- (4) If the results of testing or analysis of environmental samples that are below the lowest quantitation level verification standard, specified in the previous paragraph, are to be reported, the results shall be reported with appropriate data qualifiers.
- (5) If the results of testing or analysis of environmental samples produce a result above the associated single point standard, the environmental laboratory shall do one of the following:
  - (i) Analyze a standard at or above the sample concentration that meets established acceptance criteria in order to validate linearity;
  - (ii) Dilute the sample such that the result falls below the single point calibration concentration; or
  - (iii) Report the data with an appropriate data qualifier.
- (f) Calibration Verification.
  - (1) A calibration verification standard shall be analyzed at the beginning and end of each analysis day. For methods that use an internal standard, a calibration verification standard is not required at the end of the analysis day unless specified in the method, or State or federal law or regulation.
  - (2) A calibration verification standard shall be analyzed after every ten samples, unless a different frequency is specified in the method.
  - (3) At a minimum, the concentration of the calibration verification standard shall be alternated between a low and a high level.
    - (i) The concentration of the low calibration verification standard shall be within the lower 20% of the calibration curve and not more than five times the lowest quantitation level.
    - (ii) The concentration of the high calibration verification standard shall be within the upper 20% of the calibration curve.
  - (4) Details of the calibration verification procedure including calculations, integrations, acceptance criteria, and associated statistics shall be included or referenced in the laboratory's standard operating procedure.
  - (5) Raw data records shall be retained to permit reconstruction of the calibration verification.
  - (6) Acceptance criteria for calibration verification standards in the method shall be followed. Where there are no established criteria in

the method, an environmental laboratory shall determine internal criteria and document the procedure used to establish the acceptance limits.

- (7) If a calibration verification standard fails the established acceptance criteria, an environmental laboratory shall initiate corrective actions. If the corrective actions fail to produce an immediate consecutive calibration verification standard within the acceptance criteria, a new calibration verification standard shall be prepared. If the freshly prepared calibration verification standard fails to produce a result within the established acceptance criteria, the environmental laboratory shall recalibrate the test or analysis according to the method or subsection (b) and either subsection (c) or subsection (d) of this section.
- (8) To the extent possible, and as provided by Subsection (f)(1), environmental samples not bracketed by acceptable calibration verification standards shall be reanalyzed. If the calibration verification standard is found to be out of control, and the results of the testing or analysis of environmental samples are to be reported, all environmental samples associated with the failed calibration verification standard shall be documented and the results flagged in an unambiguous manner on the sample analysis report with the appropriate data qualifier(s). Sample results associated with an unacceptable calibration verification may be useable under the following conditions:
  - (i) When the acceptance criteria for the calibration verification are exceeded high and associated sample results are below the lowest level of quantitation for the analyte of interest.
  - (ii) When the acceptance criteria for the calibration verification are exceeded low and associated sample results are above the maximum regulatory limit for the analyte of interest.
- (g) **Method Blank.**
  - (1) A method blank shall be processed along with and under the same conditions as the associated environmental samples including all steps of the analytical procedure.
  - (2) A method blank shall be analyzed at a minimum of one per preparation batch. Where no separate preparation method is used (example: volatiles in water) the batch shall be defined as no more than 20 environmental samples that are analyzed together using the same method, personnel, and lots of reagents.

- (3) A method blank shall consist of a matrix that is similar to the associated environmental samples and is free of the analytes of interest. When a matrix that is similar to the associated environmental samples that is free of the analytes of interest is not available, reagent water or an artificial or simulated matrix may be used.
- (4) A method blank is considered contaminated if either:

  - (i) The concentration of a target analyte in the method blank is at or above the reporting limit established by the method, by the laboratory, or by regulation.
  - (ii) The contamination in the method blank otherwise affects the environmental sample results as described in the method or in individual project data quality objectives.
- (5) If a contaminant is detected in the method blank the source of contamination shall be investigated and measures shall be taken to minimize or eliminate the problem.
- (6) To the extent possible, any environmental samples associated with a contaminated method blank shall be reprocessed for analysis. If a contaminated method blank is found to be out of control, and the results of the testing or analysis of environmental samples are to be reported, all environmental samples associated with the contaminated method blank shall be documented and the results flagged in an unambiguous manner on the sample analysis report with the appropriate data qualifier(s).
- (h) Laboratory Control Sample.

  - (1) A laboratory control sample shall be processed along with and under the same conditions as the associated environmental samples, including all steps of the preparation and analytical procedure.
  - (2) The laboratory control sample shall consist of a defined matrix containing known and verified concentrations of analytes. The Department will allow the use of an artificial or simulated matrix when a defined matrix is not commercially available.
  - (3) An environmental laboratory shall analyze a laboratory control sample at a minimum of one per preparation batch. Where no separate preparation method is used, for example volatiles in water, the batch shall be defined as no more than 20 environmental samples that are analyzed together with the same method, personnel, and lots of reagents.

- (4) All analyte concentrations in the laboratory control sample shall be within the calibration range of the method and at or below the maximum contaminant level.
- (5) The components to be spiked into the laboratory control sample shall be as specified by the method or other regulatory requirement. In the absence of specified components the environmental laboratory shall use the following:
  - (i) For those components that interfere with an accurate assessment, such as spiking simultaneously with technical chlordane, toxaphene, and PCBs, the laboratory control sample shall represent the chemistries and elution patterns of the components to be reported.
  - (ii) For methods with more than ten analytes, a representative number may be chosen. The analytes selected shall be representative of all chemistries and analytes reported and shall be chosen using the following criteria:
    - (A) All targeted components shall be included in the laboratory control sample over a two-year period.
    - (B) For methods that include 1-10 components, the laboratory control sample shall contain all components;
    - (C) For methods that include 11-20 components, the laboratory control sample shall contain at least ten components or 80%, whichever is greater;
    - (D) For methods with more than 20 components, the laboratory control samples shall contain at least 16 components.
- (6) Evaluation Criteria and Corrective Action: Each individual laboratory control sample shall be compared to the acceptance criteria in the method. Where there are no established criteria in the method, an environmental laboratory shall determine internal criteria and document the procedure used to establish the limits.
- (7) Environmental samples associated with an out of control laboratory control sample shall be reprocessed and reanalyzed from the beginning of the method or the results reported with the appropriate data qualifiers.
  - (i) Sample Duplicate.

- (1) A sample duplicate or matrix spike duplicate shall be analyzed at a minimum of one per preparation batch. Where no separate preparation method is used, for example volatiles in water, the batch shall be defined as no more than 20 environmental samples that are analyzed together using the same method, personnel, and lots of reagents.
- (2) An environmental laboratory shall document the calculations used for determining the relative percent difference or other statistical method for evaluation of the duplicate pairs.
- (3) Each duplicate relative percent difference shall be compared to the acceptance criteria in the method. Where there are no established criteria in the method, an environmental laboratory shall determine internal criteria and document the procedure used to establish the acceptance limits.
- (4) For duplicate results outside established criteria, corrective action shall be documented and the data reported with appropriate data qualifiers.

**(j) Surrogate Spike.**

- (1) Surrogate compounds, where commercially available, shall be added to all samples, standards, and blanks for all organic chromatography test methods.
- (2) Surrogate compounds shall be chosen to represent the various chemistries of the target analytes in the method.
- (3) The results of the surrogate spike shall be compared to the acceptance criteria published in the method. Where there are no established acceptance criteria for surrogate recovery in the method, the environmental laboratory shall establish internal criteria and document the method used to establish the acceptance limits.
- (4) For surrogate spike results outside established criteria, corrective action shall be documented and the data reported with appropriate data qualifiers.

**(k) Detection Limit.**

- (1) A detection limit shall be determined by the protocol in the method or regulation. If the protocol for determining detection limits is not specified in the method or regulation, the environmental laboratory shall select a procedure that reflects instrument limitations and the intended application of the method.

- (2) A detection limit study is not required for any component for which spiking solutions or quality control samples are not available, such as temperature. A detection limit study is not required for testing or analysis where the results are logarithmic, such as pH, or where the results are expressed as presence or absence.
  - (3) A detection limit shall be initially determined for the compounds of interest in each method in a matrix in which neither the target analyte nor interferences are at a concentration that would impact the results. The detection limit shall be determined in the matrix of interest.
  - (4) A detection limit shall be determined each time there is a change in the method that affects how the test is performed or that affects the sensitivity of the analysis.
  - (5) All sample processing steps of the method shall be included in the determination of the detection limit.
  - (6) All supporting data shall be retained to permit reconstruction of the detection limit study.
  - (7) An environmental laboratory shall have an established procedure to relate detection limits with quantitation limits.
  - (8) The method's lower limit of quantitation shall be established and shall be above the detection limit.
- (l) Selectivity
- (1) When retention times are used for the identification of an analyte, an environmental laboratory shall develop and document acceptance criteria for retention time windows.
  - (2) The laboratory shall document acceptance criteria for mass spectral tuning.

**§ 252.403 Essential Quality Control Requirements – Toxicity Testing.**

- (a) In addition to the requirements of § 252.401 (relating to basic requirements), an environmental laboratory that measures the toxicity or bioaccumulation of contaminants, including testing of effluents, receiving waters, sediments, elutriates, leachates, and soils shall comply with this section.

- (b) Where the method selected by an environmental laboratory in accordance with § 252.307 (relating to methodology) contains more stringent requirements than the requirements of this section, the environmental laboratory shall follow the more stringent requirements contained in the method.
- (c) An environmental laboratory that measures toxicity or bioaccumulation of contaminants shall comply with guidance issued by the Department regarding counting of neonates, algae cells, and weighing of fish for selected endpoints.
- (d) **Negative Control.**
- (1) In addition to the negative controls specified by the method, permit, or regulation, additional negative controls shall be included when sample adjustments (for example pH adjustments or dechlorination) or solvent carriers are used in the test.
  - (2) The results of the negative controls shall be compared to the acceptance criteria published in the method. Where there are no established acceptance criteria for the negative control in the method, the environmental laboratory shall establish internal criteria and document the method used to establish the acceptance limits.
  - (3) The test acceptability criteria for negative controls as specified in the method must be achieved for both the reference toxicant and the environmental sample toxicity test.
- (e) **Positive Controls – Reference Toxicants.**
- (1) The environmental laboratory shall demonstrate the ability to obtain consistent results with reference toxicants before performing toxicity tests on environmental samples.
    - (i) Intra-laboratory precision shall be determined by performing a minimum of five acceptable reference toxicant tests for each method and species using different batches of organisms and negative controls (water, sediment, or soil) before performing testing or analysis on environmental samples.
    - (ii) An environmental laboratory shall maintain control charts for the control performance and reference toxicant statistical endpoint (such as NOEC or ECp) and shall evaluate the intra-laboratory variability with a specific reference toxicant for each method.
    - (iii) The results of the toxicant test shall be compared to the acceptance criteria published in the method. Where there are no established acceptance criteria for the toxicant test in the method,

the environmental laboratory shall establish internal criteria and document the method used to establish the acceptance limits.

(2) The following minimum frequency of reference toxicant testing shall be met:

(i) Each batch of test organisms obtained from an outside source, field collection, or from laboratory spawning of field-collected species not amenable to routine laboratory culture shall be evaluated with a reference toxicant test of the same type as the environmental toxicity test within seven days preceding the test or concurrently with the test.

(ii) Test organisms obtained from in-house laboratory cultures shall be tested with reference toxicant tests at least once each month for each method.

(iii) If a species produced by in-house laboratory cultures is used less than once per month, a reference toxicant test of the same type shall be performed with each environmental toxicity test.

(iv) Where methods and species commonly used in the laboratory are only tested on a seasonal basis, reference toxicant tests shall be conducted each month the method is in use.

(3) Ongoing environmental laboratory performance shall be documented by maintaining laboratory quality control charts that meet the following requirements:

(i) For endpoints that are point estimates (IC<sub>p</sub>, EC<sub>p</sub>), control charts shall be constructed by plotting the cumulative geometric mean and the limits that consist of the upper and lower 95% confidence limits ( $\pm 2$  standard deviations).

(ii) For endpoints from hypothesis tests (NOEC, NOAEC), control charts shall be constructed by plotting the values directly and the control limits shall consist of one concentration interval above and below the concentration representing central tendency or the mode.

(iii) After 20 data points are collected for a method and species, the control charts shall be maintained by using only the most recent 20 data points.

(iv) Test results that fall outside of control chart limits at a frequency of 5% or less shall be retested and confirmed before reporting and all results shall be documented in the report of the testing and analysis.

- (v) The endpoint shall be compared to the acceptance criteria published in the method.
  - (vi) Where there are no established acceptance criteria for the endpoint in the method, the environmental laboratory shall establish internal criteria and document the method used to establish the acceptance limits.
  - (vii) If the reference toxicant fails to meet acceptance criteria, the results of environmental toxicity tests conducted during the affected period shall be examined for defects and the test repeated using a different batch of organisms or the results shall be reported with appropriate data qualifiers.
- (4) All reference toxicant tests conducted for a method and species shall use the same reference toxicant, test concentrations, dilution water, and data analysis method as the environmental toxicity tests for which the precision is being evaluated unless otherwise specified in the method.
  - (5) The test duration, dilution or control water, feeding, organism age, age range and density, test volumes, renewal frequency, water quality measurements, number of test concentrations, replicates, and organisms per replicate shall be the same as the environmental toxicity test. A dilution factor of greater than 0.5 shall be used for both acute and chronic tests.
- (f) Sensitivity.
- (1) If the Dunnett's procedure or hypothesis test (NOEC, NOAEC) is used, the statistical minimum significant difference (SMSD) by species shall be calculated according to the formula specified by the method and reported with the test results. The SMSD shall be estimated for non-normal distribution and/or heterogeneous variances.
  - (2) Confidence intervals for point estimates (LCp, ICp, or ECp) shall be reported as a measure of the precision around the point estimate value.
- (g) Dose Response Curves – When required, the data shall be plotted in the form of a curve relating the dose of the chemical or concentration of sample to cumulative percentage of test organisms demonstrating a response, such as death.
- (h) At least once every 30 days, an environmental laboratory shall verify and document that the reagent grade water meets the following criteria:

- (1) Conductivity must be less than 0.1  $\mu\text{mhos/cm}$  or resistance greater than 17 megohms at 25°C.
  - (2) pH must be between 5.5 to 7.5
  - (3) Total residual chlorine must be non-detectable.
- (i) Reagent water used for culturing and testing shall be analyzed for toxic metals and organics whenever the minimum acceptability criteria for control survival, growth, or reproduction are not met and no other cause can be identified.
  - (j) An environmental laboratory shall demonstrate that any analyte at a measured concentration or the reported detection limit does not exceed one tenth the expected chronic value for the most sensitive species tested or cultured.
  - (k) Air used for aeration of test solutions, dilution waters, and cultures shall be free of oil and fumes.
- (l) Test Organisms.
    - (1) An environmental laboratory shall positively identify test organisms to species on an annual basis. The taxonomic reference (citation and page(s)) and the name(s) of the taxonomic expert(s) shall be documented. When organisms are obtained from an outside source, an environmental laboratory shall obtain the information from the supplier.
      - (i) All organisms used for a test shall be from the same source. Where available, certified seeds shall be used for soil tests.
      - (ii) All organisms used in tests or as brood stock to produce neonate test organisms shall appear healthy, show no signs of stress or disease, and exhibit survival of greater than 90% during the 24-hour period immediately preceding use in tests.
      - (iii) An environmental laboratory shall document the health and culturing conditions of all organisms used for testing. The documentation shall include culture conditions and observations of any stress, disease, or mortality.
      - (iv) When organisms are obtained from an outside source, the laboratory shall obtain written documentation of the water quality parameters and biological observations for each lot of organisms received.

- (v) An environmental laboratory shall record the water quality parameters and the biological observations when the organisms arrive at the environmental laboratory.
- (vi) Supporting information such as hatch dates and times, times of brood releases, and metrics (for example, chironomid head capsule width) shall be documented.
- (vii) Organisms obtained from an outside source may not be from different batches.
- (viii) The control population of Ceriodaphnia in chronic effluent or receiving water tests may not contain more than 10% males.
- (ix) Test soils and sediments shall be within the geochemical tolerance range of the test organism.

**(2) Feeding of Test Organisms.**

- (i) For each new batch of laboratory-prepared food or lot of commercial food used by the environmental laboratory, the performance of organisms fed with the new food shall be compared with the performance of organisms fed with a food of known quality. The suitability of food used for culturing shall be determined using a measure that evaluates the effect of food quality on survival and growth or reproduction of each of the relevant test species.
- (ii) Foods used only in chronic toxicity tests shall be evaluated using the reference toxicant employed in the environmental laboratory quality assurance program, and shall be compared with results of previous tests using a food of known quality.
- (iii) In the case of algae, rotifers, or other cultured foods, which are collected as a continuous batch, the quality of the food shall be assessed as described in subsections (k)(2)(i) and (k)(2)(ii) each time new nutrient stocks are prepared, a new starter culture is employed, or when a significant change in culture conditions occurs.
- (iv) The environmental laboratory shall have written procedures for the statistical evaluation of food acceptability.
- (v) Food used to culture organisms used in bioaccumulation tests shall be analyzed for the compounds to be measured in the bioaccumulation tests.

**(m) Equipment.**

- (1) If closed refrigerator-sized incubators are used, culturing and testing of organisms shall be separated to avoid loss of cultures due to cross-contamination.
  - (2) Temperature control equipment shall be adequate to maintain the required test temperature. The average daily temperature of the test solutions shall be maintained within 1°C of the selected test temperature for the duration of the test. Temperature measurements shall be made at least once per 24-hour period. The test temperature for continuous-flow toxicity tests shall be monitored and recorded continuously.
  - (3) All test chambers used in a test shall be identical.
  - (4) Materials used for test chambers and any material coming in contact with test samples, solutions, control water, sediment, soil, or food shall be non-toxic and cleaned according to the method. Materials may not add to nor reduce sample toxicity.
  - (5) Light intensity shall be maintained as specified in the method. Measurements shall be made and recorded at least once per 12 months.
  - (6) The photoperiod shall be maintained as specified in the method and shall be documented at least once every 90 days.
  - (7) For algal and plant tests, the light intensity shall be measured and recorded at the start of each test.
- (n) Sample Holding Times and Conditions.
- (1) The sample holding time shall not exceed 36 hours.
  - (2) The last use of the sample in renewal tests shall not exceed 72 hours unless specifically approved by the Department.
  - (3) Samples shall be chilled to 4°C during or immediately after collection and held at that temperature until time of analysis.
- (o) Chronic tests shall have a minimum of four replicates per treatment.
- (p) Testing Conditions.
- (1) Dissolved oxygen and pH in aquatic tests shall be within acceptable ranges published in the method. Where there are no established acceptance criteria in the method, the environmental laboratory shall establish internal criteria and document the method used to establish the acceptance limits.

- (2) During aquatic chronic testing, dissolved oxygen and pH shall be measured daily in at least one replicate of each concentration.
- (3) In static-renewal tests, dissolved oxygen shall be measured at both the beginning and end of each 24-hour exposure period.
- (4) The pH shall be measured at the end of each exposure period after organism transfer.
- (5) Minimal aeration may be provided to tests only if acceptable dissolved oxygen concentrations cannot be otherwise maintained or if specified by the method.

**§ 252.404 Essential Quality Control Requirement – Microbiology.**

(a) In addition to the requirements of § 252.401 (relating to basic requirements), environmental laboratories performing testing or analysis in the area of microbiology shall comply with this section.

(b) Where the method selected by an environmental laboratory in accordance with § 252.307 (relating to methodology) contains more stringent requirements than the requirements of this section, the environmental laboratory shall follow the more stringent requirements contained in the method.

(c) The following pieces of equipment shall be maintained according to this subsection.

- (1) Autoclave.
  - (i) An environmental laboratory shall use autoclaves that meet specified temperature tolerances of the method. Pressure cookers may not be used.
  - (ii) Prior to first use, an environmental laboratory shall evaluate and document the performance of an autoclave by establishing its functional properties and performance (for example, heat distribution characteristics with respect to typical uses.)
  - (iii) A continuous temperature-recording device or a maximum-temperature-registering thermometer shall be used during each autoclave cycle.
  - (iv) An environmental laboratory shall verify the sterilization capability of each autoclave by utilizing appropriate

biological indicators (for example, spore strips or ampoules) once a month. Records of biological indicator tests shall be maintained in a laboratory notebook and include the autoclave identification, date, incubation time and temperature, results, and initials of the responsible individual.

- (v) An environmental laboratory shall verify the mechanical timing device, if used, for each autoclave every three months. Records of mechanical timer verification shall be maintained in a laboratory notebook and include the autoclave identification, date, mechanical timing device time, actual time, and initials of the responsible individual. Correction factors shall be documented and used.
- (vi) Autoclaves shall be properly cleaned and maintained. A qualified person shall service autoclaves at least once per year. Servicing shall include a pressure check and calibration of temperature devices. Records of annual service shall be maintained and the service date shall be recorded on the autoclave.
- (vii) Required times for autoclaving items at 121°C are listed below. Items listed below must be at temperature for the required amount of time. Except for membrane filters and pads and carbohydrate-containing media, indicated times are minimum times and may necessitate adjustment depending upon volumes, containers, and loads. For autoclave runs that include membrane filters and pads and media, the total cycle time may not exceed 45 minutes. Autoclaved membrane filters and pads and media must be removed immediately after completion of the autoclave cycle.

(A). Membrane filters & pads	10 minutes
(B). Carbohydrate-containing media	12-15 minutes
(C). Contaminated test materials	30 minutes
(D). Membrane filtration units	15 minutes
(E). Sample containers	15 minutes
(F). Individual glassware	15 minutes

- (G). Dilution water 15 minutes
- (H). Rinse water 15-30 minutes

- (viii) Records of each autoclave run shall be maintained in a laboratory notebook and include the date, contents, sterilization time and temperature, total cycle time (recorded as time in and time out), and initials of the responsible individual.
- (ix) If an autoclave cycle fails to meet any requirement, corrective action shall be documented. Media may not be re-autoclaved.

**(2) Hot Air Oven.**

- (i) Prior to first use, an environmental laboratory shall evaluate the performance of each hot air oven by establishing its functional properties and performance (for example, heat distribution characteristics with respect to typical uses).
- (ii) An environmental laboratory shall maintain a thermometer, graduated in 10°C increments or less with the bulb placed in sand, in each hot air oven.
- (iii) An environmental laboratory shall verify the sterilization capability of each hot air oven by utilizing appropriate biological indicators (for example, spore strips) once a month. Records of biological indicator tests shall be maintained in a laboratory notebook and include the hot air oven identification, date, incubation time and temperature, results, and initials of the responsible individual.
- (iv) An environmental laboratory shall sterilize items in a hot air oven maintaining a temperature of 170-180°C for a minimum of two hours. Only dry items may be sterilized in a hot air oven.
- (v) Records of each hot air oven operation shall be maintained and include the date, contents, sterilization time and temperature, and initials of the responsible individual.

**(3) Optical Counting Equipment.**

- (i) An environmental laboratory shall use appropriate optical counting equipment to view and enumerate colonies.
  - (ii) A dark field colony counter shall be used to count heterotrophic plate count colonies.
  - (iii) A 10X to 15X stereomicroscope with a fluorescent light source shall be used to count sheen colonies.
- (4) Inoculating Equipment.
- (i) An environmental laboratory shall use appropriate sterile inoculating equipment.
  - (ii) Metal loops and needles must be made of nickel alloy or platinum.
  - (iii) Wooden applicator sticks must be sterilized using dry heat.
  - (iv) For oxidase tests, nickel alloy loops may not be used.
- (5) Membrane Filtration Equipment.
- (i) Membrane filtration funnels must be stainless steel, glass, or autoclaveable plastic. Membrane filtration funnels must not be scratched or corroded and must not leak.
  - (ii) Membrane filtration units must be autoclaved before the beginning of a filtration series. A filtration series ends when 30 minutes or longer elapses after a sample is filtered.
  - (iii) Forceps shall be blunt and smooth-tipped without corrugations on the inner sides of tips.
  - (iv) Membrane filters shall meet the following requirements:
    - (A). Membrane filters must be made of cellulose ester, white, grid marked, 47 mm diameter, and 0.45- $\mu$ m pore size unless otherwise specified by the method.
    - (B). Membrane filters shall be either purchased presterilized or autoclaved for ten minutes at

121°C before use. Membrane filters may not be brittle or distorted.

- (C). Membrane filters must be approved (based upon manufacturer data from tests for toxicity, recovery, retention, and absence of growth-promoting substances) for the specified analysis for which they are to be used.
  - (v) Records of membrane filters shall be maintained and include the type, lot number, date received and date opened. The manufacturer's specification/certification sheet must be retained for each lot of membrane filters.
  - (vi) An environmental laboratory using an ultraviolet sanitation lamp to sanitize filtration funnels between successive filtrations shall test the ultraviolet sanitation lamp every three months for effectiveness with an appropriate UV light meter or by plate count agar spread plates. Records of ultraviolet lamp tests shall be maintained and bulbs must be replaced if output is less than 70% of original for light tests or if count reduction is less than 99% for a plate containing 200 to 300 organisms.
- (6) Culture Dishes.
- (i) Culture Dishes must be presterilized plastic or sterilizable glass and of appropriate size for the method.
  - (ii) Stainless steel canisters, aluminum canisters, or a wrap of heavy aluminum foil or char-resistant paper, shall be used for autoclave sterilization of glass culture dishes.
  - (iii) Loose-lid culture dishes must be incubated in a tight fitting container containing a moistened paper towel.
  - (iv) Opened packs of disposable culture dishes must be resealed between use periods.
- (7) Culture Tubes and Closures: Culture tubes and containers must be of sufficient size to contain medium and sample without being more than three quarters full. Tube closures must be stainless steel, aluminum, plastic, or a screw cap with a non-toxic liner.

- (8) Pipettes.**
- (i) Pipettes must have legible markings and must not be chipped or etched.**
  - (ii) Stainless steel canisters, aluminum canisters, or a wrap of heavy aluminum foil or char-resistant paper shall be used for autoclave sterilization of pipettes.**
  - (iii) Opened packs of disposable sterile pipettes must be resealed between use periods.**
- (9) Sample Containers.**
- (i) Sample containers must be sterile plastic bags or wide-mouth plastic or non-corrosive glass bottles with non-leaking ground glass stoppers or caps with non-toxic liners that can withstand repeated sterilization. Sample containers must be capable of holding sufficient volume of sample for all required tests while maintaining adequate air space for mixing.**
  - (ii) Glass stoppers must be covered with aluminum foil or char-resistant paper for sterilization.**
  - (iii) Glass and plastic bottles that have not been presterilized must be sterilized by autoclaving. Glass bottles may be sterilized by dry heat. Empty containers must be moistened with several drops of water prior to autoclaving.**
- (10) Plastic and glassware washing procedure:**
- (i) Prior to the initial use of a lot of detergent or washing procedure, an environmental laboratory shall perform an Inhibitory Residue Test utilizing the method described in the currently approved editions of Standard Methods for the Examination of Water and Wastewater (available from American Public Health Association, 1015 Fifteenth Street NW, Washington, D.C. 20005). Records of inhibitory residue tests shall be maintained and include the detergent identification, date, calculations, results, and initials of responsible individual.**
  - (ii) Washed plastic and glassware shall be tested at least once each month for possible acid or alkaline residue by testing at least one piece of plastic and glassware**

with a suitable pH indicator such as 0.04% bromothymol blue. Records of pH tests shall be maintained.

(11) **Ultraviolet Lamp:** An environmental laboratory shall use a 365-nm, 6-watt ultraviolet lamp in a darkened room to view sample fluorescence.

(12) **Quanti-Tray Sealer.**

(i) An environmental laboratory shall perform a sealer check on each Quanti-Tray Sealer once a month by adding a dye to a water sample and performing the sealing procedure.

(ii) Records of the sealer check shall be maintained and include the sealer identification, date, results, and initials of responsible individual. If dye is observed outside the wells, the Quanti-Tray Sealer may not be used.

(d) **Reagent Water.**

(1) An environmental laboratory shall use reagent water in the preparation of media, solutions, and buffers.

(2) An environmental laboratory shall demonstrate that reagent water meets the following criteria on a monthly basis or whenever maintenance is performed on the water treatment system or at startup after a period of nonuse longer than one month:

(i) Total chlorine residual must be less than 0.1 mg/L.

(ii) Conductivity must be less than 2.0  $\mu\text{mhos/cm}$  or resistance greater than 0.5 megohms at 25°C.

(iii) Heterotrophic plate count must be less than 500 CFU/mL.

(3) An environmental laboratory shall demonstrate that reagent water meets the following criteria every 12 months:

(i) The individual concentration of lead, cadmium, chromium, copper, nickel, and zinc shall be less than 0.05 mg/L.

- (ii) The total concentration of lead, cadmium, chromium, copper, nickel, and zinc shall be less than 0.1 mg/L.
    - (iii) Except as provided in subsection c(6), the Bacteriological Water Quality Test ratio shall be between 0.8 and 3.0. The Bacteriological Water Quality Test shall be performed according to the currently approved editions of Standard Methods for the Examination of Water and Wastewater (available from American Public Health Association, 1015 Fifteenth Street NW, Washington, D.C. 20005.)
  - (4) The monthly and annual reagent water analyses may only be performed by an environmental laboratory accredited under this chapter for the field of accreditation that includes the analyte.
  - (5) Results of the monthly and annual reagent water analysis shall be maintained and include the date, type of test, results, and initials of responsible individual. Reagent water that does not meet the required criteria may not be used.
  - (6) The Bacteriological Water Quality Test need not be performed if the environmental laboratory can supply documentation to show that their laboratory pure water or reagent water meets the criteria, as specified in the currently approved editions of Standard Methods for the Examination of Water and Wastewater (available from American Public Health Association, 1015 Fifteenth Street NW, Washington, D.C. 20005), for Type I or Type II reagent water.
- (e) Dilution/Rinse Water.
- (1) Stock buffer solution or peptone water shall be prepared, as specified in the currently approved editions of Standard Methods for the Examination of Water and Wastewater (available from American Public Health Association, 1015 Fifteenth Street NW, Washington, D.C. 20005.)
  - (2) Stock buffers must be autoclaved or filter-sterilized. Stock buffer containers shall be labeled and dated. Stock buffers must be refrigerated. Stored stock buffers must be free from turbidity.
  - (3) Dilution/rinse water solutions shall be prepared, as specified in the currently approved editions of Standard Methods for the Examination of Water and Wastewater (available from

American Public Health Association, 1015 Fifteenth Street NW, Washington, D.C. 20005).

- (4) Records of stock buffers and dilution/rinse water preparation shall be maintained and include the date prepared, lot number or laboratory identification of solutions used, amounts measured, final pH, and initials of the responsible individual.

(f) **Media.**

- (1) An environmental laboratory shall use dehydrated or commercially manufactured prepared media. Dehydrated media shall be stored in a cool, dry location. Caked or discolored dehydrated media must be discarded.
- (2) An environmental laboratory that uses commercially prepared media shall maintain records on each lot received that includes the date received, type of media, lot number, and pH verification. Media may not be used after the manufacturer's expiration date.
- (3) An environmental laboratory that prepares media from dehydrated stock must follow method specifications and maintain records of each batch that includes the date of preparation, type of media, lot number, amounts measured, sterilization time and temperature, final pH, and initials of the responsible individual.
- (4) Media may not be re-autoclaved.
- (5) After sterilization, prepared media shall be stored and maintained as follows:
  - (i) Stored away from sources of direct light.
  - (ii) Prepared plates shall be stored in sealed plastic bags or containers.
  - (iii) Each bag, container, or rack of broth or agar media shall be labeled with the date prepared or expiration date.
  - (iv) Liquid media stored in a refrigerator shall be incubated overnight at room temperature before use. Media that shows growth or bubbles may not be used.
  - (v) Prepared liquid media shall be discarded if evaporation exceeds 10% of the original volume.

- (vi) **Poured agar plates and broth in tubes, bottles, or flasks with loose-fitting closures must be discarded if not used within two weeks of sterilization unless otherwise specified by the method.**
- (vii) **Broth in tightly closed screw-cap tubes, bottles, or flasks must be discarded if not used within three months of sterilization unless otherwise specified by the method.**

**(g) Sterility Checks and Blanks: An environmental laboratory shall demonstrate that the filtration equipment and filters, sample containers, media, and reagents have not been contaminated through improper handling or preparation, inadequate sterilization, or environmental exposure as follows:**

- (1) **A sterility blank shall be analyzed for each lot of pre-prepared, ready-to-use medium and for each batch of medium prepared in the laboratory prior to first use of the medium. Records shall be maintained and include media identification, date, results, and initials of responsible individual. If sterility blank indicates contamination, the media may not be used.**
- (2) **For each membrane filtration unit used during a filtration series, the laboratory shall prepare at least one sterility blank at the beginning, after every ten samples, and at the end of the series and record the results. If the membrane filtration unit sterility blank indicates contamination, all data from affected samples must be invalidated and an immediate resampling requested. When a filtration series is interrupted for more than 30 minutes, the filtration funnels shall be re-sterilized.**
- (3) **For pour plate technique, sterility blanks of the medium shall be made by pouring at least one uninoculated plate for each lot of pre-prepared, ready-to-use media and for each batch of medium prepared in the laboratory. Results shall be recorded. If the sterility check indicates contamination, all data from affected samples must be invalidated.**
- (4) **Sterility checks on sample containers shall be performed on at least one container for each lot of purchased, pre-sterilized containers with an appropriate non-selective growth media. For containers prepared and sterilized in the laboratory, a sterility check shall be performed on one container per sterilized batch with an appropriate non-selective growth media. Results shall be maintained and include sample**

container identification, date, results, and initials of responsible individual. If sample container sterility check indicates contamination, the affected sample container may not be used.

- (5) A sterility blank shall be performed on each batch of dilution/rinse water prepared in the laboratory and on each batch of pre-prepared, ready-to-use dilution water with an appropriate non-selective growth media. The concentration of media shall be single strength after addition of dilution water. Results shall be maintained and include dilution/rinse water identification, date, results, and initials of the responsible individual. If dilution/rinse water sterility check indicates contamination, the affected dilution water may not be used.
- (6) At least one filter from each new lot of membrane filters shall be checked for sterility with an appropriate non-selective growth media. Results shall be maintained and include membrane filter identification, date, results, and initials of the responsible individual. If the membrane filter sterility check indicates contamination, the affected membrane filters may not be used.

(h) **Positive and Negative Culture Control Checks.**

- (1) Each pre-prepared, ready-to-use lot of medium and each batch of medium prepared in the laboratory shall be tested with at least one pure culture of a known positive reaction prior to first use of the medium. Records shall be maintained and include the date, media lot or batch number, type of media, positive culture control organism identification, results, and initials of responsible individual. If positive culture control checks do not meet expected results, the affected media may not be used.
- (2) Each pre-prepared, ready-to-use lot of selective medium and each batch of selective medium prepared in the laboratory shall be tested with at least one pure culture of a known negative reaction prior to first use of the medium. Records shall be maintained and include the date, media lot or batch number, type of media, negative culture control organism identification, results, and initials of the responsible individual. If negative culture control checks do not meet expected results, the affected media may not be used.
- (3) An environmental laboratory shall use stock positive and negative culture controls that are known and traceable to a

recognized national collection. Documentation of traceability shall be maintained.

- (4) Stock positive and negative culture controls shall be discarded upon the manufacturer's expiration date unless it is shown through appropriate biochemical and purity tests that the stock culture control has not been contaminated or altered.

(i) **Test Variability/Reproducibility**

- (1) For test methods that specify colony counts, duplicate counts shall be performed monthly on one positive sample for each month that the test is performed. If the laboratory has two or more analysts, each analyst shall count typical colonies on the same plate. Counts may not differ by more than 10%. In an environmental laboratory with only one analyst, the analyst shall count the same plate twice. Counts may not differ by more than 5%.
- (2) If the protocol for a method does not require a positive culture control during sample analysis, the environmental laboratory shall analyze a positive culture control organism through the entire method on a monthly basis.
- (3) If the method determines organism density, a control sample shall be prepared from stock culture to contain 20 to 80 viable organisms per the usual volume analyzed. The positive control shall then be processed through all steps of the method and the density of the positive control determined and recorded.
- (4) If the environmental laboratory is using a method for detecting as opposed to counting organisms, a control sample may be inoculated by transferring a portion of the sample from a positive stock culture to 100-mL of reagent or dilution water.

**§ 252.405 Essential Quality Control Requirement – Radiochemistry.**

(a) In addition to the requirements of § 252.401 (relating to basic requirements), laboratories performing testing or analysis of environmental samples in the area of radiochemistry shall comply with this section.

(b) Where the method selected by an environmental laboratory in accordance with § 252.307 (relating to methodology) contains more stringent requirements than the requirements of this section, the

environmental laboratory shall follow the more stringent requirements contained in the method.

**(c) Initial Calibration.**

- (1) An environmental laboratory shall follow the initial calibration requirements of the method or regulation.**
- (2) Initial calibrations shall be performed using calibration standards that have the same general characteristics as the associated environmental samples, for example geometry, homogeneity, and density.**
- (3) The initial calibration shall include, where applicable, determination of instrument background, efficiency, mass attenuation, and energy calibration.**
- (4) The results of testing or analysis of environmental samples shall be determined from an initial calibration that is not more than 12 months old and may not be determined from any continuing calibration verification, unless otherwise required by regulation, method, or program.**
- (5) The details of the initial calibration procedures including calculations, integrations, acceptance criteria, and associated statistics shall be included or referenced in the laboratory's standard operating procedures.**
- (6) Raw data records shall be retained to permit reconstruction of the initial calibration.**

**(d) Instrument Suitability Verification.**

- (1) An instrument suitability verification standard shall be analyzed at the beginning of each analysis day, unless a higher frequency is required in the method or regulation.**
- (2) The instrument suitability verification standard shall be a check source that provides adequate counting statistics for a relatively short count time and is sealed or encapsulated to prevent loss of activity and contamination of the instrument and laboratory personnel.**
- (3) For alpha and gamma spectroscopy systems, the instrument suitability verification standard shall include determination of instrument counting efficiency, energy calibration, and peak resolution.**

- (4) For gas-proportional and liquid scintillation counters, the instrument suitability verification standard shall include determination of instrument counting efficiency.
  - (5) For scintillation counters, the instrument suitability verification standard shall include determination of instrument counting efficiency.
  - (6) Details of the instrument suitability verification procedure including calculations, integrations, acceptance criteria, and associated statistics shall be included or referenced in the laboratory's standard operating procedures.
  - (7) Raw data records shall be retained to permit reconstruction of the instrument suitability verification.
  - (8) Acceptance criteria for instrument suitability verification standards in the method or regulation shall be followed. Where there are no established criteria in the method, an environmental laboratory shall determine internal criteria and document the procedure used to establish the criteria.
  - (9) If an instrument suitability verification standard fails the acceptance criteria, an environmental laboratory shall initiate corrective actions.
  - (10) Environmental samples not bracketed by acceptable instrument suitability verification standards shall be reanalyzed.
- (e) Instrument Background Measurement:
- (1) An instrument background check shall be analyzed every analysis day.
  - (2) Instrument background values shall be subtracted from the total measured activity in the determination of the sample activity.
  - (3) Each individual background check shall be compared to the acceptance criteria in the method or regulation. Where there are no established criteria in the method or regulation, an environmental laboratory shall determine internal criteria and document the procedure used to establish the limits.
  - (4) Environmental samples associated with an out of control instrument background check shall be re-processed and re-

analyzed from the beginning of the method or the results reported with the appropriate data qualifiers.

**(f) Method Blank.**

- (1) A method blank shall be processed along with and under the same conditions as the associated samples including all steps of the preparation and analytical procedure.**
- (2) A method blank shall be analyzed at a minimum of one per preparation batch. Where no separate preparation method is used, such as gamma analysis in water, the batch shall be defined as no more than 20 environmental samples that are analyzed together using the same method, personnel, and lots of reagents.**
- (3) A method blank shall consist of a matrix that is similar to the associated environmental samples and is free of the isotopes of interest. When a matrix that is similar to the associated environmental samples that is free of the analytes of interest does not exist and cannot be prepared, reagent water or an artificial or simulated matrix may be used.**
- (4) Where an environmental sample is analyzed by gamma spectrometry by placing the sample matrix into a calibrated counting geometry, the method blank shall consist of a similar counting geometry that is filled to a similar volume with reagent water to partially simulate gamma attenuation due to a sample matrix.**
- (5) The method blank result may not be subtracted from the sample results in the associated preparation or analytical batch unless permitted by the method or regulation.**
- (6) The method blank shall be prepared with similar aliquot size to that of the routine samples for analysis. The method blank result and acceptance criteria shall be calculated in a manner that compensates for sample results based upon differing aliquot size.**
- (7) If a contaminant is detected in the method blank, the source of contamination shall be investigated and measures shall be taken to minimize or eliminate the contamination. A method blank is considered contaminated if:
  - (i) The activity of a target isotope in the method blank is at or above the reporting limit established by the method or by regulation; or****

- (ii) The contamination in the method blank otherwise affects the environmental sample results as described in the method, regulation, or in individual project data quality objectives.
- (8) Environmental samples associated with a contaminated method blank shall be reprocessed for analysis or the results reported with the appropriate data qualifiers.
- (g) **Laboratory Control Sample.**
  - (1) A laboratory control sample shall be processed along with and under the same conditions as the associated environmental samples, including all steps of the preparation and analytical procedure.
  - (2) The laboratory control sample shall consist of a defined matrix containing known and verified activities of isotope(s). When a matrix that is similar to the associated environmental samples that is free of the analytes of interest is not available, reagent water or an artificial or simulated matrix may be used.
  - (3) A laboratory control sample shall be analyzed at a minimum of one per preparation batch. Where no separate preparation method is used, such as gamma analysis in water, the batch shall be defined as no more than 20 environmental samples that are analyzed together with the same method, personnel, and lots of reagents.
  - (4) The activity of the laboratory control sample shall be within the calibration range of the method and be either:
    - (i) Two to ten times the detection limit; or
    - (ii) At an activity level comparable to that of the environmental samples being tested or analyzed, if the sample activities are expected to exceed ten times the detection limit.
  - (5) The standard used to prepare the laboratory control sample shall be from a source independent of the standards used for initial calibration.
  - (6) Where a radiochemical method, other than gamma spectroscopy, has more than one reportable isotope, for example, plutonium, Pu 238 and Pu 239, using alpha spectrometry, only one of the isotopes must be included in the laboratory control sample. Where more than one isotope is

present above the specified detection limit, each isotope shall be assessed against the acceptance criteria.

- (7) Where gamma spectrometry is used to identify and quantitate more than one isotope, the laboratory control sample shall contain isotopes that represent the low, for example americium-241, medium, for example cesium-137, and high, for example cobalt-60, energy range of the analyzed gamma spectra. The isotopes need not exactly bracket the calibrated energy range or the range over which isotopes are identified and quantitated.
  - (8) Evaluation Criteria and Corrective Action: Each individual laboratory control sample shall be compared to the acceptance criteria in the method or regulation. Where there are no established criteria in the method or regulation, an environmental laboratory shall determine internal criteria and document the procedure used to establish the limits.
  - (9) Environmental samples associated with an out of control laboratory control sample shall be reprocessed and re-analyzed from the beginning of the method or the results reported with the appropriate data qualifiers.
- (h) **Sample Duplicates.**
- (1) A sample duplicate shall be analyzed at a minimum of one per preparation batch. Where no separate preparation method is used, for example gamma analysis in water, the batch shall be defined as no more than 20 environmental samples that are analyzed together using the same method, personnel, and lots of reagents.
  - (2) An environmental laboratory shall document the calculations used for determining the relative percent difference or other statistical method for evaluation of the sample duplicate pairs.
  - (3) Each sample duplicate relative percent difference shall be compared to the acceptance criteria in the method or regulation. Where there are no established criteria in the method or regulation, an environmental laboratory shall determine internal criteria and document the procedure used to establish the acceptance limits.
  - (4) For sample duplicate results outside established criteria, corrective action shall be documented and the affected data reported with appropriate data qualifiers.

- (i) **Tracer.**
- (1) For those methods that utilize a tracer or internal standard, each sample result shall have an associated tracer or internal standard recovery calculated and reported.
  - (2) The tracer or internal standard recovery shall be assessed against the acceptance criteria specified in the method or regulation. Where there are no established criteria in the method or regulation, an environmental laboratory shall determine internal criteria and document the procedure used to establish the acceptance limits.
  - (3) For tracer or internal standard recovery outside established criteria, corrective action shall be documented and the data reported with appropriate data qualifiers.

- (j) **Carrier.**
- (1) For those methods that utilize a carrier, each sample shall have an associated carrier recovery calculated and reported.
  - (2) The carrier recovery for each sample shall be assessed against the acceptance criteria specified in the method or regulation. Where there are no established criteria in the method or regulation, an environmental laboratory shall determine internal criteria and document the procedure used to establish the acceptance limits.
  - (3) For carrier recovery outside established criteria, corrective action shall be documented and the data reported with appropriate data qualifiers.

- (k) **Detection Limits.**
- (1) A detection limit shall be determined by the protocol in the method or regulation. If the protocol for determining detection limits is not specified in the method or regulation, the environmental laboratory shall select a procedure that reflects instrument limitations and the intended application of the method.
  - (2) A detection limit shall be initially determined for the isotopes of interest in each method in a matrix in which neither the target isotope nor interferences are at a concentration that would impact the results. The detection limit shall be determined in the matrix of interest.

- (3) A detection limit shall be determined each time there is a change in the method that affects how the test is performed or that affects the sensitivity of the analysis.
- (4) All sample processing steps of the method shall be included in the determination of the detection limit.
- (5) All supporting data shall be retained to permit reconstruction of the detection limit determination.
- (6) An environmental laboratory shall have a written procedure to relate detection limits with quantitation limits.
- (7) The method's lower limit of quantitation shall be established and shall be above the detection limit.

(l) **Data Reduction:** Each result shall be reported with the associated measurement uncertainty. The procedures for determining the measurement uncertainty must be documented and be consistent with the method and regulation.

## **Subchapter E. PROFICIENCY TEST STUDY REQUIREMENTS**

### **§ 252.501 Proficiency Test Study Requirements.**

- (a) Within 30 days of the effective date of this chapter, the Department will publish a list of fields of accreditation for which proficiency test studies are available. The Department may update the list of available fields of accreditation by publishing a revised list of available proficiency test studies.
- (b) An environmental laboratory shall participate in proficiency test studies, where available as specified in subsection (a), for each field of accreditation for which the laboratory seeks to obtain or maintain accreditation.
- (c) Within the 12 months prior to applying for initial accreditation pursuant to this chapter or during the approval process, an environmental laboratory shall successfully analyze at least one single blind, single concentration proficiency test study, where available as specified in subsection (a), for each field of accreditation for which it seeks accreditation.
- (d) An environmental laboratory accredited pursuant to this chapter shall successfully analyze at least one single blind, single concentration

proficiency test study for each field of accreditation, where available as specified in subsection (a), for which the laboratory is accredited at least once every 12 months.

(e) Proficiency test studies shall be purchased at the environmental laboratory's expense directly from suppliers approved by the Department as a proficiency test provider.

(f) An environmental laboratory shall ensure that all proficiency test study samples are managed, analyzed, and reported in the same manner as real environmental samples and utilize the same staff, procedures, equipment, facilities, number of replicates, and methods for the routine analysis of the analyte.

(g) An environmental laboratory may not send a proficiency test study, or a portion of a proficiency test study, to another laboratory for analysis for a field of accreditation for which it seeks accreditation or is accredited prior to the time the results of the study are released by the proficiency test study provider.

(h) An environmental laboratory may not knowingly analyze a proficiency test study, or a portion of a proficiency test study, for another environmental laboratory for which the sending environmental laboratory seeks accreditation or is accredited prior to the time the results of the study are released by the proficiency test study provider.

(i) An environmental laboratory may not communicate with another environmental laboratory, including other laboratories under common ownership, concerning the proficiency test study prior to the time the results of the study are released by the proficiency test study provider.

(j) An environmental laboratory may not attempt to obtain the prepared value of a proficiency test study from the proficiency test study provider prior to the time the results of the study are released by the proficiency test study provider.

(k) If an environmental laboratory fails to successfully analyze a proficiency test study, it shall determine the cause for the failure and take any necessary corrective action. The laboratory shall document the investigation and corrective action.

(l) An environmental laboratory shall direct the proficiency test study provider to report the proficiency test study performance results directly to the Department at the same time that the provider reports the results to the environmental laboratory.

(m) An environmental laboratory shall maintain copies of all raw data associated with proficiency test studies for at least five years.

## **Subchapter F. ON-SITE ASSESSMENT REQUIREMENTS**

### **§ 252.601 On-site Assessment Requirements.**

- (a) Prior to accrediting an environmental laboratory, the Department will perform an on-site assessment of the laboratory.
- (b) Prior to granting accreditation for an additional field of accreditation to an environmental laboratory, the Department may perform an on-site assessment of the laboratory.
- (c) The Department may conduct announced or unannounced on-site assessments of an environmental laboratory to ensure compliance with the conditions of accreditation, this chapter, or orders issued by the Department.
- (d) The Department will provide the environmental laboratory with an on-site assessment report documenting any deficiencies found by the Department.
- (e) An environmental laboratory shall submit a corrective action report to the Department within 60 calendar days from receipt of an on-site assessment report from the Department where the Department has found deficiencies. The corrective action report shall document the corrective action taken by the laboratory to correct each deficiency.
- (f) If any portion of the corrective action report is not acceptable, an environmental laboratory shall submit a revised written corrective action report within 30 calendar days from receipt of the Department's response. If the second corrective action report is not acceptable, the Department may revoke accreditation.
- (g) Unless otherwise approved by the Department, all deficiencies shall be corrected within 120 calendar days of receipt of the on-site assessment report.
- (h) The Department may extend the period of implementing corrective actions, for specific deficiencies, for a maximum of 30 calendar days upon receipt of the laboratory's written petition and corrective action report, where the laboratory must take one or more of the following actions:
  - (1) Purchase new equipment.
  - (2) Revise the quality manual.

- (3) Replace significant laboratory personnel.

### **Subchapter G. MISCELLANEOUS PROVISIONS**

#### **§ 252.701 Expiration of Application.**

An environmental laboratory that fails to meet the requirements for accreditation within one year from the date the Department receives the application shall submit a new application and pay the appropriate fee to become accredited pursuant to this chapter.

#### **§ 252.702 Denial of Application.**

(a) The Department will deny an application for accreditation or application for renewal of accreditation under one or more of the following circumstances:

- (1) The environmental laboratory is in continuing violation of or demonstrates an inability or lack of intention to comply with the provisions of this chapter or other laws administered by the Department.
- (2) The Department revoked the environmental laboratory's certificate of accreditation for all fields of accreditation for failure to correct deficiencies identified in an on-site assessment report within the previous six months.

(b) The Department may deny an application for accreditation or application for renewal of accreditation for one or more of the following reasons:

- (1) Falsifying analyses.
- (2) Selectively reporting data.
- (3) Making misrepresentations to the Department.
- (4) Engaging in unethical or fraudulent practices.
- (5) Analysis of proficiency test studies by personnel other than the analysts associated with the routine analysis of environmental samples in the laboratory.
- (6) Failure to submit a complete application.

- (7) Failure to pay required fees.
- (8) Failure of laboratory staff to meet the personnel qualifications of education, training, and experience.
- (9) Failure to successfully analyze and report proficiency test studies as required by this chapter.
- (10) Failure to respond to an on-site assessment report with a corrective action report within the required timeframes.
- (11) Failure to submit an acceptable corrective action report in response to an on-site assessment within the required timeframes.
- (12) Failure to implement the corrective actions detailed in the environmental laboratory's corrective action report within a time frame approved by the Department.
- (13) Failure to implement a quality assurance program.
- (14) Failure to pass an on-site assessment.
- (15) Denial of entry to the Department during normal business hours for an on-site assessment.
- (16) Violation of a statute, this Chapter, or an order of the Department.
- (17) Failure to meet the requirements of this Chapter.

**§ 252.703 Revocation.**

(a) The Department will revoke an environmental laboratory's accreditation for a field of accreditation when, after being suspended due to failure to participate in a required proficiency test study or due to failure to obtain an acceptable result for a proficiency test study, the laboratory's analysis of the next proficiency test study results in a failed proficiency test study for that field of accreditation.

(b) The Department may revoke an environmental laboratory's accreditation, in part or in total, for one or more of the following reasons:

- (1) Failure to respond to an on-site assessment report with a corrective action report within the required timeframes.
- (2) Failure to correct deficiencies identified during an on-site assessment of the environmental laboratory.

- (3) Failure to implement corrective action related to violations or deficiencies found during an on-site assessment.**
  - (4) Failure of an environmental laboratory that has been suspended to correct all outstanding violations or deficiencies within six months of the effective date of the suspension.**
  - (5) Failure to submit an acceptable corrective action report in response to an on-site assessment report within the required timeframes.**
  - (6) Violation of a condition of accreditation.**
  - (7) Violation of a statute, this Chapter, or an order of the Department.**
  - (8) Falsifying analyses.**
  - (9) Selectively reporting data.**
  - (10) Making misrepresentations to the Department.**
  - (11) Engaging in unethical or fraudulent practices.**
  - (12) Analysis of proficiency test studies by personnel other than the analysts associated with the routine analysis of environmental samples in the laboratory.**
  - (13) Failure to implement a quality assurance program.**
  - (14) Failure to participate in the proficiency test study program as required by this chapter.**
  - (15) Denial of entry to the Department during normal business hours for an on-site assessment.**
  - (16) Failure to comply with the reporting and notification requirements as specified in § 252.709 (relating to reporting and notification requirements.)**
  - (17) Failure to employ staff that meets the personnel qualifications for education, training, and experience.**
  - (18) Failure to meet the requirements of this Chapter.**
- (c) The environmental laboratory may continue to test or analyze environmental samples for those fields of accreditation not revoked.**

(d) Within 72 hours of receiving notice of the revocation of accreditation from the Department, the environmental laboratory shall notify each of its customers affected by the revocation in writing of the revocation on a form approved by the Department.

**§ 252.704 Suspension.**

(a) Denial of access to the Department during normal business hours shall result in immediate suspension of accreditation for all fields of accreditation. Upon notice from the Department, the laboratory shall immediately cease testing or analysis of environmental samples.

(b) The Department will suspend an environmental laboratory's accreditation in total or in part for one or more of the following reasons:

- (1) The Department finds that protection of the environment or the public health, safety, or welfare requires emergency action.
- (2) The environmental laboratory fails to successfully complete a proficiency test study within the previous 12 months.
- (3) The environmental laboratory fails two consecutive proficiency test studies for a field of accreditation.

(c) The Department may suspend a laboratory's accreditation in total or in part for one or more of the following reasons:

- (1) Failure to comply with the reporting and notification requirements as specified in § 252.709 (relating to reporting and notification requirements.)
- (2) Failure to implement a quality assurance program.
- (3) Failure to employ staff that meets the personnel qualifications for education, training, and experience.

(d) A laboratory may continue to test or analyze environmental samples for those fields of accreditation not affected by the suspension.

(e) Within 72 hours of receiving notice of the suspension of accreditation from the Department, the environmental laboratory shall notify each of its customers affected by the suspension in writing of the suspension on a form approved by the Department.

**§ 252.705 Voluntary Relinquishment.**

- (a) An environmental laboratory wishing to voluntarily relinquish its certificate of accreditation shall notify the Department in writing.
- (b) An environmental laboratory that voluntarily relinquishes its certificate of accreditation shall insure records are maintained in accordance with § 252.707 (relating to record keeping.)
- (c) Within 72 hours of voluntarily relinquishing its certificate of accreditation, the laboratory shall notify each of its customers affected by the voluntary relinquishment in writing of the relinquishment on a form approved by the Department.

**§ 252.706 Use of Accreditation.**

- (a) Environmental laboratories accredited by the Department shall:
  - (1) Post or display their most recent certificate of accreditation for all fields of accreditation in a prominent place in the laboratory.
  - (2) Make accurate statements concerning their accreditation status.
  - (3) Not use their certificate of accreditation, accreditation status, or the Department's logo to imply endorsement by the Department.
- (b) Environmental laboratories using the Department's name, making reference to its accreditation status, or using the Department's logo in catalogs, advertising, business solicitations, proposals, quotations, laboratory analytical reports, or other materials, shall:
  - (1) Distinguish between testing for which the laboratory is accredited and testing for which the laboratory is not accredited.
  - (2) Include the environmental laboratory's accreditation number.
- (c) Upon suspension, revocation, or voluntary relinquishment of accreditation, a laboratory shall:
  - (1) Discontinue use of all catalogs, advertising, business solicitations, proposals, quotations, laboratory analytical results, or other materials that contain reference to the laboratory's past accreditation status.
  - (2) Discontinue use or display of the Department's logo.

(3) Return certificates of accreditation to the Department within 48 hours.

(d) NELAP accredited laboratories shall accompany the Department's name or the NELAC/NELAP logo with the phrase "NELAP accredited" and the laboratory's accreditation number when using the Department's name or the NELAC/NELAP logo on general literature such as catalogs, advertising, business solicitations, proposals, quotations, laboratory analytical reports, or other materials.

(e) NELAP accredited laboratories may not use their NELAP certificate, NELAP accreditation status, or NELAC/NELAP logo to imply endorsement by the Department or NELAC.

**§ 252.707 Record Keeping.**

(a) An environmental laboratory shall maintain records in a manner accessible by the Department.

(b) An environmental laboratory shall maintain records that allow reconstruction of all laboratory activities associated with the testing or analysis of environmental samples.

(c) Records required under this Chapter shall be maintained for a minimum of five years unless otherwise specified.

(d) An environmental laboratory shall have a written plan that specifies how records will be maintained or transferred in the event that the laboratory transfers ownership or terminates operations.

**§ 252.708 Subcontracting.**

(a) The subcontracted environmental laboratory shall be indicated on the final report.

(b) An environmental laboratory may not subcontract testing or analysis covered under this Chapter to an environmental laboratory that is not accredited and in compliance with this Chapter.

**§ 252.709 Reporting and Notification Requirements.**

(a) An environmental laboratory conducting testing or analysis of drinking water pursuant to 25 Pa. Code Chapter 109 (relating to safe drinking water) shall meet the reporting and notification requirements of that chapter.

(b) An environmental laboratory shall notify the Department, in writing, within 30 calendar days of changes in laboratory supervisors, analysts,

**supervisor or analyst assignments, testing or analysis equipment, and facilities which affect accredited fields of accreditation.**

**(c) An environmental laboratory shall notify the Department, in writing, within 30 calendar days of a change in the legal name of the laboratory.**

**(d) An out-of-State environmental laboratory with either primary or secondary accreditation from the Department shall notify, in writing, the Department within 48 hours of any changes in the laboratory's accreditation status from any other primary accrediting authority.**

**(e) The Department may require additional information or proof of continued capability to perform the testing or analysis for affected fields of accreditation upon receipt of notification under this subsection.**

**(f) The Department may require an on-site assessment pursuant to § 252.601 (relating to on-site assessments) upon receipt of notification under this subsection.**

## FEE REPORT FORM

**Agency:** Bureau of Laboratories  
Department of Environmental Protection

**Contact:** Richard H. Sheibley, Chief  
Laboratory Accreditation Program  
Bureau of Laboratories

**Phone:** 717-705-2425

<b>Fee Collections:</b>	<b>Prior Year 2002 (FY)</b>	<b>Current Year 2003 (FY) through March 17, 2004</b>	<b>First Future Year Projected</b>	<b>Second Future Year Projected</b>
Current – SDWA	\$ 306,074.78	\$ 240,800.00		
Current – Registration Fee	\$ 127,450.00	\$ 34,050.00		
Current – total	\$ 433,524.78	\$ 274,850.00		
Proposed			\$ 1,498,500	\$ 1,498,500

**Fee Title and Rate:**

**Title:** Environmental Laboratory Accreditation Fee Schedule

**Rates:**

(a) Fee effective through December 31, 2008:

<b>CATEGORY</b>	<b>FEE</b>
Application fee - initial and renewal	\$700
Application fee - ownership transfer	\$150
Application fee - addition of fields of accreditation	\$150
Basic non-potable water category (Fecal coliform bacteria, BOD, CBOD, residue, nitrate, ammonia, total nitrogen, phosphorus)	\$750
Basic drinking water category (Total coliform bacteria, fecal coliform bacteria, heterotropic bacteria, nitrate, nitrite, fluoride, cyanide)	\$700
Asbestos category	\$500
Microbiology - basic, first method (includes 1 method each for total coliform, fecal coliform, <i>E.coli</i> , and heterotropic bacteria)	\$300
Microbiology -basic, each additional method	\$100
Microbiology - non-basic each method	\$250
Maximum fee for microbiology category	\$1,000
Trace metal category, first method	\$350

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<b>CATEGORY</b>	<b>FEE</b>
Trace metal category each additional method	\$150
Maximum fee for trace metal category	\$1,200
Inorganic non-metal category, first method	\$350
Inorganic non-metal category, each additional method	\$100
Maximum fee for inorganic non-metal category	\$2,500
Gas chromatography – volatiles category, first method	\$400
Gas chromatography – volatiles category, each additional method	\$100
Maximum fee for gas chromatography - volatiles category	\$1,000
Gas chromatography/mass spectrometry – volatiles category, first method	\$450
Gas chromatography/mass spectrometry – volatiles category, each additional method	\$150
Maximum fee for gas chromatography/mass spectrometry - volatiles category	\$1,000
Gas chromatography – extractable category, each method	\$400
Maximum fee for gas chromatography extractable category	\$3,000
Gas chromatography/mass spectrometry – extractable category, first method	\$500
Gas chromatography/mass spectrometry – extractable category, each additional method	\$250
Maximum fee for gas chromatography/mass spectrometry extractable category	\$2,000
Other organic including liquid chromatography, each method	\$350
Maximum fee for other organic category	\$2,000
Dioxin category, each method	\$500
Radiochemical category, first method	\$500
Radiochemical category, each additional method	\$250
Maximum fee for radiochemical category	\$1,500
Wastewater effluent toxicity testing category	\$500

(b) The fees imposed under subsection (a) shall be increased every three years beginning January 1, 2009. The initial fee increase shall be by the percentage, if any, by which the Consumer Price Index for the calendar year 2008 exceeds the Consumer Price Index for the calendar year 2005. Subsequent fee increases shall be by the percentage, if any, by which the Consumer Price Index for the current calendar year exceeds the Consumer Price Index for the calendar year of the previous fee increase. For the purposes of this subsection:

- (1) The Consumer Price Index for any calendar year is the average of the Consumer Price Index for All-Urban Consumers, published by the United States Department of Labor, as of the close of the 12 month period ending on June 30.

**ENVIRONMENTAL LABORATORY ACCREDITATION  
FEE REPORT FORM**

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- (2) The revision of the Consumer Price Index that is most consistent with the Consumer Price Index for calendar year 2005 shall be used.
- (3) The Department will publish the revised fee table in the *Pennsylvania Bulletin* not less than 90 days prior to the effective date of the revision.

In addition to the nonrefundable application fee, an out-of-State environmental laboratory shall reimburse the Department for the following costs associated with on-site assessments necessitated by accreditation:

- (a) Transportation costs, including airfare, mileage, tolls, car rental, public transportation, and parking.
- (b) Meals and lodging.
- (c) Travel time for each assessor at a rate of 50 dollars per hour (\$50.00/hour).
- (d) The fee imposed under subsection (c) shall be increased every three years beginning January 1, 2009. The initial fee increase shall be by the percentage, if any, by which the Consumer Price Index for the calendar year 2008 exceeds the Consumer Price Index for the calendar year 2005. Subsequent fee increases shall be by the percentage, if any, by which the Consumer Price Index for the current calendar year exceeds the Consumer Price Index for the calendar year of the previous fee increase. For the purposes of this subsection:
  - (1) The Consumer Price Index for any calendar year is the average of the Consumer Price Index for All-Urban Consumers, published by the United States Department of Labor, as of the close of the 12 month period ending on June 30.
  - (2) The revision of the Consumer Price Index that is most consistent with the Consumer Price Index for calendar year 2005 shall be used.
  - (3) The Department will publish the revised fee table in the *Pennsylvania Bulletin* not less than 90 days prior to the effective date of the revision.

**Fee Description:**

A non-refundable application fee payable to the Commonwealth must accompany an initial application, a renewal application, an ownership transfer application, or an application to add an additional field of accreditation.

**Fee Related Activities and Costs:**

The fees have been calculated to cover the reasonable costs to the Department to implement and administer the environmental laboratory accreditation program and for

**ENVIRONMENTAL LABORATORY ACCREDITATION  
FEE REPORT FORM**

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the processing of an application for a certificate of accreditation, including the issuance, renewal, modification or other action relating to the certificate. Examples of environmental laboratory accreditation activities include, but are not limited to, on-site assessments of the applicant laboratory, application review, costs associated with providing technical assistance (required by 27 Pa C.S. § 4104 (7)), maintaining approval as a NELAP accrediting authority (required by 27 Pa C.S. § 4104 (11)), and other similar related activities.

**Analysis, Comment, and Recommendation:**

Section 4104(6) of the Act of June 29, 2002 (P.L. 596, No. 90) (dealing with Environmental Laboratory Accreditation) (27 Pa C.S. §§ 4101 – 4113) authorizes the Department to “require a fee for the processing of an application, including the issuance, renewal, modification or other action relating to the certificate, in an amount sufficient to pay the department’s cost of implementing and administering the accreditation program.” These fees are intended to transfer the costs of implementing and administering the environmental laboratory accreditation program to the environmental laboratories. An estimate for the average time each activity would require per year was multiplied by the cost per hour to operate the Laboratory Accreditation Program for 2002 adjusted for inflation to 2005. The calculated fees were rounded to the nearest \$50 increment for ease of calculation by the regulated laboratories. The reimbursement rate for travel time to an out-of-State environmental laboratory is based upon salary and benefit costs for an assessor and would be \$50 per hour for each assessor. This proposal links a fee increase to the Consumer Price Index. Changes would be made every three years to help facilities appropriately budget for any fee increase. By linking the fee increases to the Consumer Price Index, the fees collected would continue to cover the Department’s cost of implementing and administering the accreditation program. The estimated cost of the Laboratory Accreditation Program for the first year the accreditation program is operating is \$ 1,326,574 and the projected revenue for the first year is \$ 1,498,500. Thus the projected amount collected in revenue covers the estimated cost of the program and has an allowance for increases in cost due to inflation, etc until the fee increase in 2009.

<b>Category</b>	<b>Hours</b>	<b>Calculated Fee</b>	<b>Initial Fee</b>
Application fee - initial and renewal	8.00	\$680	\$700
Application fee - ownership transfer	2.00	\$170	\$150
Application fee - addition of fields of accreditation	2.00	\$170	\$150
Basic non-potable water category (Fecal coliform bacteria, BOD, CBOD, residue, nitrate, ammonia, total nitrogen, phosphorus)	9.00	\$765	\$750
Basic drinking water category (Total coliform bacteria, fecal coliform bacteria, heterotropic bacteria, nitrate, nitrite, fluoride, cyanide)	8.00	\$680	\$700
Asbestos category	6.00	\$510	\$500

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<b>Category</b>	<b>Hours</b>	<b>Calculated Fee</b>	<b>Initial Fee</b>
Microbiology - basic, first method (includes 1 method each for total coliform, fecal coliform, <i>E.coli</i> , and heterotropic bacteria)	3.50	\$298	\$300
Microbiology -basic, each additional method	1.25	\$106	\$100
Microbiology - non-basic each method	3.00	\$255	\$250
Maximum fee for microbiology category			\$1,000
Trace metal category, first method	4.00	\$340	\$350
Trace metal category each additional method	2.00	\$170	\$150
Maximum fee for trace metal category			\$1,200
Inorganic non-metal category, first method	4.00	\$340	\$350
Inorganic non-metal category, each additional method	1.25	\$106	\$100
Maximum fee for inorganic non-metal category			\$2,500
Gas chromatography – volatiles category, first method	5.00	\$425	\$400
Gas chromatography – volatiles category, each additional method	1.25	\$106	\$100
Maximum fee for gas chromatography - volatiles category			\$1,000
Gas chromatography/mass spectrometry – volatiles category, first method	5.50	\$468	\$450
Gas chromatography/mass spectrometry – volatiles category, each additional method	2.00	\$170	\$150
Maximum fee for gas chromatography/mass spectrometry - volatiles category			\$1,000
Gas chromatography – extractable category, each method	5.00	\$425	\$400
Maximum fee for gas chromatography extractable category			\$3,000
Gas chromatography/mass spectrometry – extractable category, first method	6.00	\$510	\$500
Gas chromatography/mass spectrometry – extractable category, each additional method	3.00	\$255	\$250
Maximum fee for gas chromatography/mass spectrometry extractable category			\$2,000
Other organic including liquid chromatography, each method	4.00	\$340	\$350
Maximum fee for other organic category			\$2,000
Dioxin category, each method	6.00	\$510	\$500
Radiochemical category, first method	6.00	\$510	\$500
Radiochemical category, each additional method	3.00	\$255	\$250
Maximum fee for radiochemical category			\$1,500
Whole effluent toxicity testing category	6.00	\$510	\$500



p.o. box 8477 \* harrisburg, pa. 17105-8477 \* (717)787-4526

Environmental Quality Board

**Rachel Carson State Office Building**  
**P.O. Box 2063**  
**Harrisburg, PA 17105-2063**  
January 5, 2005

**Policy Office**

717-783-8727

Mr. Robert E. Nyce, Executive Director  
Independent Regulatory Review Commission  
14<sup>th</sup> Floor, Harristown #2  
333 Market Street  
Harrisburg, PA 17120

RE: Environmental Laboratory Accreditation Regulations 25 Pa. Code, Chapter 252 (#7-392)

Dear Mr. Nyce:

Enclosed is a copy of a proposed regulation for review and comment by the Independent Regulatory Review Commission (commission) pursuant to Section 5(a) of the Regulatory Review Act. This proposal is scheduled for publication as a proposed rulemaking in the *Pennsylvania Bulletin* on January 22, 2005, with a 30-day public comment period. The Environmental Quality Board adopted this proposal at its August 17, 2004 meeting.

This regulation proposes an environmental laboratory accreditation program for laboratories that test or analyze samples and implements the Environmental Laboratories Programs Act. It establishes the scope of accreditation, application procedures, fees, and standards for accreditation - including personnel requirements, essential quality control procedures, proficiency test studies, on-site assessments, record keeping, reporting, and notification requirements.

A survey of 40 other states indicated that at least 22 states have mandatory accreditation programs for environmental laboratories testing wastewater and solid and chemical materials. Many state including California, New York, New Jersey, Florida, Louisiana, New Hampshire, and Kansas have comprehensive laboratory accreditation programs, some for many years. Upon adoption of these regulations, the number of environmental laboratories seeking accreditation in Pennsylvania is expected to increase from the current 225 laboratories to over 750 laboratories.

To the extent possible, the unique needs of small businesses, municipalities, municipal authorities and in-house laboratories have been considered and addressed. Specific provisions include: an accreditation-by-rule section addressing the testing and analyses conducted by many of the smallest laboratories; laboratory supervisor qualifications tailored to the complexity of the

analysis; provisions concerning certified operators and experienced supervisors; and a fee structure that addresses the needs of laboratories that perform only a few types of tests.

The Department will provide the commission with any assistance requested to facilitate a thorough review of this proposal. Please contact me or Michele Tate at 783-8727 if you have any questions or would like additional information.

Sincerely,

*Michele Y. Tate*  
*for*

Marjorie L. Hughes  
Regulatory Coordinator  
Policy Office

Enclosures

**TRANSMITTAL SHEET FOR REGULATIONS SUBJECT TO THE  
REGULATORY REVIEW ACT**

I.D. NUMBER: 7-392  
SUBJECT: Environmental Laboratory Accreditation Regulations  
AGENCY: DEPARTMENT OF ENVIRONMENTAL PROTECTION

**TYPE OF REGULATION**

- Proposed Regulation
- Final Regulation
- Final Regulation with Notice of Proposed Rulemaking Omitted
- 120-day Emergency Certification of the Attorney General
- 120-day Emergency Certification of the Governor
- Delivery of Tolled Regulation
  - a.  With Revisions
  - b.  Without Revisions

RECEIVED  
2005 JAN -5 PM 3:29  
INDEPENDENT REGULATORY  
REVIEW COMMISSION

# 2454

**FILING OF REGULATION**

DATE	SIGNATURE	DESIGNATION
_____	_____	HOUSE COMMITTEE ON ENVIRONMENTAL RESOURCES & ENERGY
_____	_____	SENATE COMMITTEE ON ENVIRONMENTAL RESOURCES & ENERGY
1/5/05	<i>Steph J. Hoffman</i>	INDEPENDENT REGULATORY REVIEW COMMISSION
_____	_____	ATTORNEY GENERAL (for Final Omitted only)
1/5/05	<i>C. Lee Brown</i>	LEGISLATIVE REFERENCE BUREAU (for Proposed only)