CHAPTER 18

REGULATIONS GOVERNING THE CERTIFICATION OF LABORATORIES AND ENVIRONMENTAL MEASUREMENTS

Authority

N.J.S.A. 13:1E–1 et seq., 13:1K–6 et seq., 26:2D–70 et seq., 58:10–23.11 et seq., 58:10A–1 et seq., and 58:12A–1 et seq.

Source and Effective Date

R.1996 d.307, effective July 1, 1996.
See: 27 N.J.R. 4761(a), 28 N.J.R. 3330(c).

Executive Order No. 66(1978) Expiration Date

Chapter 18, Regulations Governing the Certification of Laboratories and Environmental Measurements, expires on July 1, 2001.

Chapter Historical Note

Chapter 18, Regulations Governing Laboratory Certification and Standards of Performance, was adopted as R.1981 d.279, effective August 6, 1981. See: 13 N.J.R. 260(d), 13 N.J.R. 481(c).

Pursuant to Executive Order No. 66(1978), Chapter 18 was readopted as R.1986 d.351, effective August 6, 1986. See: 18 N.J.R. 1239(b), 18 N.J.R. 1797(b).

Pursuant to Executive Order No. 66(1978), Chapter 18 was readopted as R.1991 d.385, effective July 3, 1991. See: 23 N.J.R. 1109(a), 23 N.J.R. 2346(c).

Chapter 18, Regulations Governing Laboratory Certification and Standards of Performance, was repealed and a new Chapter 18, Regulations Governing the Certification of Laboratories and Environmental Measurements, was adopted by R.1996 d.307, effective July 1, 1996. See: Source and Effective Date.

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SUBCHAPTER 1. GENERAL PROVISIONS

7:18–1.1 Scope and authority

(a) This chapter constitutes the Department's regulations governing certification of laboratories performing sample analyses for compliance with any of the statutes listed in (c) below, with any regulations or orders issued pursuant to those statutes, or with the Contract Laboratory Program.

(b) This chapter establishes the procedures for obtaining and maintaining certifications, and the criteria and procedures that certified environmental laboratories shall follow in handling, preserving, and analyzing regulatory samples, and in collecting samples for acute toxicity testing.

(c) This chapter is adopted pursuant to the following statutes:

1. The Safe Drinking Water Act, N.J.S.A. 58:12A–1 et seq.;

2. The Water Pollution Control Act, N.J.S.A. 58:10A–1 et seq.;

3. The portion of the Radiation Protection Act governing radon and radon progeny, N.J.S.A. 26:2D–70 et seq.;

4. The Solid Waste Management Act, N.J.S.A. 13:1E–1 et seq.;

5. The Industrial Site Recovery Act, N.J.S.A. 13:1K–6 et seq.; and

6. The Spill Compensation and Control Act, N.J.S.A. 58:10–23.11 et seq.

7:18–1.2 Construction

These rules shall be liberally construed to permit the Department to discharge its statutory functions and to effectuate the purposes of the laboratory certification program.

7:18–1.3 Purposes of the regulations

(a) This chapter is promulgated for the following purposes:

1. To establish a certification program for laboratories performing environmental analyses, and to confine a laboratory's scope of certification to the specific parameters, techniques, method references, and corresponding approved methods as shown on the certified environmental laboratory's annual certified parameter list;

2. To establish the administrative procedures to be followed by certified environmental laboratories, and by laboratories seeking to become certified environmental laboratories;

3. To require that certification status be contingent upon continued compliance with the standards of performance set forth herein, including, but not limited to, standards pertaining to facility conditions, equipment and supplies, personnel, quality assurance and quality control, data reporting and data maintenance; and

4. To establish the enforcement procedures that the Department shall follow to ensure that a certified environmental laboratory is in compliance with this chapter.

(b) Compliance with this chapter will assist a laboratory in meeting the data quality requirements of State regulatory programs with regard to accuracy, precision, completeness, comparability, and representativeness. These rules regulate sample collection (acute toxicity testing only), handling, preservation, and analysis. The laboratory shall produce data with known quality assurance and quality control procedures, and in accordance with approved techniques and reference methods.

7:18–1.4 Certification program requirements

(a) A laboratory that analyzes samples for the purpose of establishing compliance with any regulatory program shall obtain and maintain certification as a certified environmental laboratory in accordance with this chapter. An analysis performed by a laboratory that is not a certified environmental laboratory does not establish compliance with any regulatory program.

(b) When analyzing regulatory samples, a certified environmental laboratory shall perform only those methods for which it has received certification or has received approval to use as alternate test procedures (ATPs) pursuant to N.J.A.C. 7:18–2.20. The certified environmental laboratory shall analyze only those parameters that are included in a valid annual certified parameter list (ACPL) issued pursuant to N.J.A.C. 7:18–2.6(b).

(c) The Department–Sanctioned Analytical Methods (DSAMs) are the methods approved for use by certified environmental laboratories. The designation of a method as a DSAM is described in N.J.A.C. 7:18–2.21.

(d) Under N.J.A.C. 7:18–2.6(b), a certified environmental laboratory will receive a certificate and an Annual Certified Parameter List (ACPL) from the Department. The certified environmental laboratory shall conspicuously display these documents in a location on its premises visible to the public.

7:18–1.5 Incorporation by reference

(a) The following regulations promulgated by the USEPA, together with all amendments and supplements, are incorporated by reference into this chapter:

1. The "National Primary and Secondary Drinking Water Regulations," 40 CFR 141 and 40 CFR 143;

2. The "Guidelines Establishing Test Procedures for the Analysis of Pollutants," 40 CFR 136; and

3. The methods listed in Subchapter I, Solid Waste, 40 CFR 260, 261.

(b) All existing CERCLA CLP methods, and all future new or modified CERCLA CLP methods, are incorporated by reference into this chapter. CERCLA CLP methods are available from: EPA Contract Laboratory Program, Sample Management Office, P.O. Box 815, Alexandria, VA 22313. All new or modified methods are incorporated when Invitation for Bid (Bid) documents containing these methods are published in the Commerce Business Daily. The Commerce Business Daily is available from U.S. Department of Commerce, Washington, DC 20230, (202) 783–3238.

(c) The Department's analytical methods for sludge analysis at N.J.A.C. 7:14 Appendix A, together with all amendments and supplements, are incorporated by reference into this chapter.

7:18–1.6 Program information; notices; submittals

(a) Unless otherwise specified, any questions concerning the requirements of this chapter should be directed to the Department's Office of Quality Assurance at (609) 292–3950. Written inquiries can be directed to the following address:

New Jersey Department of Environmental Protection
Office of Quality Assurance
PO Box 424
Trenton, NJ 08625–0424

(b) Unless otherwise specified, any submittals of PE sample results, submittals of documents, notices of other communications required to be made to the Department under this chapter shall be made to the address specified in (a) above. Applications for certification and for renewals and modifications of certifications shall be submitted to the address specified in (a) above.

Administrative change.
See: 28 N.J.R. 4098(a).

7:18–1.7 Definitions

The following words and terms, when used in this chapter, shall have the following meanings. If a definition in this section differs from the corresponding definition in any regulation or other document incorporated by reference under N.J.A.C. 7:18–1.5, the definition in the document incorporated by reference shall control.

"Acceptably analyze" means to analyze a sample in a manner that satisfies the requirements of N.J.A.C. 7:18–2.13(j).

"Acclimation" means, for acute toxicity testing, an organism's physiological adjustment to environmental changes including, but not limited to, changes in temperature and salinity.

"Accreditation" means the process by which an agency or organization evaluates and recognizes a laboratory as meeting certain predetermined qualifications or standards, thereby accrediting the laboratory. In the context of the National Environmental Laboratory Accreditation Program (NELAP), this process is a voluntary one.

"Accredited" means having the approval conferred upon schools, institutions, or programs where appropriate by a nationally recognized regional accrediting agency or association as determined by either the United States Secretary of Education, State Commissioner of Education, or State Chancellor of Higher Education.

"Accrediting authority" means the territorial, state or Federal agency having responsibility and accountability for environmental laboratory accreditation and which grants accreditation.

"ACPL" means Annual Certified Parameter List and is a list that is sent annually to a certified environmental laboratory showing the regulatory programs, analytical techniques, method references and corresponding methods, specific parameters or group thereof for which the laboratory is certified to analyze regulatory samples.

"Acute MCL violation" means any violation of the maximum contaminant level (MCL) for any parameter specified by the State as posing an acute risk to human health including the presence of fecal coliform or E. coli, and nitrate (>10mg/L), nitrite (>one mg/L) or nitrate/nitrite (>10mg/L).

"Acute toxicity" means, for acute toxicity testing, a lethal or adverse sublethal effect to an organism exposed to a toxic substance for no more than 96 hours.

"Acute toxicity testing" means the standardized procedures for determining the quantitative lethal or sublethal effects of a toxic substance on an organism.

"Affiliate" means, with respect to any individual or entity, another individual or entity who has a controlling interest in such individual or entity; in whom such individual or entity has a controlling interest; or who is under common control with such individual or entity.

"Alternate Test Procedure (ATP)" means a procedure that:

1. Contains modifications not permitted in a method listed as a DSAM; or

2. Is a method not listed as a DSAM for the monitoring of one or more parameters of interest for the Safe Drinking Water Act, New Jersey Pollutant Discharge Elimination System, New Jersey Spill Compensation Act, New Jersey Solid Waste Management Act, Industrial Site Recovery Act, and New Jersey Underground Storage Tanks Program.

"Analytical reagent (AR) grade," "ACS reagent grade" and "reagent grade" mean reagents that conform to the current specifications of the Committee on Analytical Reagents of the American Chemical Society.

"Analyze-immediately parameter" means a parameter for which analysis must be performed within 15 minutes after the sample is collected. Examples of analyze-immediately parameters include chlorine dioxide, dissolved oxygen with probe, pH, ozone, residual chlorine, sulfite and temperature.

"ANSP—Goulden" means, for Acute Toxicity Testing, the publication entitled "Daphnia Bioassay Workshop," Dr. Clyde Goulden and Ms. Linda Henry; The Academy of Natural Sciences of Philadelphia, Division of Limnology and Ecology. This reference is a source for daphnid culturing and testing techniques used in N.J.A.C. 7:18–7, Acute Toxicity Testing.

"Applicant" means a laboratory applying to the Department to become a certified environmental laboratory.

"Arochlor" or "Aroclor" means the trade name for a series of commercial polychlorinated biphenyl and terphenyl mixtures, often termed PCBs or polychlorinated biphenyls.

"ASTM D1193–91" means, for chemical testing, "Standard Specifications for Reagent Water," D1193–91 (and later revisions), American Society for Testing and Materials.

"ASTM D 4229–84" means, for acute toxicity testing, "Standard Practice for Conducting Static Acute Toxicity Tests on Waste-waters with Daphnia," D 4229–84, American Society for Testing and Materials. This reference method is a source for daphnid culturing and testing techniques used in N.J.A.C. 7:18–7, Acute Toxicity Testing.

"ASTM E 724–80" means, for acute toxicity testing, "Standard Practice for Conducting Static Acute Toxicity Tests with Larvae of Four Species of Bivalve Molluscs," E 724–80; American Society for Testing and Materials. This reference method is a source for standardized culturing and testing techniques in subchapter 7, Acute Toxicity Testing.

"ASTM E 729–80" means, for acute toxicity testing, "Standard Practice for Conducting Acute Toxicity Tests With Fishes, Macroinvertebrates, and Amphibians," E 729–80, American Society for Testing and Materials. This reference method is a source for standardized culturing and testing techniques in subchapter 7, Acute Toxicity Testing.

"ASTM–31" means Annual Book of the American Society for Testing and Materials, Part 31.

"Asymptotic LC_{50}" means, for acute toxicity testing, the toxicant concentration at which the LC_{50}, the lethal concentration at which 50 percent death of the test organisms occurs during an acute toxicity test, becomes a constant for a prolonged exposure time.

"Authorized measurement protocols" for radon/radon progeny-in-air means the DSAMs for Category RA1, radon/radon progeny-in-air, which are the approved methods for use by a certified laboratory when performing radon/radon progeny-in-air analysis. These DSAMs include the "Indoor Radon and Radon Decay Product Measurement Device Protocols," USEPA 402–R–92–004 and the "Interim Protocols for Screening and Follow-up Radon and Radon/Decay Product Measurements," USEPA 520/l–86–0l4.

"Authorized proficiency program" or "APP" means the USEPA Radon/Radon Progeny Measurement Proficiency Program, Eastern Environmental Radiation Facility, Montgomery, Alabama 36109, or other program authorized by the Department in writing as being equally stringent. The APP provides the Department with a laboratory's radon/radon progeny results of PE samples. The Department uses the laboratory's results and the expected acceptable limits to partially assess its analytical performance. Pursuant to N.J.A.C. 7:18–2.13, successful analysis of radon/radon progeny PE samples is necessary for obtaining and maintaining radon/radon progeny-in-air certification.

4. If the applicant is a municipal, state, Federal or other public agency or instrumentality, by the principal executive officer or his or her designee.

SUBCHAPTER 2. PROGRAM PROCEDURES AND REQUIREMENTS

7:18–2.1 Scope

(a) This subchapter establishes the following:

1. The procedure for becoming a certified environmental laboratory;

2. Requirements that a laboratory must meet to become a certified environmental laboratory;

3. The categories of analysis for which certification is available;

4. The procedure for a certified environmental laboratory to renew or modify its certification;

5. Procedures for cancellation, suspension, and revocation of certification;

6. The procedures to apply for approval of alternate test procedures; and

7. Fees for certification.

7:18–2.2 General prohibitions

(a) No laboratory other than a certified environmental laboratory shall analyze samples for the purpose of establishing compliance with any regulatory program.

(b) A certified environmental laboratory shall use only the methods listed on its Annual Certified Parameter List when analyzing samples for the purpose of establishing compliance with any regulatory program.

(c) Only a certified environmental laboratory may use the name "certified environmental laboratory" or any other name that is reasonably likely to lead the public to believe that a laboratory or other person is a certified environmental laboratory. Any laboratory or other person who is not a certified environmental laboratory shall not make an oral or written statement intended to mislead the public into believing that the laboratory or other person is a certified environmental laboratory.

7:18–2.3 Overview of the certification process

(a) A laboratory is eligible to become a certified environmental laboratory only if it completes the application requirements at N.J.A.C. 7:18–2.5, and demonstrates through the process set forth within this subchapter that it complies with the requirements in N.J.A.C. 7:18–2.6(a).

(b) If the Department determines that an applicant satisfies the requirements of (a) above, the Department shall issue the applicant a certificate and an Annual Certified Parameter List (ACLP) showing the parameters, techniques, method references, and corresponding methods for which the applicant is certified.

(c) The Department's annual certification period begins on July 1 of each year, and ends on the following June 30. A certification and an Annual Certified Parameter List expire at the end of the annual certification period for which they are issued, unless they are renewed in accordance with N.J.A.C. 7:18–2.7. The Annual Certified Parameter List shall indicate the certification period for which it is valid.

7:18–2.4 Categories for certification

(a) An applicant shall apply for certification to perform methods for use in one or more of the following regulatory programs:

1. Drinking Water Program;

2. Water Pollution Program;

3. Radon/Radon Progeny-in-Air Program;

4. Solid/Hazardous Waste Programs; and

5. CERCLA (CLP) Program.

(b) An applicant shall apply for certification to perform sample analysis and to report results for one or more parameters within one or more categories listed in (c) through (g) below.

(c) The parameters for which a laboratory may be certified to perform sample analysis and to report results for purposes of determining compliance with the Drinking Water Program are organized within the following categories:

1. Category DW1, Microbiological Parameters;

2. Category DW2, Inorganic Parameters, Including Sodium & Calcium;

3. Category DW3, Analyze-Immediately Parameters;

4. Category DW4, Inorganic Parameters, Metals;

5. Category DW5, Organic Parameters, Chromatography;

6. Category DW6, Organic Parameters, Chromatography/Mass Spectrometry;

7. Category DW7, Radiochemistry: Radioactivity & Radionuclide Parameters; and

8. Category DW8, Radon in Drinking Water.

(d) The parameters for which a laboratory may be certified to perform sample analysis and to report results for purposes of determining compliance with the Water Pollution Program are organized within the following categories:

1. Category WP1, Microbiological Parameters;

2. Category WP2, Inorganic Parameters, Nutrients & Demand;

3. Category WP3, Analyze-Immediately Parameters;

4. Category WP4, Inorganic Parameters, Metals;

5. Category WP5, Organic Parameters, Chromatography;

6. Category WP6, Organic Parameters, Chromatography/Mass Spectrometry;

7. Category WP7, Individual Pesticides (GC, GC/MS, TLC);

8. Category WP8, Acute Toxicity;

9. Category WP9 Radiochemistry: Radioactivity & Radionuclide Parameters; and

10. Category WP10, Radon in Wastewater.

(e) The parameters for which a laboratory may be certified to perform sample analysis and to report results for purposes of determining compliance with the Radon/Radon Progeny-in-Air Program are organized within the following category: Category RA1, Radon/Radon Progeny-in-Air.

(f) The parameters for which a laboratory may be certified to perform sample analysis and to report results for purposes of determining compliance with the Solid/Hazardous Waste Program are organized within the following categories:

1. Category SHW1, Microbiological Parameters;

2. Category SHW2, Characteristics of Hazardous Waste;

3. Category SHW3, Analyze-Immediately Parameters;

4. Category SHW4, Inorganic Parameters;

5. Category SHW5, Organic Parameters, Preparation & Screening;

6. Category SHW6, Organic Parameters, Chromatography;

7. Category SHW7, Organic Parameters, Chromatography/Mass Spectrometry;

8. Category SHW8, Polychlorinated Dibenzo-p-dioxins and Polychlorinated Dibenzofurans;

9. Category SHW9, Miscellaneous Parameters;

10. Category SHW10, Facility-Specific Parameters;

11. Category SHW11, Incinerator Emissions; and

12. Category SHW12, Immunoassay.

(g) The parameters for which a laboratory may be certified to perform sample analysis and to report results for purposes of determining compliance with the CERCLA (CLP) Program are organized within the following categories:

1. Category CLP1, Multi-Media, Multi-Concentration Inorganic Parameters;

2. Category CLP2, Multi-Media, Multi-Concentration Organic Parameters;

3. Category CLP3, Polychlorinated Dibenzo-p-dioxins & Polychlorinated Dibenzofurans;

4. Category CLP4, Multi-Media, High Concentration, Inorganic Parameters;

5. Category CLP5, Multi-Media, High Concentration, Organic Parameters;

6. Category CLP6, Low Concentration Water for Inorganic Parameters; and

7. Category CLP7, Low Concentration Water for Organic Parameters.

(h) Table 2.1 illustrates the organization of subchapters 3 through 9 (N.J.A.C. 7:18–3 through 9).

Table 2.1 Organization of Subchapters 3 through 9

Subchapter	Title	Categories
3	General Laboratory Facilities & Equipment	All categories except DW3, WP3, SHW3
4	Microbiology	DW1, WP1, SHW1
5	Chemistry	DW2, DW4-DW6, WP2, WP4-WP7, SHW2, SHW4-SHW12, CLP1-CLP7
6	Radiochemistry & Radon/ Radon Progeny-in-Air	DW7, DW8, WP9, WP10, RA1
7	Acute Toxicity	WP8
8	Analyze Immediately	DW3, WP3, SHW3
9	Sample Requirements	All

(i) An out-of-State laboratory, which has received NELAP accreditation from a state that has received NELAP recognition, shall be eligible for reciprocal accreditation to perform environmental sample analyses in accordance with (a) through (h) above, provided:

1. The laboratory is NELAP accredited by a state recognized as a NELAP accrediting authority for those fields of testing in which the laboratory is requesting accreditation pursuant to this subsection;

2. The laboratory submits to the Department an application on the form specified in N.J.A.C. 7:18–2.5; and

3. When requested by the Department, laboratory submits a copy of the laboratory's most recent (no more than two years old) NELAP on-site assessment reports.

(j) If, upon review of the documents listed in (i)2 and 3 above, the Department determines that the methods used by the out-of-State laboratory are equivalent to the requirements of this chapter, the Department shall not require an on-site survey by its inspectors and certification shall be granted after the assessed certification fees are paid (see N.J.A.C. 7:18–2.9, Fees).

(k) If, upon review of the documents listed in (i)2 and 3 above, the Department is unable to determine that the out-of-State laboratory has met the requirements of this chapter, then the Department shall contact the NELAP-primary accrediting authority and request that it conduct an on-site inspection of the laboratory.

Administrative change.
See: 28 N.J.R. 4098(a).
Amended by R.2001 d.15, effective January 2, 2001.
See: 32 N.J.R. 1113(a), 33 N.J.R. 44(a).
Added (i) through (k).

7:18–2.5 Procedure for initial application of a laboratory seeking certification

(a) A laboratory seeking initial certification for one or more parameters in any category listed in N.J.A.C. 7:18–2.4(c) through (g) shall submit an application to the Department, at the address listed in N.J.A.C. 7:18–1.6(a).

(b) The applicant shall complete the application form supplied by the Department, including the following:

1. The name of the applicant;

2. The mailing address and, if different, street address and municipality of laboratory location;

3. The hours of operation;

4. The areas in which certification is sought;

i. Regulatory programs;

ii. Categories;

iii. Parameters;

iv. Techniques; and

v. Method references and specific method numbers. A laboratory shall select only one or more method reference and corresponding method when multiple method references for a given technique are included in the DSAMs;

5. The type of environmental laboratory, identified by code listed on the application form;

6. The names of the following individuals:

i. The applicant's owner;

ii. The individual designated as the manager pursuant to N.J.A.C. 7:18–2.10(a)1; and

iii. All supervisors designated pursuant to N.J.A.C. 7:18–2.10(a)2;

7. A description of the education and experience of the following individuals, and academic transcripts for each such individual:

i. The manager, if responsible for technical functions;

ii. All supervisors; and

iii. Other laboratory technical staff;

8. If the applicant has participated in the USEPA Proficiency Testing Program and/or any Department-authorized proficiency program during the 12 months immediately preceding the application, the applicant may submit the results of such proficiency testing for any parameters for which the applicant is seeking certification;

9. The certification required under N.J.A.C. 7:18–1.9(a)1, signed by the individual required under N.J.A.C. 7:18–1.9(b);

10. If the laboratory is applying for certification in any of the categories listed in N.J.A.C. 7:18–5.1(a) for which published MDLs are available, MDL data for such methods;

11. Any other information included on the form, which is reasonably necessary to enable the Department to determine whether the applicant should be certified; and

12. The appropriate fees, pursuant to N.J.A.C. 7:18–2.9, in the form of a check payable to "Treasurer, State of New Jersey."

(c) An application is administratively complete if it contains everything required under (b) above. The Department shall advise the applicant in writing whether the application is administratively complete. If the application is not administratively complete, the Department shall identify the deficiencies. A determination that the application is administratively complete does not authorize the laboratory to perform sample handling, preservation, and analyses and reporting of data as regulated by this chapter.

(d) In addition to the information required under (b) above, the applicant shall provide any information that the Department requests as being reasonably necessary to determine whether the applicant should be certified.

Administrative change.
See: 28 N.J.R. 4098(a).

7:18–2.6 Conditions for the granting of certification

(a) To be eligible for certification, an applicant shall satisfy all of the requirements listed in (a)1 through 8 below:

1. The applicant has submitted a complete application meeting the requirements of N.J.A.C. 7:18–2.5(b), including the fees required under N.J.A.C. 7:18–2.9;

2. The applicant is capable of providing accurate, precise and reliable data in accordance with the mandates of State and Federal law and regulation;

3. The applicant possesses facilities, instruments, and equipment that meet the technical specifications required by the analytical methods, and that are properly maintained and operated;

4. The applicant's staff has the formal education, training and experience required under N.J.A.C. 7:18–2.10;

5. The applicant satisfies all applicable proficiency testing requirements under N.J.A.C. 7:18–2.13, including, but not limited to, acceptably analyzing any and all PE samples for each parameter within each category for which certification is sought;

6. The applicant satisfies the requirements for on-site audits under N.J.A.C. 7:18–2.14, including, but not limited to, the requirement to correct deficiencies identified by the Department in the on-site audit. If the applicant is seeking certification for radiochemistry: radioactivity and radionuclide testing, radon, and radon/radon progeny in air, and the Department is unable to schedule an on-site audit within 90 days after receiving an administratively complete application, the Department may grant temporary approval to a laboratory to analyze radiochemical samples, excluding radon/radon progeny-in-air, until the Department performs the on-site audit. If the Department grants temporary approval, the applicant shall continue to participate in the USEPA's proficiency testing program and acceptably analyze the program's samples;

7. The applicant completes its analysis of PE samples and all other requirements for certification within the time specified by the Department; and

8. The applicant complies with all other requirements of this chapter relevant to certification, and demonstrates that it is capable of complying with the relevant technical standards of performance found in N.J.A.C. 7:18–3 through 9.

(b) If the Department determines that an applicant is eligible for certification under (a) above, the Department shall issue the applicant a certificate and an Annual Certified Parameter List. The Department shall include the following information in the Annual Certified Parameter List:

1. The regulatory programs in which the environmental laboratory is certified to perform sample analysis and to report results to the Department;

2. For each regulatory program listed in (b)1 above, the specific parameters for which the environmental laboratory has demonstrated competence; and

3. The analytical technique, method reference and corresponding method number for which the environmental laboratory is certified.

(c) For Categories SHW1 through SHW12 and CLP1 through CLP7, a phase-in period may be available during which a laboratory may continue to analyze regulatory samples by methods not included in the laboratory certification program prior to adoption of this chapter. To qualify for the phase-in period, the laboratory shall satisfy the requirements listed in (c)1 and 2 below.

1. By (date that is 180 days after the operative date of these new rules), the laboratory shall submit an administratively complete application to the Department pursuant to N.J.A.C. 7:18–2.5. When the Department determines that the application is administratively complete, it will provide the laboratory with temporary approval to analyze regulatory samples. The laboratory may continue analyzing regulatory samples while the temporary approval is in effect. The approval shall remain in effect until one of the following occurs:

i. The Department issues a certification and Annual Certified Parameter List pursuant to (b) above;

ii. The laboratory fails to satisfy the requirements for certification within the time specified in (c)2 below; or

iii. The Department denies the certification.

2. Within one year after submitting the application under (c)1 above, the environmental laboratory shall satisfy all other requirements for certification under (a) above. If the environmental laboratory satisfies all of these requirements except the requirement for an on-site audit, and the on-site audit requirement has not been satisfied because the Department has not scheduled the audit, the temporary approval shall remain in effect until an event listed in (c)1i or 1iii occurs.

3. If a laboratory fails to submit an administratively complete application within the time allotted under (c)1 above, or if the temporary approval expires under (c)1i or 1iii above, the phase-in period is forfeited. The laboratory shall discontinue all regulatory sampling and analysis for Categories SHW1 through SHW12 and CLP1 through CLP7. Thereafter the laboratory shall follow the regular procedure for obtaining certification in accordance with N.J.A.C. 7:18–2.5.

7:18–2.7 Procedures for renewal of certification status for a certified environmental laboratory

(a) Each certified environmental laboratory and each laboratory holding temporary approval shall follow the following procedure to renew its certification every certification year:

1. The laboratory shall obtain a renewal application form from the Department.

2. The laboratory shall review the information provided by the Department on the renewal application form. On the form, the laboratory shall correct any inaccurate or incomplete information, advise the Department of any changes in personnel or equipment, and indicate any desired modifications.

3. The laboratory shall submit the renewal application to the Department at the address listed in N.J.A.C. 7:18–1.6(a). When submitting the renewal application, the laboratory shall include the renewal application form provided by the Department, the fees required under N.J.A.C. 7:18–2.9, and the certification required under N.J.A.C. 7:18–1.9.

4. The laboratory shall submit the renewal application with the required fees by March 31 of each year. However, if the Department has not made the renewal application forms available by March 1, the deadline for submitting the renewal application shall be extended by one day for each day beyond March 1 that the forms are unavailable. For example, if the Department does not make the forms available until March 15, the deadline for submitting the renewal application shall be April 14.

5. A laboratory may submit a late renewal application after the deadline established under (a)4 above. However, if a late renewal application is submitted, the renewal may not be completed before the June 30 expiration date of the certification or temporary approval.

(b) If a laboratory's certification or temporary approval is not renewed before its expiration date, the certification or temporary approval and the Annual Certified Parameter List (if any) shall expire. If a laboratory's certification, temporary approval or ACPL expires, any analysis performed by that laboratory does not establish compliance with any regulatory program.

(c) A laboratory shall not submit a renewal application after the June 30 expiration date. If a laboratory fails to submit a renewal application before the expiration date, the laboratory's certification, temporary approval and ACPL (if any) shall expire. Any environmental laboratory allowing its certification to expire shall apply for a new certification by filing an initial application in accordance with N.J.A.C. 7:18–2.5.

Administrative change.
See: 28 N.J.R. 4098(a).

7:18–2.8 Procedure for modification of certification status by the addition or deletion of parameters, categories and/or combined categories

(a) A certified environmental laboratory seeking to modify its certification, or a laboratory seeking to modify its application for certification under N.J.A.C. 7:18–2.5, shall submit an application to the Department at the address specified in N.J.A.C. 7:18–2.5(a). In the application, the laboratory shall include the following:

1. Any changes that the laboratory seeks to make in the areas for which it is certified or has applied to be certified, including all information required under N.J.A.C. 7:18–2.5(b)4;

2. Information required under N.J.A.C. 7:18–2.5(b)6 and 7, with respect to any additional personnel needed for additional areas of certification pursuant to N.J.A.C. 7:18–2.10;

3. Information required under N.J.A.C. 7:18–2.5(b)8, if applicable to the modification;

4. The certification required under N.J.A.C. 7:18–1.9(a), signed by the person required under N.J.A.C. 7:18–1.9(b); and

5. The fees required under N.J.A.C. 7:18–2.9, in the form of a check payable to "Treasurer, State of New Jersey." However, if the modification is part of a renewal application under N.J.A.C. 7:18–2.7(b), then the laboratory need not pay the fee for "Administrative Activities—Request for modification in certified, applied or interim approval status."

(b) Before approving the modification, the Department may require proficiency testing pursuant to N.J.A.C. 7:18–2.13 and/or an on-site audit pursuant to N.J.A.C. 7:18–2.14. The Department shall base its decision to require proficiency testing and/or an on-site audit upon the degree of competence and compliance with this chapter that the environmental laboratory has demonstrated through previous proficiency testing and on-site audits.

(c) The Department shall approve the modification only if the laboratory satisfies all of the requirements under N.J.A.C. 7:18–2.6(a) that are applicable to the modification.

(d) Subsections (a) through (c) above do not apply to a modification to delete one or more parameters or categories from a laboratory's certification. No payment of a fee or Department approval is required to delete a parameter or category. To delete one or more parameters or categories, the laboratory shall send written notification to the Department at the address specified in N.J.A.C. 7:18–1.6(a), by certified mail or other means that provides a receipt for delivery; provided however, that the laboratory may instead provide this written notification as part of a renewal application under N.J.A.C. 7:18–2.7. The deletion shall be effective upon the Department's receipt of the notice.

7:18–2.9 Fees

(a) A laboratory applying for an initial or renewal certification or for modification of a certification shall include with the application the fees required under this section. Fees are not refundable.

(b) The fee schedule is set forth below. To calculate the fee for a given service, add the fee for the administrative activity and the fee for each category affected by the application. For example, if a laboratory seeks an initial certification in category DW1, the fee would be the sum of $825.00 (the administrative activity fee) and $206.00 (the category fee), for a total of $1,031.

Environmental Laboratory Application Change-of-Status and Certification Categories			Fees
I.	Administrative Activities		
		Initial Application Fee for Certification	$ 825
		Renewal Application Fee for Certification	$ 295
		Request for modification in certified, applied or interim approval status	$ 236
		Alternate Test Procedure Application	$ 118
		Alternate Test Procedure Evaluation	$2,004
II.	Drinking Water Program Categories (DW1–DW8)		
	DW1	Microbiological Parameters	$ 206
	DW2	Inorganic Parameters including Sodium and Calcium	$ 236
	DW3	Analyze-Immediately Inorganic Parameters	$ 118
	DW4	Inorganic Parameters, Metals	$ 118
	DW5	Organic Parameters, Chromatography	$ 206
	DW6	Organic Parameters, Chromatography/Mass Spectrometry	$ 265
	DW7	Radiochemistry: Radioactivity and Radionuclide Parameters	$ 354
	DW8	Radon in Drinking Water	$ 177
III.	Water Pollution Program Categories (WP1–WP10)		
	WP1	Microbiological Parameters	$ 206
	WP2	Inorganic Parameters, Nutrients and Demand	$ 236
	WP3	Analyze-Immediately Inorganic Parameters (Including Continuous Monitoring)	$ 118
	WP4	Inorganic Parameters, Metals	$ 118
	WP5	Organic Parameters, Chromatography	$ 147
	WP6	Organic Parameters, Chromatography/Mass Spectrometry	$ 265
	WP7	Organic Parameters, Individual Pesticides (GC, GC/MS, TLC)	$ 177
	WP8	Acute Toxicity Parameters	$2,240
	WP9	Radiochemistry: Radioactivity and Radionuclide Parameters	$ 354
	WP10	Radon in Wastewater	$ 177
IV.	Radon/Radon Progeny-in-Air Program Category (RA1):		
	RA1	Radon/Radon Progeny-in-Air	$ 236
V.	Solid/Hazardous Waste Categories (SHW1 SHW12):		
	SHW1	Microbiological Parameters (SW/HW)	$ 206
	SHW2	Characteristics of Hazardous Waste (SW/HW)	$ 177
	SHW3	Analyze-Immediately Parameters (SW/HW)	$ 118
	SHW4	Inorganic Parameters (SW/HW)	$ 147
	SHW5	Organic Parameters, Preparation and Screening (SW/HW)	$ 118
	SHW6	Organic Parameters, Chromatography (SW/HW)	$ 236
	SHW7	Organic Parameters, Chromatography/Mass Spectrometry (SW/HW)	$ 206
	SHW8	Polychlorinated Dibenzo-p-dioxins and Polychlorinated Dibenzofurans (SW/HW)	$ 236
	SHW9	Miscellaneous Parameters (SW/HW)	$ 177
	SHW10	Facility-Specific Parameters (SW/HW)	$1,061
	SHW11	Incinerator Emissions (SW/HW)	$ 236
	SHW12	Immunoassay	$ 118
VI.	CERCLA-CLP Categories (CLP1–CLP7):		
	CLP1	Multi-Media, Multi-Concentration Inorganics (CERCLA–CLP)	$ 147
	CLP2	Multi-Media, Multi-Concentration Organics (CERCLA–CLP)	$ 383
	CLP3	Polychlorinated Dibenzo-p- dioxins and Polychlorinated Dibenzofurans (CERCLA–CLP)	$ 236
	CLP4	Multi-Media High-Concentration Inorganics (CERCLA–CLP)	$ 177
	CLP5	Multi-Media High-Concentration Organics (CERCLA–CLP)	$ 118
	CLP6	Low-Concentration Water for Inorganics (CERCLA–CLP)	$ 177
	CLP7	Low-Concentration Water for Organics (CERCLA–CLP)	$ 236

(c) If a laboratory seeks to modify its certification as part of a renewal application under N.J.A.C. 7:18–2.7(b), the laboratory need not pay the fee for "Administrative Activities—Request for modification in certified, applied or interim approval status." The fee shall be the sum of the following:

1. The fee for "Administrative Activities—Renewal Application Fee for Certification"; and

2. The fee for each category for which the laboratory seeks to renew certification, or seeks to add certification. If the laboratory seeks to delete a category from its certification, the fee for that category shall not be included in the total fee.

(d) If a laboratory's application for certification is pending as of July 1 in a given year and it has not completed all of the requirements for certification by that date, the laboratory shall pay the Administrative Activities—Renewal Application Fee described in (b) above by July 1, but is not required to pay the fee for the category or categories in which certification is pending. If the laboratory becomes certified in such a category after July 1, it shall pay the fee for the category, prorated for the number of months (including any part of a month) remaining until the following July 1. The laboratory shall pay this fee within 30 days after the laboratory becomes certified. For example, if a laboratory applies for certification in Category DW1 on October 1, 1996, but does not become certified in that category until September 15, 1997, it shall pay fees as follows:

1. On October 1, 1996, $825.00 for the initial application fee and $206.00 for the category;

2. On July 1, 1997, $295.00 for the renewal application fee; and

3. Within 30 days after September 15, 1997, $172.00 representing .the $206.00 category fee pro-rated for 10 months.

(e) Environmental laboratories applying for or renewing certification in the following combined categories are eligible for a reduced fee:

1. Microbiological parameters, Categories DW1, WP1, and/or SHW1: $295.00.

2. Inorganic parameters, Analyze Immediately Categories DW3, WP3, and/or SHW3: $118.00.

3. Inorganic parameters, Metal Categories, DW4, WP4, and/or SHW4: $147.00.

4. Radon In Water, Categories DW8 and WP10: $177.00.

(f) If the Department conducts an on-site audit of an out-of-State environmental laboratory, the Department shall provide the laboratory with an invoice specifying the costs of overnight travel, room and board, miscellaneous expenses of the Department certification inspectors, and (for environmental laboratories located outside the United States) expenses resulting from foreign currency exchanges. Within 60 calendar days after the date of the invoice, the laboratory shall remit to the Department the fee specified on the invoice.

(g) If the Department purchases PE samples to send to a laboratory for use in the proficiency testing program, the Department shall provide the laboratory with an invoice stating the actual cost paid to purchase the samples. Within 60 calendar days after the date of the invoice, the laboratory shall remit to the Department the amount specified on the invoice.

7:18–2.10 Environmental laboratory personnel requirements

(a) A certified environmental laboratory shall employ qualified personnel who possess the education, training, and experience required under this section. The laboratory shall maintain current employee records that include a resume and college transcript documenting each employee's training, experience, duties, and dates of relevant employment. The laboratory shall include at least the following personnel:

1. An environmental laboratory manager, who shall be the individual in responsible charge of the laboratory;

2. One or more supervisors, who shall be qualified in accordance with the applicable provisions of (b) below to perform the tests and analyses within the Category or Categories for which the environmental laboratory is certified, or seeks certification. The environmental laboratory manager may also serve as a supervisor provided that the manager meets the qualifications for supervisor;

3. A Quality Assurance (QA) Officer. For a laboratory that is certified or seeks to be certified in any of Categories CLP1 through 7, the QA officer shall meet the applicable requirements of (b)9 below. For any other laboratory, the QA Officer shall meet the applicable requirements of (b) below for a supervisor in any Category, provided however, that an individual who meets only the requirements for a supervisor in the Categories listed in (b)2 below may serve as the QA Officer only in those Categories; and

4. If required under (b) below, technical support staff, who shall be qualified in accordance with the applicable provisions of (b) below for the tests and analyses within the Category or Categories for which the environmental laboratory is certified, or seeks certification.

(b) No environmental laboratory shall be certified to perform analyses in a Category unless the supervisor and operating personnel (where so indicated) meet the following requirements:

1. For microbiological testing in Categories DW1, WP1, or SHW1, the supervisor shall meet the requirements of at least one of the qualification levels listed below:

Qualification Level	Degree	Microbiology Credits	Years of Experience Microbiological Analysis
A	≥BA/BS[1]	4[2]	1
B	AA[1]	4[2]	3
C	None	0	5

[1] Degree in a chemical, physical, biological, or environmental science from an accredited institution.

[2] Course from accredited college, or equivalent course from a training institute if supervisor has less than four semester hours credit in bacteriology.

2. For chemical testing in analyze-immediately Categories DW3, WP3 and SHW3 for residual chlorine, chlorine dioxide, residual ozone, dissolved oxygen with probe, sulfite, temperature, pH, and Categories DW2 and WP2 for turbidity and residue-settleable, the supervisor shall have had at least three months of experience in performing these tests;

3. For chemical testing in Categories: DW2. Inorganic Parameters Including Sodium and Calcium; WP2. Inorganic Parameters, Nutrients & Demand (except those listed in (b)2 above), the supervisor shall meet the requirements of at least one of the qualification levels listed below:

Qualification Level	Degree	Years of Experience Chemical Analysis and/or Training
A	≥BA/BS[1]	1[2]
B	AA[1]	3[2]
C	None	5[2]

[1] Degree in a chemical, physical, biological, or environmental science from an accredited institution.

[2] Have at least one year of laboratory experience in the chemical analysis of drinking water, water pollution, or solid/hazardous waste samples.

4. For chemical testing in Categories: DW4. Inorganic Parameters, Metals; WP4. Inorganic Parameters, Metals; SHW4. Inorganic Parameters, Metals; SHW9. Miscellaneous Parameters, and SHW10. Facility Specific Methods, the supervisor shall meet the requirements of at least one of the qualification levels listed below:

Qualification Level	Degree	Years of Experience Chemical Analysis and/or Training
A	≥BA/BS[1]	1[2]
B	AA[1]	3[2]
C	None	5[3]

1 Degree in a chemical, physical, biological, or environmental science from an accredited institution.

2 Have at least one year of laboratory experience in the analysis of drinking water, water pollution, or solid/hazardous waste samples; and
Have six months experience in one or more instrumental techniques for the determination of metals, minerals (asbestos), metal ions, or anions, or have completed a formal training course in the operation of one or more of those instruments.

3 Same as footnote 2 above except that three years of laboratory experience in the analysis of drinking water, water pollution, or solid/hazardous waste samples is required.

5. Operators of ICP/MS instruments shall meet the requirements of (b)4 above, but in addition, are required to have both six months operating experience and a formal training course in ICP/MS;

6. Operators of transmission electron microscopes (TEMs) shall meet one of the qualification levels of (b)4 above, but the number of years of experience required at all levels must include one year in determining asbestos in air or water using a TEM and energy dispersive x-ray analyzer. Operators shall have completed a formal training course in transmission electron microscopy;

7. For chemical testing in Categories: DW5, Organic Parameters, Chromatography; DW6, Organic Parameters, Chromatography/Mass Spectrometry; WP5, Organic Parameters, Chromatography; WP6, Organic Parameters, Chromatography/Mass Spectrometry; WP7, Individual Pesticides (GC, GC/MS, TLC); SHW5, Organic Parameters, Preparation & Screening; SHW6, Organic Parameters, Chromatography; SHW7, Organic Parameters, Chromatography/Mass Spectrometry; SHW8, Polychlorinated Dibenzo-p-dioxins and Polychlorinated Dibenzofurans; SHW9, Miscellaneous Parameters; SHW10, Facility Specific Parameters; SHW11, Incinerator Emissions; and SHW12, Immunoassay, the supervisor shall meet the requirements of at least one of the qualification levels listed below:

Qualification Level	Degree	Years of Experience Chemical Analysis and/or Training
A	≥BA/BS[1]	1[2]
B	AA[1]	3[2]
C	None	5[3]

1 Degree in a chemical, physical, biological, or environmental science from an accredited institution.

2 At least one year of laboratory experience in chemical testing of drinking water, water pollution, or solid/hazardous waste samples; and
Have six months experience in the instrumental technique (GC, LC, GC/MS, or LC/MS) being practiced for the analysis of drinking water, water pollution or solid/hazardous waste samples. A formal training course in the instrumental technique for which certification is sought may be substituted for the experience requirements.

3 Same as footnote 2 above except that three years of laboratory experience in chemical testing of drinking water, water pollution, or solid/hazardous waste samples is required.

8. Operators of GC/MS, and LC/MS instruments shall meet the requirements of (b)7 above, but in addition, are required to have both six months operating experience and a formal training course in the technique being practiced;

9. For chemical testing in Categories: CLP1, Multi–Media/Multi–Concentration Inorganic Parameters; CLP2, Multi–Media/Multi–Concentration Organic Parameters; CLP3, Polychlorinated Dibenzo-p-dioxins & Polychlorinated Dibenzofurans; CLP4, Multi–Media/High Concentration Inorganic Parameters; CLP5, Multi–Media High Concentration Organic Parameters; CLP6, Low Concentration Water for Inorganic Parameters; and CLP7, Low Concentration Water for Organic Parameters, the laboratory shall have qualified personnel to perform the analyses under the CLP categories of analysis.

10. For Radiochemical Testing in Categories: DW7, Radiochemistry: Radioactivity & Radionuclide Parameters; DW8, Radon in Drinking Water; WP9, Radiochemistry: Radioactivity & Radionuclide Parameters; and WP10, Radon in Wastewater, the supervisor shall meet the requirements of at least one of the qualification levels listed below:

Qualification Level	Degree	Years of Experience Chemical Analysis and/or Training
A	≥BA/BS[1]	5[2]
B	AA[1]	7[2]

1 Degree in a chemical, radiochemical, radioisotope technology, biological, physical or environmental science from an accredited institution.

2 Two years of experience must be in radiochemical analysis.

11. For Category RA1. Radon/Radon Progeny-in-Air, the supervisor shall meet the requirements of at least one of the qualification levels listed below:

Qualification Level	Degree	Years of Experience Chemical Analysis and/or Training
A	≥BA/BS[1]	2[2]
B	AA[1]	4[2]
C	None	6[2]

1 Degree in a chemical, radiochemical, radioisotope technology, biological, physical or environmental science from an accredited institution.

2 Two years of experience must be in radiochemical analysis.

12. For Acute Toxicity Testing in Category WP8, the supervisor shall meet the requirements of at least one of the qualification levels listed below:

Qualification Level	Degree	Credits	Years of Experience Acute Toxicity Testing and/or Training
A	BA/BS[1]	6[2]	1[3,4]
B	MA[3] OR MS[3]	6[2]	—[4]

1 Degree in a biological, or environmental science from an accredited institution.

2 Shall include or be supplemented by six semester credit hours in any of the following subjects: (a) General Zoology; (b) Biological Methods and Experimental Design; (c) Ichthyology.

3 Shall have successfully completed at least six definitive bioassays prior to applying for supervisor. The laboratory shall retain the documentation for these

assays, and make it available during an audit by a representative of the Department.

4 Demonstrate competency in the operation of bioassay equipment and techniques during an audit by a representative of the Department.

13. If the bachelor degree is required and was granted from a regionally accredited United States or Canadian college or university, the requirement is satisfied. If the degree was granted by a foreign college or university, a copy of the evaluation by the World Education Service, Inc., P.O. Box 745, Old Chelsea Station, New York, NY 10013, (212) 966–6311, shall be provided to the Department; and

14. The Department may waive the need for specified years of experience or academic training if an individual demonstrates that he or she has knowledge, expertise and ability that is at least equal to what would be expected from an individual with the required amount of experience and academic training.

7:18–2.11 Duties of environmental laboratory personnel

(a) In its quality assurance/quality control manual maintained pursuant to N.J.A.C. 7:18–4.5, 5.5, 6.6, 7.7 and 8.4, a certified environmental laboratory shall include duties of the manager, all supervisors, and the quality assurance officer.

1. The duties of the manager include, but are not limited to, the following:

i. The manager shall administer the operations of the environmental laboratory including the reporting of tests and analyses. The manager shall be available for personal or telephone consultation with the environmental laboratory staff and the Department. If the manager is to be absent, the manager shall arrange for a substitute. When serving as supervisor or acting supervisor, the manager shall meet the requirements of N.J.A.C. 7:18–2.10(b);

ii. The manager shall assure that all laboratory personnel meet the applicable requirements of N.J.A.C. 7:18–2:10(b) for their classification; and

iii. The manager or designee thereof shall sign reports of analytical data. The laboratory shall inform the Department of the designee's name and authority to sign reports.

2. The duties of supervisors include, but are not limited to, the following:

i. Each supervisor shall monitor the performance of technical personnel performing the analysis of a parameter to determine whether the personnel are complying with applicable requirements of this chapter. Each supervisor shall report results within the Category or Categories for which the supervisor is qualified;

ii. Each supervisor shall only perform tests or analyses within the Category or Categories for which the supervisor is qualified; and

iii. Each supervisor shall oversee the performance of all laboratory procedures, tests, analyses, and quality assurance within the Category or Categories for which the supervisor is qualified, to assure that it is in compliance with this chapter.

3. The duties of the quality assurance officer include, but are not limited to, the following:

i. The quality assurance (QA) officer shall ensure that the environmental laboratory follows the quality control procedures of the DSAMs and of N.J.A.C. 7:18–3 through 8; and

ii. The QA officer shall implement the procedures of the environmental laboratory's quality assurance/quality control manual, pursuant to N.J.A.C. 7:18–4.5, 5.5, 6.6, 7.7 and 8.4.

Administrative change.
See: 28 N.J.R. 4098(a).

7:18–2.12 Criteria for acceptance and analysis of environmental regulatory samples

(a) A certified environmental laboratory shall offer as a service only those tests, analyses, and procedures that:

1. Are within the scope of the laboratory's certification and Annual Certified Parameter List;

2. For which it has a qualified supervisor who meets the applicable requirements of N.J.A.C. 7:18–2.10(b); and

3. For which personnel, equipment and facilities meeting the applicable requirements of this chapter are available.

(b) An environmental laboratory certified in an analytical method and claiming to perform that method for parties other than those in the regulated community shall always follow the requirements and criteria cited in that specific analytical method.

(c) This section applies to certified environmental laboratories and environmental laboratories that hold temporary approval.

7:18–2.13 Proficiency testing program

(a) A laboratory seeking certification for any parameter shall successfully complete the proficiency testing program described in (h) through (j) below for that parameter.

(b) To maintain certification, a certified environmental laboratory shall successfully complete proficiency testing pursuant to (h) through (j) below.

1. For all categories other than radiochemical testing, radon in water, and radon/radon progeny–in–air:

(b) During an on-site audit, a certified environmental laboratory or a laboratory seeking certification shall demonstrate compliance with the Department's standards as set forth in this chapter for performing the methods for which certification is sought.

(c) A certified environmental laboratory that has moved to a new location shall comply with N.J.A.C. 7:18–2.19. The OQA shall perform an on-site audit at the new location.

(d) During an audit, the OQA shall assess the following: personnel qualifications; working conditions, including adequacy of space; equipment and supplies; organizational efficiency; sample handling and chain of custody; SOPs for quality control operations, methods, and data handling; maintenance of all required records; and compliance with the other requirements of this chapter.

(e) The OQA shall provide the laboratory with a written report listing the deficiencies identified during the audit. The Department may assess penalties pursuant to N.J.A.C. 7:18–10 or suspend or revoke the laboratory's certification (if any), if the audit identifies grounds for such action.

(f) Within 30 days after receiving the audit report under (e) above, the laboratory shall submit a plan to correct the deficiencies. In the plan, the laboratory shall list the corrective actions it will take, and the date by which the corrective actions are to be completed. For a certified environmental laboratory or a laboratory holding temporary approval, the date for completing the corrective actions shall be no later than 90 days after the date the audit report is delivered to the laboratory. For other laboratories, the laboratory may establish the date for completing the corrective actions at its discretion.

(g) The laboratory shall notify the Department in writing when it has completed the corrective actions identified in the plan under (f) above. Failure to correct all deficiencies by the date established in the plan is grounds for revocation or denial of certification.

(h) An out-of-State environmental laboratory shall pay a fee to cover the travel expenses incurred by an auditor during an on-site audit in accordance with N.J.A.C. 7:18–2.9(f).

Administrative change.
See: 28 N.J.R 4098(a).

7:18–2.15 Cancellation, suspension or revocation of certification

(a) Any certified environmental laboratory may cancel its certification in any Category, or in any parameters within a Category, by notifying the Department in writing. Cancellations during a proficiency study are subject to N.J.A.C. 7:18–2.13(i)3iv. When totally withdrawing from the environmental laboratory certification program, the environmental laboratory shall enclose its certificate and ACPL with the letter of notification. This cancellation notification shall not entitle the environmental laboratory to any refund of its certification fees.

(b) The Department may suspend a certified environmental laboratory's certification for any one or more of the grounds listed below. Grounds for suspension include the following:

1. For all Categories, except Radiochemical Testing and Radon/Radon Progeny-in-Air, failure to submit results of PE sample analyses for every required parameter in two consecutive proficiency studies, pursuant to N.J.A.C. 7:18–2.13;

2. For the Radiochemical or Radon/Radon Progeny-in-Air Categories, failure to submit results of PE samples in two consecutive proficiency studies as required under N.J.A.C. 7:18–2.13(h);

3. For all Categories, except those in Radiochemical Testing, Radon/ Radon Progeny-in-Air, or Categories DW5, DW6, WP5, WP6, WP7, SHW5, SHW6, SHW7, SHW8, SHW9, SHW12, CLP2, CLP3, CLP5, and CLP7, failing to acceptably analyze all samples for any one parameter in two consecutive proficiency studies. This failure is grounds for suspension in the parameter;

4. For Categories DW5, DW6, WP5, WP6, WP7, SHW5, SHW6, SHW7, SHW8, SHW9, SHW12, CLP2, CLP3, CLP5, and CLP7, failing to acceptably analyze all samples for any one parameter in two consecutive proficiency studies. This failure is grounds for suspension in the method used to analyze the parameter in question;

5. For radiochemical parameters, failure to acceptably analyze one USEPA blind PE sample and two cross-check samples per year;

6. For determination of radon in water, failure to acceptably analyze all required PE samples, not to exceed four samples per year;

7. For radon/radon progeny-in-air, failure to acceptably analyze all required RMP tests made available during the fiscal year through an authorized proficiency testing program for each stationary detection device, not to exceed four tests per year and not less than one per year;

8. The occurrence of a moderate or major violation (as defined at N.J.A.C. 7:18–10.4), if one of the following has occurred within the three years preceding the violation:

i. Another moderate or major violation for the same parameter or method; or

ii. Another moderate or major violation arising from the same type of act or omission (such as an act or omission concerning laboratory personnel requirements; equipment, supplies, materials and instrumenta-

tion; testing procedures; misrepresentation; or work beyond the purview of a certification); or

9. The violation of an order by the Department to correct a moderate or major violation within a specified time.

(c) The Department may suspend a laboratory's certification for any of the grounds listed in (b) above, in accordance with the procedure described in (c)1 through 6 below.

1. The Department shall issue an administrative order to the laboratory. In the administrative order, the Department shall state the areas in which the certification is suspended, the minimum duration of the suspension and the reason for the suspension.

2. The minimum duration of the suspension shall be six months.

3. If the suspension is based on any of the grounds listed in (b)1 through 7 above, the Department may limit the suspension to the method or parameter in question, or to the method used to analyze the parameter in question.

4. A suspension ends only after all of the following requirements have been satisfied:

i. The minimum duration of the suspension has elapsed;

ii. The laboratory has corrected all circumstances which provided grounds for the suspension;

iii. If the suspension is based on any of the grounds listed in (b)1 through 7 above, the laboratory has successfully completed a proficiency test pursuant to N.J.A.C. 7:18–2.13. If the suspension is based on the grounds listed in (b)7 above for radon/radon progeny-in-air, the laboratory shall successfully complete another proficiency test within 120 days after the date of the administrative order. If the laboratory does not successfully complete the proficiency test within 120 days, the certification shall automatically be revoked for each stationary detection device that is the subject of the suspension;

iv. The laboratory has made a written request to the Department to end the suspension. With the request, the laboratory shall include documentation demonstrating that the correction described in ii above has been made; and

v. The laboratory has received written notice from the Department that the suspension has ended.

5. If the suspension applies to all Categories in which the laboratory is certified, the laboratory shall return its certificate and ACPL to the Department within 10 days of receiving the administrative order.

6. A laboratory may request a hearing in accordance with N.J.A.C. 7:18–2.17 to contest a suspension.

(d) The Department may revoke an environmental laboratory's certification for any one or more of the following grounds:

1. The recurrence of any of the grounds for suspension listed in (b) above, after the laboratory's certification has been suspended based on such grounds;

2. A material misrepresentation made to the Department;

3. A material misrepresentation made to persons other than the Department, involving the laboratory's status as a certified environmental laboratory. For example, if a laboratory is performing an analysis for a customer who will not be using the results for regulatory purposes, and the laboratory is using a method for which it is not certified, the laboratory will have made a misrepresentation unless it:

i. Disclosed to the customer that it is using a method for which it is not certified; or

ii. Did not hold itself out to the customer as a certified environmental laboratory;

4. Making a change in personnel, facilities or techniques which results in a material failure to meet the standards of this chapter;

5. A violation of N.J.A.C. 7:18–2.12;

6. Failure to allow access for an on-site audit as required by N.J.A.C. 7:18–2.14(a); or

7. Failure to correct all deficiencies by the date established in a corrective action plan as required by N.J.A.C. 7:18–2.14(g).

(e) The Department may revoke a laboratory's certification for any of the grounds listed in (d) above, in accordance with the procedure described in (e)1 through 4 below.

1. The Department shall issue an administrative order to the laboratory. In the administrative order, the Department shall state the areas in which the certification is revoked, and the reason for the revocation.

2. If the revocation is based on a recurrence or failure to correct any of the grounds listed in (b)1 through 7 above, the Department may limit the revocation to the parameter in question, or to the method used to analyze the parameter in question.

3. If the revocation applies to all parameters and all methods in which the laboratory is certified, the laboratory shall return its certificate and ACPL to the Department within 10 days of receiving the administrative order.

4. A laboratory may request a hearing in accordance with N.J.A.C. 7:18–2.17 to contest a revocation, except as provided in (f) below.

(f) The Department may revoke a laboratory's temporary approval for any of the grounds listed in (b) or (d) above. The laboratory shall not have a right to a hearing to contest the revocation.

Administrative change.
See: 28 N.J.R. 4098(a).

7:18–2.16 Effect of suspension or revocation of certification

(a) After certification for a parameter or method is revoked, or while certification for a parameter or method is suspended, a laboratory is not considered a certified environmental laboratory for purposes of that parameter or method. Accordingly, the laboratory is not authorized to analyze samples within that parameter or pursuant to that method for the purpose of establishing compliance with any regulatory program.

(b) A laboratory may apply for certification for any parameter or method for which its certification is revoked. However, the laboratory may not become recertified until at least one year after the revocation has become effective.

7:18–2.17 Procedure for requesting and conducting adjudicatory hearings

(a) A laboratory may request an adjudicatory hearing to contest a decision by the Department to suspend, revoke or deny certification, or assess a civil administrative penalty.

(b) All requests for an adjudicatory hearing must be received by the Department within 20 calendar days after the laboratory requesting the hearing receives notice of the Department's action. If the Department does not receive a hearing request within the allotted time, it shall deny the hearing request.

(c) A laboratory requesting a hearing shall provide the following information in writing to the Department at the address in (f) below:

1. The name, address, and telephone number of the laboratory requesting the hearing, and its authorized representative;

2. A copy of the document in which the Department has stated the decision;

3. A description of any facts or issues which the petitioner believes constitute a defense to the allegations made by the Department;

4. An admission or denial of each of the Department's findings of fact in the administrative order, notice of civil administrative penalty assessment or other document containing the Department decision. If the laboratory requesting the hearing lacks sufficient knowledge or information to form a belief as to the truth of a finding, the laboratory shall so state and this shall have the effect of a denial. A denial shall fairly meet the substance of the findings denied. When the laboratory intends in good faith to deny only a part or a qualification of a finding, the laboratory shall specify so much of it as is true and material and deny only the remainder. The laboratory may not generally deny all of the findings, but shall make all denials as specific denials of designated findings. For each finding the laboratory denies, the laboratory shall allege the fact or facts as the laboratory believes it or them to be;

5. Information supporting the request and specific reference to or copies of other written documents relied upon to support the request;

6. An estimate of the time required for the hearing (in days and/or hours);

7. A request, if necessary, for a barrier-free hearing location for physically disabled persons; and

8. A statement that the laboratory does or does not agree to the Department's holding the hearing request for 90 days before transmitting it to the Office of Administrative Law, to allow time to negotiate a settlement of the dispute as provided by N.J.A.C. 1:1–8.1(b).

(d) If the laboratory fails to include all of the information required by (c)1 through 6 above, the Department may deny the hearing request.

(e) All adjudicatory hearings shall be conducted in accordance with the Administrative Procedures Act, N.J.S.A. 52:14–1 et seq., and the Uniform Administrative Procedure Rules, N.J.A.C. 1:1.

(f) The laboratory shall send its request for an adjudicatory hearing to the Department at the address listed below (with a copy to the Department's enforcement bureau which issued the decision):

Office of Legal Affairs
New Jersey Department of Environmental Protection
CN 402
Trenton, New Jersey 08625–0402
Attention: Adjudicatory Hearing Request

7:18–2.18 Termination of certification upon transfer of controlling interest.

(a) A certified environmental laboratory's certification shall terminate upon transfer of a controlling interest in the laboratory, unless the transferor complies with the procedures set forth in (b) or (c) below. A transfer of a controlling interest occurs if:

1. A person who held a controlling interest in the laboratory before the transfer does not hold a controlling interest after the transfer; or

2. A person who did not hold a controlling interest in the laboratory before the transfer holds a controlling interest after the transfer.

(b) The certification of an environmental laboratory shall not terminate upon the transfer of a controlling interest and shall be transferred to the transferee, if the following requirements are satisfied:

1. The transferor shall notify the Department in writing of the proposed transfer, prior to the transfer;

2. The transferor shall allow the Department to perform an on-site audit of the certified laboratory upon request; and

3. The certified environmental laboratory corrects all deficiencies identified by the Department in the audit within 30 calendar days after receiving notice of the deficiencies, and pays any associated penalties.

(c) The certification of a certified environmental laboratory shall not terminate upon the transfer of a controlling interest under (a) above, and shall be transferred to the transferee, if the transferee agrees with the Department in writing to assume all of the transferor's liabilities in connection with the following:

1. Any deficiencies in the operations of the laboratory; and

2. All penalties arising in connection with the laboratory from occurrences or circumstances existing before the date of the transfer.

7:18–2.19 Information to the Department

If the name, location, address, telephone number, or identity of the manager or a supervisor of a certified environmental laboratory changes, the laboratory shall send written notice of the change within 15 calendar days to the Department, at the addresses listed in N.J.A.C. 7:18–1.6(a) and 2.5(a). If the change involves the identity of a supervisor, the laboratory shall include with the notice information establishing that the new supervisor's qualifications satisfy the applicable requirements of N.J.A.C. 7:18–2.10(b).

7:18–2.20 Application for alternate test procedure (ATP) approval

(a) Modifications to DSAMs or new methods not included in DSAMs are considered ATPs. A certified environmental laboratory or laboratory holding temporary approval shall not use such a modification or new technique unless the Department has approved it as an ATP and added it to the laboratory's Annual Certified Parameter List. Any certified environmental laboratory may apply to the Department for approval of an ATP, in accordance with this section. The Department shall not approve a proposed ATP unless it meets the following requirements:

1. An ATP proposed as a modification to a DSAM must achieve equal or improved precision, accuracy, and method detection limits when compared to the approved method for the specified parameters; and

2. If the ATP is proposed as a new method rather than as a modification to a DSAM, the laboratory must demonstrate that the proposed ATP will achieve precision, accuracy and method detection limits that are sufficient to meet the data quality requirements of the regulatory program for which the ATP is to be used.

(b) The Department may approve an ATP for limited use, or for limited use for a facility-specific method.

1. The Department may approve an ATP for limited use by a certified environmental laboratory if the ATP is developed by the environmental laboratory to improve the analysis of a specific parameter. If the Department approves the ATP for limited use, it can be used only by the certified environmental laboratory that receives the approval.

2. The Department may approve an ATP for limited use by a certified environmental laboratory for a facility-specific method. Facility–specific methods are those methods developed by an environmental laboratory to meet unique waste analysis requirements of a particular client facility when DSAMs are not applicable. Generally, these methods are DSAMs modified for macro analysis or matrix interferences. The facility-specific ATP can be used only by the certified environmental laboratory that receives the approval, and only for analyses performed for the specified client facility.

(c) To apply for an ATP, the certified environmental laboratory shall submit a letter of request to the Department, including:

1. The name and address of the certified environmental laboratory seeking the ATP approval;

2. The name of the Department program that requires the parameter analysis;

3. Applicable permit numbers or site identification numbers;

4. The name of each parameter and method for which approval of the ATP is being requested;

5. Justification for using the ATP instead of those methods included in DSAMs;

6. A detailed description (standard operating procedure) of the proposed ATP, including any references to published studies of the applicability of the ATP to the effluents, source water, waste or matrices in question;

7. Precision, accuracy, and method detection limits (MDLs) data in reference matrix for the proposed ATP. MDLs shall be determined as outlined in Appendix B of Section 136 of 40 CFR;

8. Precision, accuracy, and MDL data for the parameter(s) of interest spiked into the actual matrices covered by the method;

9. Comparability data (precision, accuracy, MDLs) for the performance of the proposed ATP versus that of a DSAM if the parameter(s) can be analyzed by the DSAM; and

10. The ATP application fee required under N.J.A.C. 7:18–2.9.

(d) The Department shall evaluate applications for ATP approvals in accordance with (a) above. The certified environmental laboratory shall remit the ATP approval fee required under N.J.A.C. 7:18–2.9 after the Department has accepted the ATP for evaluation. The fee is applicable whether or not the ATP is approved.

7:18–2.21 Changes in status of DSAMs

(a) Changes in the DSAM status of methods approved for use by certified environmental laboratories shall be accomplished by the Department as follows:

1. New or revised methods promulgated as amendments or supplements to a rule incorporated by reference under N.J.A.C. 7:18–1.5(a) shall become DSAMs on the effective date of the amendment or supplement;

2. New or modified CERCLA CLP methods shall become DSAMs when new or revised Invitation for Bid (IFB) documents containing these methods are published in the Commerce Business Daily;

3. New or revised Department analytical methods for sludge analysis shall become DSAMs on the operative date of the amendments or supplements to N.J.A.C. 7:14 Appendix A adding or revising such methods.

4. The Department may establish additional DSAMs by amending this chapter pursuant to the Administrative Procedure Act, N.J.S.A. 52:14B–1 et seq. Examples of additional DSAMs include:

i. Discretionary USEPA methods published in the CFR or in USEPA methods manuals;

ii. Methods published by organizations with recognized expertise in method development, including, but not limited to, the American Society for Testing Materials (ASTM), the American Public Health Association (APHA), and the United States Geological Survey (USGS); and

iii. Other methods that the Department determines are necessary to fulfill the analytical requirements imposed by one of the regulatory programs listed at N.J.A.C. 7:18–2.2(a), are Department validated methods and shall be included in the DSM category. A Department validated method shall become a DSAM upon fulfillment of the rulemaking procedures contained in N.J.A.C. 1:30. In addition to publication in the New Jersey Register as a part of the rule promulgation process, copies of proposed Department validated methods will be available from the Office of Quality Assurance at the address listed at N.J.A.C. 7:18–1.6.

5. Notification of methods withdrawn from DSAM status shall be published in the New Jersey Register pursuant to N.J.A.C. 1:30.

7:18–2.22 Required use of DSAMs

(a) In analyzing a regulatory sample, a certified environmental laboratory shall use only:

1. A DSAM from an applicable category for which the laboratory is certified; or

2. An ATP approved by the Department for the laboratory and, if applicable, for the facility in question.

(b) The requirements of (a) above do not apply to an analysis for which all of the requirements of (b)1 through 3 below are satisfied:

1. The client has provided a written statement confirming that the analysis will not be used for regulatory purposes;

2. The laboratory's report of the results of the analysis prominently displays the following statement: "This analysis is not to be used for the purpose of determining compliance with the Safe Drinking Water Act, the Water Pollution Control Act, the portion of the Radiation Protection Act governing radon and radon progeny, the Solid Waste Management Act, the Industrial Site Recovery Act, or the Spill Compensation and Control Act; any regulation or order issued pursuant to any of those statutes; or the USEPA's CERCLA Contract Laboratory Program."; and

3. The laboratory meets the requirements of N.J.A.C. 7:18–2.15(d)3.

SUBCHAPTER 3. GENERAL REQUIREMENTS FOR FACILITIES, EQUIPMENT AND SAFETY

Cross References

Requirements for environmental laboratory equipment and instruments, see N.J.A.C. 7:18–5.2.

7:18–3.1 Scope

This subchapter establishes requirements for the facilities, general instrumentation, and equipment that a certified environmental laboratory shall maintain, and safety practices that a certified environmental laboratory shall implement, when performing analyses. The requirements of the subchapter are minimum performance standards that an environmental laboratory shall achieve when analyzing regulatory samples by methods for which it is certified. In addition to the requirements of this subchapter, requirements for the use of more specialized procedures, equipment, and supplies are found in N.J.A.C. 7:18–4 through 9.

7:18–3.2 Environmental laboratory facilities and safety

(a) No certified environmental laboratory shall perform analyses unless the facility and equipment meet the following requirements:

1. Each certified environmental laboratory shall have available at least 100 square feet of floor space per analyst and at least 15 linear feet of bench space per analyst. Floor space and bench space are not required for analyze-immediately parameters and continuous monitors. Environmental laboratory space shall include the following equipment:

i. A sink with hot and cold running water, except a sink with hot and cold running water is not necessary for radon/radon progeny analysis of air samples, analyze-immediately parameters and continuous monitors;

ii. Polarized, grounded electrical outlets rated at 120 VAC and sufficient amperage to meet the needs of installed equipment. If equipment requires an electrical supply other than 120 VAC, the laboratory shall provide the equipment with the required service and outlet;

iii. When required by the method, a supply of natural gas or liquefied petroleum gas with proper attachments and a vacuum line, pump, or aspirator; and

iv. An exhaust hood if noxious fumes are generated.

2. The temperature and humidity within the certified environmental laboratory shall be maintained within the limits required for the proper performance for each test or analysis and for the proper operation of instruments which may be affected by variations in temperature or humidity.

(b) No certified environmental laboratory personnel shall perform analyses without following all the safety practices as stated in the analytical method.

7:18–3.3 Requirements for environmental laboratory equipment, supplies, materials, and general instrumentation

(a) No certified environmental laboratory shall perform testing and analysis of regulatory samples unless it has on the premises the equipment, supplies, materials, and instruments needed to perform those tests and analyses for which it is certified. The equipment, supplies, materials, and instruments shall be under the control of the supervisor and meet both the requirements of N.J.A.C. 7:18–4 through 8 and the following:

1. Analytical balances shall meet and be operated in accordance with the following requirements:

i. Each analytical balance shall have a sensitivity of 0.1 mg;

ii. The analytical balance shall be mounted on a heavy, shockproof table. The balance level shall be checked prior to each use and shall be adjusted as necessary;

iii. The analytical balance shall be located in an area that is away from environmental laboratory traffic and is protected from sudden drafts and humidity changes;

iv. The balance temperature shall be equilibrated with room temperature;

v. The interior of the balance housing shall be kept clean and free from spillage of corrosive chemicals on the pan or inside the balance case;

vi. The accuracy of each analytical balance shall be checked once a month using at least two class "S" weights, one in the gram range (five g to 50 g) and one in the milligram range (10 mg to 500 mg). The nominal values of the weight checked, observed weight values to the nearest 0.1 mg, dates on which checks were performed, analyst signature, and other pertinent information shall be recorded in a log book; and

vii. Each analytical balance shall be checked and adjusted annually by a service person employed by the environmental laboratory, or by a balance consultant and a notation recorded in the weight check logbook. A balance which malfunctions between annual checks shall be serviced before being used again.

2. Top-loader or pan balances shall meet the following requirements:

i. Balances shall be clean and not corroded;

ii. Balances shall tare out and detect a weight of 100 mg when used for general media preparation;

iii. Top loader and pan balances shall be checked monthly against two class "S" weights within the range of use, and a record shall be made of each calibration check in a log book, signed and dated by the analyst; and

iv. Each top loader and pan balance shall be checked and adjusted annually by a service person employed by the environmental laboratory, or by a balance consultant and a notation recorded in the weight check logbook. A top loader or pan balance which malfunctions between annual checks shall be serviced before being used again.

3. The laboratory shall operate pH meters in accordance with the manufacturer's instructions and the following requirements:

i. The accuracy shall be within ±0.05 pH units;

ii. The scale readability shall be ±0.05 pH units;

iii. Both indicating and reference electrodes shall be rinsed with reagent water after each reading;

iv. Samples shall be stirred during measurement at a constant rate, minimizing the air transference at the air water interface of sample;

v. Electrodes shall be stored according to the manufacturer's recommendations;

vi. The meter shall be capable of temperature compensation;

vii. All pH meters shall be calibrated each day of use. This shall include calibration with two standard pH buffers bracketing the value to be measured. After calibration, a standard buffer with pH within the calibration range shall be measured without any control adjustments to check the calibration. All calibration and check data shall be recorded in a log book, signed, and dated by the analyst. When the pH meter is in use for longer than a three hour period, the pH of the third buffer shall be checked once every three hours. If the pH differs by more than ±0.2 pH units from the standard buffer value, the meter shall be recalibrated; and

viii. Discard pH buffer calibration aliquots after each use.

4. Continuous pH monitoring devices shall be operated in accordance with the manufacturer's instructions and the following requirements:

i. The accuracy shall be within ±0.1 pH units;

ii. The scale readability shall be ±0.1 pH units;

iii. A strip chart recorder or electronic equivalent shall be used;

iv. Continuous pH monitoring devices shall be calibrated weekly, at a minimum, using one of the following procedures:

(1) Direct calibration: The electrode shall be calibrated at a minimum of two points that bracket the expected pH of the water/waste and are approximately three pH units or more apart. A record shall be made of each calibration in a log book, signed and dated by the analyst; or

(2) Indirect calibration: Collect a grab sample of the flowing material from a point as close to the electrode as possible and record the reading. Measure the pH of this grab sample as quickly as possible (within 15 minutes) with a laboratory-type pH meter that has been calibrated prior to use against two buffers as stated in (a)3vii above. Calculate the difference between the two readings. Add or subtract the difference (depending on whether the laboratory meter reading is higher or lower than the continuous monitor reading) to the current reading of the continuous monitor by adjusting its calibration control. Make a record of each calibration in a log book, and have the record signed and dated by the analyst; and

v. Discard pH buffer calibration aliquots after each use.

5. Temperature-monitoring devices shall meet the following requirements:

i. Temperature monitoring devices shall be graduated in at least 0.5 degrees Celsius increments for all analyses except fecal coliform analysis which shall be graduated in at least 0.2 degrees Celsius;

ii. Continuous temperature-monitoring devices shall be accurate to ±0.5 degrees Celsius;

iii. The liquid column of glass thermometers shall have no separation;

iv. A NIST certified thermometer graduated in at least 0.2 degrees Celsius increments shall be available at all times for use by the certified environmental laboratory covering the complete range for all analyses for which the laboratory is certified and shall be calibrated at appropriate points at or near the critical temperature or range for the temperature being measured. A certificate must accompany the certified thermometer with matching identification number; and

v. The accuracy of all thermometers used to monitor temperatures shall be verified over the range used by comparing the readings of such thermometers with the readings of a NIST certified thermometer in the temperature ranges for which they will be used. A record shall be made containing the identification number of each thermometer, the temperatures displayed on the certified thermometer and the thermometer being verified, correction factors when applicable, dates on which quality control checks were performed, and the name of the analyst performing such checks. Glass thermometers shall be verified yearly and metal thermometers or thermocouples or infra-red temperature measuring devices shall be verified quarterly and the data recorded in a log book, signed and dated by the analyst.

6. Conductivity meters, shall be readable in ohms-cm or mhos/cm, have a range of two to 20,000,000 ohms-cm or equivalent mhos/cm and an accuracy of ±1 percent;

i. Conductivity cells shall have platinum electrodes or be calibrated using a meter with platinum electrodes;

ii. Conductivity meters shall be capable of temperature compensation; and

iii. An initial five point calibration curve shall be established using potassium chloride solutions of various concentrations to cover the necessary range. A single potassium chloride standard shall then be used as a check standard whenever specific conductance measurements are made. The cell constant must be determined and all calculations recorded annually in a log book, signed and dated by the analyst.

7. Refrigerators used to store samples, standards or laboratory reagents shall meet the following criteria:

i. A household refrigerator may be used for storage of aqueous reagents and samples. For storage of organics and flammable materials, an "explosion proof" refrigerator shall be used. Refrigerators shall maintain an internal temperature between one and five degrees

Celsius (34 to 41 degrees Fahrenheit). Thermometers shall be immersed in a container filled with a liquid and placed on one of the shelves of each refrigerator being used to store regulatory samples. The specific temperature of the refrigerator should be at the level necessary to support the handling and preservation requirements of the analytical method or the sample preservation tables of the Code of Federal Regulations incorporated by reference into this chapter; and

ii. The temperature of all refrigerators used for storage of samples, standards, and environmental laboratory reagents shall be monitored daily and recorded in a permanent log book, signed and dated by the analyst. Corrective action shall be taken and appropriate notation made in the log whenever temperatures fall outside the range specified in (a)7i above.

8. Environmental laboratory glassware, plasticware and metal utensils shall meet the following requirements:

i. Beakers, flasks and other general environmental laboratory glassware shall be made of borosilicate glass that is resistant to damage by heat, chemicals and repeated use. The laboratory shall use only Class "A" volumetric glassware, and need not calibrate it before use;

ii. Unless otherwise specified, borosilicate bottles shall be used for the storage of reagents and standard solutions;

iii. Polyethylene bottles may be used where appropriate for storage of reagents and standard solutions;

iv. Serological or Mohr-type pipets are not volumetric pipets and shall not be used in tests or analysis requiring quantitative sample transfer and measurement;

v. When small quantities of analytical reagents are required to be measured, serial dilutions using class "A" glassware shall be performed. Automatic or digital type pipets shall be calibrated for accuracy and precision on a quarterly basis using reagent water and an analytical balance. Digital pipets shall meet the specifications of Class "A" pipets. The calibration record shall be recorded in a logbook and the record signed by the analyst;

vi. Glassware and metal utensils shall be resistant to the effects of corrosion, high temperatures, and vigorous cleaning operations;

vii. Flasks, beakers, dilution bottles, culture dishes, culture tubes and other glassware shall be free of chips, cracks, and excessive etching;

viii. Plastic items shall be made of clear, inert, nontoxic materials and shall retain accurate calibration marks after repeated autoclaving;

ix. Metal utensils shall be made of stainless steel; and

x. All glassware shall be washed in a warm detergent solution and thoroughly rinsed first in tap water and then in reagent water. If a specific analytical method requires more stringent cleaning procedures, the cleaning procedures given in the analytical method shall be performed.

9. A source of water that meets the required standards of quality for each type of testing shall be available for use in the preparation of reagents, standards, and for glassware rinsing. If the water of the required quality is not produced in the environmental laboratory, it shall be purchased from commercial suppliers. The environmental laboratory shall maintain a file of the required analysis for each lot of water. A source of purified water is not necessary for radon/radon progeny-in-air analyses.

10. A gravity convection drying oven or infrared drying lamp shall be capable of maintaining stable drying temperatures.

11. Glass or plastic desiccators shall be used as specified by the analytical method.

12. Hot plates shall have temperature controls.

Cross References

Laboratory equipment, instruments and materials, see N.J.A.C. 7:18–7.3.

SUBCHAPTER 4. MICROBIOLOGICAL TESTING

7:18–4.1 Scope

(a) This subchapter applies to certified environmental laboratories when performing microbiological testing on regulatory samples, and to other laboratories performing microbiological testing on PE samples to become certified. This subchapter applies to microbiological testing for parameters in the following categories:

1. Drinking Water Program—Category DW1, Microbiology Parameters;

2. Water Pollution Program—Category WP1, Microbiological Parameters; and

3. Solid/Hazardous Waste Program—Category SHW1, Microbiological Parameters.

(b) A laboratory qualifying for certification to perform total coliform analysis on samples for compliance with the Department's Bureau of Safe Drinking Water program shall concurrently qualify to perform fecal coliform and/or E. coli analyses so that the presence or absence of either in a drinking water sample can be determined and reported within the time limits specified in N.J.A.C. 7:18–4.6(k).

(c) In addition to satisfying the applicable requirements of N.J.A.C. 7:18–1 through 3, a laboratory performing microbiological testing within the scope of (a) above shall follow:

1. All applicable requirements in this subchapter; and

2. All requirements specified in the applicable DSAMs, including, without limitation, any requirements that are more stringent than the requirements in this subchapter.

7:18–4.2 Requirements for environmental laboratory equipment, supplies and materials

(a) The supervisor shall have control over the equipment, supplies and materials used in microbiological testing. The equipment, supplies and materials shall meet the requirements of N.J.A.C. 7:18–3, the applicable DSAM, and the following:

1. Air or water-jacketed incubators, aluminum block incubators, and water baths shall meet the following requirements:

i. Incubators and water baths shall be sized to accommodate periods of peak work load;

ii. Incubators and water baths must maintain internal temperatures as specified in the analytical method being performed;

iii. When aluminum block incubators are used, culture dishes and tubes shall fit snugly within the block;

iv. The water bath shall be equipped with a calibrated temperature monitoring device graduated in increments of at least 0.2 degrees Celsius; and

v. Whenever an air incubator is in use, a calibrated temperature monitoring device with its sensor or bulb immersed in liquid shall be placed on the topmost and bottommost shelf in use within the incubator. If only one shelf in the incubator is in use, the calibrated temperature monitoring device shall be placed on that shelf.

2. Autoclaves shall meet the following requirements:

i. The autoclave shall be in good operating condition when observed during its operational cycle or when time temperature charts are read;

ii. The autoclave shall be equipped with an accurate temperature monitoring device and a working safety valve;

iii. The autoclave shall be equipped with an accurate pressure gauge, unless the laboratory has documentation from the manufacturer of the autoclave certifying that the equipment will operate safely without a pressure gauge;

iv. The autoclave shall reach the sterilization temperature of 121 degrees Celsius, maintain that temperature throughout the sterilization period, and complete the autoclave cycle in no more than 45 minutes when a 12 to 15 minute sterilization period is used for culture media; and

v. During depressurization, the autoclave shall not produce air bubbles in the fermentation media.

3. Hot air ovens shall meet the following requirements:

i. The hot air oven shall be able to maintain a stable sterilization temperature of 170 to 180 degrees Celsius for at least two hours;

ii. Hot air ovens shall be used for sterilization of glass pipets, bottles, flasks, culture dishes, and other laboratory glassware and utensils; and

iii. A calibrated temperature monitoring device in increments no larger than 10 degrees Celsius with its sensor or bulb placed in sand shall be placed on one of the shelves in use within the hot air oven.

4. Optical, counting, and lighting equipment shall meet the following requirements:

i. At least one low-power magnification device with 10 to 15x magnification, for use in counting membrane filtration colonies;

ii. A fluorescent light source for use in counting total coliform MF colonies;

iii. A mechanical hand tally for use in counting bacteria colonies; and

iv. A colony counter, dark field model, to count Heterotrophic Plate Count colonies.

5. Inoculation equipment shall meet the following requirements:

i. The diameter of inoculation loops shall be at least three millimeters and the loops shall be constructed of 24 to 26 gauge Nichrome, chrome, or platinum-iridium wire;

ii. Either single-service metal inoculation loops, pre-sterilized plastic inoculation loops, or reusable metal inoculation loops shall be used; and

iii. Disposable dry-heat-sterilized hardwood applicator sticks may be used.

6. Membrane filtration (MF) equipment shall meet the following requirements:

i. Units used in MF procedures shall be made of stainless steel, glass, or autoclavable plastic;

ii. MF equipment shall not leak and shall not be corroded; and

iii. Field equipment may be used for coliform and all bacterial analysis using the membrane filter proce-

dure; however, standard laboratory MF procedures must be followed when using field equipment.

7. Membrane filters and pads shall meet the following requirements:

i. Membrane filters shall be manufactured from cellulose ester materials, and shall be white, grid-marked, and have a 47 millimeter diameter and 0.45 micrometer (μm) pore size; however, another pore size may be used when the performance data provided by the manufacturer show the performance of that pore size to be equal to or better than the performance of the 0.45μm membrane filter; and

ii. Membrane filters and pads shall be either autoclavable or presterilized.

8. Pipets shall meet the following requirements:

i. Sterile, glass or plastic pipets shall be used for measuring quantities of 10 milliliters or less; and shall be accurate within a 2.5 percent tolerance or less;

ii. Glass pipets shall be made of borosilicate glass; and

iii. Pipets shall not be excessively etched, mouthpiece or delivery tips shall not be chipped, and graduation marks shall be legible.

9. Pipet containers shall meet the following requirements:

i. Open packs of disposable sterilized pipets shall be resealed after each use; and

ii. Pipet containers shall be made of aluminum or stainless steel or individual pipets shall be wrapped in char-resistant paper.

10. Culture dishes shall meet the following requirements:

i. Sterile plastic culture dishes with tight or loose lids, or glass culture dishes with loose lids shall be used; and

ii. When culture dishes with loose lids are used, the relative humidity in the incubator shall not be less than 90 percent.

11. Culture dish containers shall meet the following requirements:

i. Culture dish containers shall be made of either aluminum or stainless steel, or the culture dishes shall be wrapped in heavy aluminum foil or char-resistant paper; and

ii. Open packs of disposable sterile culture dishes shall be resealed after each use.

12. Culture tubes and closures shall meet the following requirements:

i. Culture tubes shall be made of borosilicate glass or other corrosion resistant glass and shall be of a sufficient size to contain both the culture medium and the sample portions to be tested, without being more than three-quarters full; and

ii. Caps should be made of snug-fitting stainless steel or plastic; however, loose-fitting aluminum caps or screw caps with non-toxic liners are also acceptable.

7:18–4.3 Required use of DSAMs

(a) In performing microbiological analysis of a regulatory sample (including, without limitation, analysis of a PE sample by a laboratory that is applying to become certified), a laboratory shall use only:

1. A DSAM from the applicable Category listed in N.J.A.C. 7:18–4.1(a) for which the laboratory is certified or is applying to become certified; or

2. An ATP approved by the Department for the laboratory and, if applicable, for the facility in question.

(b) The requirements of (a) above do not apply to the analysis of a non-regulatory sample, if the requirements of N.J.A.C. 7:18–2.22(b) are satisfied.

7:18–4.4 Requirements for general environmental laboratory practices

(a) A laboratory performing microbiological analysis shall practice and meet the requirements listed in (a)1 through 4 below.

1. The laboratory shall follow sterilization procedures meeting the following requirements:

i. The times for autoclaving materials at 121 degrees Celsius are listed below. Except for membrane filters and pads and carbohydrate-containing media, indicated times are minimal times which may necessitate adjustment depending upon volumes, containers, and loads;

Material	Time (Minutes)
Membrane filters and pads	10
Carbohydrate-containing media (lauryl tryptose, brilliant green lactose bile broth, etc.)	12–15
Contaminated materials and discarded tests	30
Membrane filter assemblies (wrapped), sample collection bottles (empty), individual glassware items	15
Rinse water	15
Dilution water blanks	15

ii. Membrane filter assemblies shall be sterilized at the start of the first filtration series, either by autoclaving in accordance with (a)1i above, or by two minutes of exposure in an ultraviolet sterilizer unit. The laboratory shall not use the ultraviolet sterilizer unit if its use affects the validity of the results. The laboratory shall test the ultraviolet lamps quarterly with a light meter and a spread plate irradiation test. The laboratory shall not reuse a filtration unit without sterilizing it if 30 minutes or more has elapsed since the last sample was filtered; and

13. The laboratory shall check at least one sample container from each batch of laboratory sterilized sample containers or at least one sample container from each batch or lot of purchased sterile containers. The laboratory shall add approximately 25 milliliters of sterile non-selective broth to the container or containers being checked, and incubate the preparation at 35 degrees ±0.5 degrees Celsius for 24 hours. At the end of the incubation period, the laboratory shall check the container for growth, and record the results. If bacterial growth is observed, the batch shall be resterilized and the results recorded;

14. The laboratory shall maintain annual service contracts or internal protocols on balances, autoclave, water still, and any other equipment requiring periodic servicing. The laboratory shall enter records of actual servicing in a log book. The laboratory shall make these contracts, protocols and service records available to the Department during inspections or upon the Department's request;

15. The laboratory shall maintain records of preparation of each batch of sterilized media. In the records, the laboratory shall include the lot number of the batch, date of preparation, sterilization time and temperature, final pH of each batch, and the preparing technician's name. The laboratory shall make these records available to the Department during inspections or upon the Department's request;

16. The laboratory shall label each bottle of dehydrated media with the date of receipt, and the date on which the bottle is first opened. The laboratory shall not use the media more than six months after it is first opened, provided however, that if the bottle is stored in a desiccator the media may be used for 12 months after it is first opened;

17. The laboratory shall record the lot number of packages of membrane filters and date of receipt;

18. The laboratory shall use heat-sensitive tapes, spore strips, spore ampules or a maximum registering thermometer during each autoclave cycle;

19. The laboratory shall label all reagents and solutions to identify them and indicate other information pertinent to identification, such as (when applicable) strength or concentration, storage requirements, preparation date, expiration date, and other information pertinent to identification; and

20. The laboratory shall not use any caked or discolored media, or any media that has exceeded the manufacturer's expiration date. The laboratory shall discard such media immediately.

Cross References

Duties of environmental laboratory personnel, see N.J.A.C. 7:18–2.11.

7:18–4.6 Requirements for records and data reporting

(a) The laboratory shall retain records concerning microbiological analyses. The records to be retained include raw data records, quality control data records (including records of all quality control checks under N.J.A.C. 7:18–4.5(c)), chain-of-custody forms, laboratory reports, and the information required under (d) below. The laboratory shall retain each record for at least five years after the date of the analysis, provided however, that the laboratory shall retain records of analyses for 10 years if the person requesting the analyses has informed the laboratory that the analyses were to be performed because of epidemiological or public health concerns.

(b) The laboratory shall file and maintain data and other records in an accessible location on the laboratory's premises for one year after the date of analysis so that reviews can be conducted during on-site audits.

(c) The laboratory shall not accept custody of regulatory samples unless a chain-of-custody form is submitted with the samples, in accordance with N.J.A.C. 7:18–9.2(c)9.

1. Before accepting custody of a regulatory sample, the laboratory shall determine that the sample is properly labeled and has met the handling and preservation requirements. If the sample fails to meet those requirements, the laboratory shall indicate that failure on the chain-of-custody section of the sample request form or the chain-of-custody form;

2. The laboratory's sample custodian accepting responsibility for the sample shall sign the chain-of-custody form;

3. The laboratory shall have an internal chain-of-custody procedure or an alternate sample tracking procedure which establishes a sample's integrity and completely tracks its custody during its lifetime in the laboratory; and

4. If the analysis was not performed at the environmental laboratory that first received the sample, the chain-of-custody form shall include the name, address and identification number of the New Jersey certified environmental laboratory to which the sample was forwarded.

(d) The laboratory shall retain the following information as part of the records of analysis:

1. The assigned laboratory sample number or other unique form of identification;

2. The date and time of sample analysis;

3. The name and signature of the person or persons who performed the analysis;

4. The type of analysis performed and the DSAM used; and

5. The results of the analysis and the raw data generated by the analysis.

(e) The laboratory shall satisfy the following requirements in reporting results using the membrane filter (MF) procedure:

1. For microbiological testing other than total coliform in drinking water, if there is confluent growth, with or without typical discreet colonies covering the entire filtration area of the membrane, the laboratory shall report the results as "confluent growth per 100 milliliters with (or without) the organism for which the sample was tested (e.g., fecal coliform, fecal streptococci, etc.)." The laboratory shall also request a new sample; and

2. When the total number of bacterial colonies on the membrane is greater than 200 total colonies, or is not

sufficiently distinct, or both, the laboratory shall report the results as "too numerous to count (TNTC) per 100 milliliters with (or without) the organism for which the sample was tested (e.g., fecal coliform, fecal streptococci, etc.)." The laboratory shall also request a new sample.

(f) Pending membrane filtration (MF) verification or most probable number (MPN) completion, the laboratory shall report positive results for drinking water samples as preliminary. After MF verification or MPN completion, the laboratory shall report the final results to the client.

(g) The laboratory shall check all results reported on final report forms against original data to make sure there are no transcription errors.

(h) The laboratory shall include the following information in reporting results to the client:

1. The certified environmental laboratory name and New Jersey laboratory identification number;

2. The date, time, and location of sample collection;

3. The type of analysis performed and the analytical method employed;

4. The results generated by the analysis; and

5. The name and signature of the environmental laboratory manager or designee identified under N.J.A.C. 7:18–2.11(a)iii.

(i) The laboratory shall not report results of analyses to the Department or to any other person unless the original or true duplicate of the results is sent to the client. The report shall be signed by the laboratory manager or designee identified under N.J.A.C. 7:18–2.11(a)iii.

(j) The laboratory shall not refer samples to another laboratory for analysis, unless the other laboratory is also a certified environmental laboratory. The laboratory requesting the analysis shall provide the results to the client, on the original or true duplicate forms from the certified environmental laboratory that performed the analysis, containing the New Jersey environmental laboratory identification number of the certified environmental laboratory that performed the analysis.

(k) When the laboratory determines the presence of fecal coliform or E. Coli in a drinking water sample, pursuant to 40 CFR 141.63(b), the laboratory shall notify the affected parties as follows:

1. For non-transient non-community and transient non-community water systems, the laboratory shall notify the water purveyor and the municipal health agency (or, if there is no municipal health agency for the municipality in question, the county health agency) within 24 hours or during the next business day; or

2. For community water systems, the laboratory shall notify the water system's superintendent and the Department's Bureau of Safe Drinking Water within 24 hours or during the next business day.

(*l*) If the laboratory discovers an error in the analysis of a regulatory sample, and the error may affect the validity of the reported analytical result, the environmental laboratory manager shall report the error to the regulatory program for which the analysis was conducted, and to the client. The laboratory shall make this notification within 72 hours after discovery of the error.

SUBCHAPTER 5. CHEMICAL TESTING

7:18–5.1 Scope

(a) This subchapter applies to certified environmental laboratories when performing chemical testing on regulatory samples, and to other laboratories performing chemical testing on PE samples to become certified. This subchapter applies to chemical testing for parameters in the following categories:

1. Drinking Water Program:

i. Category DW2, Inorganic Parameters Including Sodium & Calcium;

ii. Category DW4, Inorganic Parameters, Metals;

iii. Category DW5, Organic Parameters, Chromatography; and

iv. Category DW6, Organic Parameters, Chromatography/Mass Spectrometry.

2. Water Pollution Program:

i. Category WP2, Inorganic Parameters, Nutrients & Demand;

ii. Category WP4, Inorganic Parameters, Metals;

iii. Category WP5, Organic Parameters, Chromatography;

iv. Category WP6, Organic Parameters, Chromatography/Mass Spectrometry; and

v. Category WP7, Individual Pesticides (GC, GC/MS, TLC).

3. Solid/Hazardous Waste Program:

i. Category SHW2, Characteristics Testing;

ii. Category SHW4, Inorganic Parameters;

iii. Category SHW5, Organic Parameters, Preparation and Screening;

iv. Category SHW6, Organic Parameters, Chromatography;

v. Category SHW7, Organic Parameters, Chromatography/Mass Spectrometry;

vi. Category SHW8, Polychlorinated Dibenzodioxins and Dibenzofurans;

vii. Category SHW9, Miscellaneous Parameters;

viii. Category SHW10, Facility–Specific Parameters;

ix. Category SHW11, Incinerator Emissions; and

x. Category SHW12, Immunoassay.

4. CERCLA–CLP Program:

i. Category CLP1, Multi–Media, Multi–Concentration Inorganic Parameters;

ii. Category CLP2, Multi–Media, Multi–Concentration Organic Parameters;

iii. Category CLP3, Polychlorinated Dibenzo-p-dioxins and Dibenzofurans;

iv. Category CLP4, Multi–Media, High Concentration Inorganic Parameters;

v. Category CLP5, Multi–Media, High Concentration Organic Parameters;

vi. Category CLP6, Low Concentration Water for Inorganic Parameters; and

vii. Category CLP7, Low Concentration Water for Organic Parameters.

(b) In addition to satisfying the applicable requirements of N.J.A.C. 7:18–1 through 3, a laboratory performing chemical testing within the scope of (a) above shall follow:

1. All applicable requirements in this subchapter; and

2. All requirements specified in the applicable DSAMs, including without limitation any requirements that are more stringent than the requirements in this subchapter.

7:18–5.2 Requirements for environmental laboratory equipment and instruments

(a) The supervisor shall have control over the equipment and instruments used in chemical testing. The laboratory shall use only equipment and instruments that meets the applicable requirements listed in (a)1 through 17 below, the applicable requirements of N.J.A.C. 7:18–3, and the requirements of the applicable DSAM.

1. Spectrophotometers (other than atomic absorption spectrophotometers) shall meet the following requirements:

i. The spectral range shall be at least 400 to 700 nanometers (nm). The maximum spectral bandwidth shall be no more than 20 nm;

ii. Wavelength accuracy shall be within ±2.5 nm; and

iii. Spectrophotometers shall employ a cell path length permitting a linear calibration of the instrument in the anticipated concentration range consistent with the DSAM.

2. Filter photometers or colorimeters shall meet the following requirements:

i. Filter photometers or colorimeters shall have filters that isolate various radiant energy bands in the 400 to 700 nm range. The filters shall have a bandwidth between 10 and 70 nm; and

ii. Filter photometers and colorimeters shall employ a cell path length permitting a linear calibration of the instrument in the anticipated concentration range consistent with the DSAM.

3. Atomic absorption spectrophotometers shall meet the following requirements:

i. Atomic absorption spectrophotometers shall be single or multiple channel, single or double beam instruments having a grating monochromator, photomultiplier detector, adjustable slits, and provisions for interfacing with an analog/digital chart recorder/printer or a computer data system;

ii. If used, a computer data system shall perform analog-digital conversions with integration, storage, and output. The laboratory shall produce completed header information for the computer system to define the unique sample, blank or standard run; date/time of analysis; analyst; parameter(s) concentrations, and or absorbance values;

iii. The instruments shall be operated with the fuel and oxidant gases specified by the analytical method;

iv. Instruments used to analyze metals as hydrides shall:

(1) Have a hydride generator that meets the specifications of the applicable DSAM; and

(2) Be able to meet the temperature and background correction requirements of the applicable DSAM.

4. For mercury analysis, a mercury analyzer or an atomic absorption spectrophotometer used for mercury analysis shall meet the following requirements:

i. The laboratory shall operate the instruments used for cold-vapor mercury analysis using the lamps specified by the applicable DSAM;

ii. The laboratory shall use absorption cells that measure at least 10 centimeters (cm) and have 2.5 cm quartz end windows, or their equivalent;

iii. The laboratory shall use a vapor flow system including an air pump delivering one liter per minute, a heated drying unit or a tube containing 20 grams of

magnesium perchlorate, and an aeration tube with coarse glass-frit; and

iv. Because of the toxic nature of mercury vapor, the laboratory shall take precautions to avoid subjecting individuals to inhalation of the vapor. Therefore, when the samples are analyzed, the released mercury vapor shall be passed through an absorbing media, such as equal volumes of 0.1 N potassium permanganate ($KMnO_4$) and 10 percent sulfuric acid (H_2SO_4), or 0.025 percent iodine in a three percent potassium iodide (KI) solution, or specially treated charcoal that will absorb mercury vapor.

5. Inductively coupled plasma (ICP) spectrometers shall meet the following requirements:

i. The laboratory's ICP instruments shall be computer-controlled;

ii. The system shall be capable of background correction; and

iii. The system shall include a computer data system that performs analog-digital conversions with integration, storage, and output. The laboratory shall produce completed header information for the computer system to define the unique sample, blank or standard run; the date and time of instrumental analysis; the analyst; and the parameter or parameters for which the sample is being analyzed.

6. Inductively coupled plasma/mass spectrometers (ICP/MS) shall meet the requirements applicable to ICP spectrometers under (a)5 above. The laboratory shall operate ICP/MS instrumentation using the mass spectrometer ionization conditions, scan range, and scan rate defined by the applicable DSAM, and shall meet the tuning criteria, initial and continuing calibration, quality assurance, and quality control requirements of the applicable DSAM.

7. Transmission electron microscopes and associated energy dispersive X-ray analyzers shall meet the requirements of the applicable DSAM.

8. Gas chromatographs shall meet the following requirements:

i. GC Column ovens shall be capable of isothermal temperature control;

ii. Injection systems, columns, and carrier gas flow control conditions shall meet the requirements of the applicable DSAM;

iii. Detectors shall meet the requirements of the applicable DSAM;

iv. Chromatograms shall be recorded with a strip chart recorder and integrator or combined recorder/integrator or computer data system; and

v. The original hard copy of all chromatograms shall meet the requirements of (a)14 below.

9. Gas chromatograph/mass spectrometers (GC/MS) shall meet the requirements for gas chromatographs in (a)8 above, and the requirements for mass spectrometers under (a)13 below.

10. High performance liquid chromatographs (HPLC) shall meet the following requirements:

i. Isocratic and/or linear gradient elution chromatography shall be used;

ii. Fluorescence, UV or electrochemical detectors shall be used, as required by the applicable DSAM;

iii. Reverse-phase or other columns shall be used as prescribed by the applicable DSAM;

iv. Chromatograms shall be recorded with a strip chart recorder and integrator or combined recorder/integrator or computer data system; and

v. The original hard copy of all chromatograms shall meet the requirements of (a)14 below.

11. High performance liquid chromatograph/mass spectrometers (HPLC/MS) shall satisfy the requirements for high performance liquid chromatographs in (a)10i, iii and iv above, and the requirements for mass spectrometers under (a)13 below.

12. Ion chromatographs shall meet the requirements defined by the DSAM including the following requirements:

i. Suppressor and separator or other columns shall be used as required by the applicable DSAM;

ii. Conductivity or other detector shall be used as required by the applicable DSAM;

iii. Chromatograms shall be recorded with a strip chart recorder and integrator or combined recorder/integrator or computer data system; and

iv. The original hard copy of all chromatograms shall meet the requirements of (a)14 below.

13. Mass spectrometers under (a)9 and 11 above shall meet the following requirements:

i. Mass spectrometer instrumentation shall be operated using the ionization conditions, scan range, and scan rate, and shall meet the tuning criteria, initial and continuing calibration, quality assurance and quality control requirements of the applicable DSAM;

ii. The mass spectrometer shall have a computer data system for performing qualitative identifications and quantitative calculations for target compounds. It shall be capable of identifying and semi-quantitating "non-target" or tentatively identified compounds (TICs). The software shall use retention time and mass spectral comparisons for qualitative identifications. The software shall use a formula defined in the applicable DSAM to calculate quantitative results of target compounds;

iii. The computer data system shall be capable of performing a mass spectra search against the NIST library or other USEPA-approved mass spectral library. The data system shall rank and present the best three qualitative identification mass spectral matches. If a parameter cannot be specifically identified, but its compound class can be determined by mass spectral matching, its compound class shall be reported. If the compound class is indeterminate, the parameter shall be reported as an unknown. Semi-quantitative results for a non-target TIC shall be estimated by assuming that its concentration is proportional to that of the nearest internal standard;

iv. The laboratory's GC/MS analyst or supervisor shall independently confirm all software qualitative identifications for found parameters; and

v. The original hard copy of all chromatograms shall meet the requirements of (a)14 below.

14. The laboratory shall have the analyst sign the original hard copy of all chromatograms, analog or digital, prepared using any of the types of equipment listed in (a)8 through 12 above. In the original hard copy, the laboratory shall include a table setting forth all of the following information:

i. Identification of the sample, blank or standard;

ii. The date and time of the analysis;

iii. The run number; and

iv. Peak identification, by number, by retention time, or by name. The peak identification shall include internal standards, surrogates, and sample components.

15. Auto-analyzer equipment shall meet the requirements defined by the automated methods of the DSAMs including the following requirements:

i. The spectral range shall be at least a minimum of 400 to 700 nm. The maximum spectral bandwidth shall be no more than 20 nm;

ii. Wavelength accuracy shall be within ±2.5 nm; and

iii. The laboratory shall have the analyst sign the original hard copy of all outputs. In all outputs, analog or digital, the laboratory shall include a table setting forth the following information: identification of the sample, blank or standard; the date and time of analysis; the run number; and peak identification.

16. Any burets used for titration shall be Class "A" burets, and need not be calibrated before use.

17. Dissolved oxygen (DO) meters with membrane electrodes shall meet the following requirements:

i. Dissolved oxygen measurements shall be accurate to within ±0.3 mg dissolved oxygen per liter (DO/L) and shall be precise to within ±0.15 mg DO/L; and

ii. Meters shall be capable of compensation for temperature.

18. At least annually, the laboratory shall check salinity meters equipped with conductivity cells having platinum electrodes. The check shall cover the range of interest using at least five concentrations of a standard potassium chloride solution. Conductivity cells not having platinum electrodes shall be checked against a conductivity meter equipped with platinum electrodes. The laboratory shall perform this check annually. The laboratory shall record the raw data, cell constant, and results in a log book, with each entry signed and dated by the analyst.

Administrative change.
See: 28 N.J.R. 4098(a).

7:18–5.3 Required use of DSAMs

(a) In performing chemical analysis of a regulatory sample (including, without limitation, analysis of a PE sample by a laboratory that is applying to become certified), a laboratory shall use only:

1. A DSAM from the applicable Category listed in N.J.A.C. 7:18–5.1(a) for which the laboratory is certified or is applying to become certified; or

2. An applicable ATP approved by the Department pursuant to N.J.A.C. 7:18–2.20 for the laboratory and, if applicable, for the facility in question.

(b) The requirements of (a) above do not apply to the analysis of a non-regulatory sample, if the requirements of N.J.A.C. 7:18–2.22(b) are satisfied.

7:18–5.4 Requirements for general environmental laboratory practices

(a) A laboratory shall meet the following requirements with respect to laboratory chemicals, reagents and standards used in chemical testing:

1. The laboratory shall use analytical reagent grade (AR) chemicals;

2. The laboratory shall examine stock and working standard solutions weekly and before each use for signs of decomposition, including, but not limited to, discoloration, formation of precipitates, and concentration change due to obvious evaporation. If the laboratory finds that a solution shows any such conditions, the laboratory shall discard the solution immediately;

3. The laboratory shall label all reagents and reagent solutions to indicate identity and, when applicable, titer, strength or concentration, recommended storage requirements, preparation date, expiration date, and any other pertinent information;

4. The laboratory shall immediately discard any reagent or reagent solution that is past its expiration date;

5. The laboratory shall use only standards of high purity for inorganic methods;

6. The laboratory shall mark all purchased chemicals, solutions, and standards with the date received by the laboratory and the date first opened by the laboratory;

7. If a DSAM requires the use of special purity solvents or reagents, a laboratory shall not perform an analysis pursuant to that DSAM using solvents or reagents of lesser purity;

8. The laboratory shall initially standardize prepared titrants used in the analysis of one or more parameters in Categories DW2, WP2, SHW4, or SHW9. The laboratory shall restandardize such titrants at least quarterly. The laboratory shall restandardize purchased titrants at least quarterly. In standardizing or restandardizing a titrant, the laboratory shall use primary or secondary reagents as specified in the applicable DSAM;

9. The laboratory shall not use purchased standards or titrants unless they have a lot-specific certificate of analysis; and

10. The laboratory shall obtain or prepare calibration check standards and QC check samples from lots of materials different from those used to prepare calibration standards.

7:18–5.5 Requirements for quality assurance/quality control program

(a) The laboratory shall develop and keep current a quality assurance/quality control manual. The laboratory shall not perform analyses of regulatory samples without having a current quality assurance/quality control manual covering the analysis in question. In the manual, the laboratory shall describe the following:

1. The procedures that the laboratory will use in meeting the quality control requirements of this subchapter, N.J.A.C. 7:18–3, and all applicable DSAMs, including, but not limited to, requirements pertaining to laboratory equipment, instrumentation and supplies; and

2. The frequency with which the laboratory will perform the procedures listed pursuant to (a)1 above.

(b) The laboratory shall develop and implement a written methods manual containing a standard operating procedure (SOP) for each DSAM, in accordance with the criteria and procedures of the DSAM and this chapter. A laboratory shall not perform analyses using a DSAM unless it has developed and implemented such an SOP for the DSAM.

1. The laboratory shall update the manual to reflect any changes in the procedures practiced by the laboratory.

2. The laboratory shall keep copies of the methods manual in the immediate bench area of personnel engaged in the analysis of samples and related procedures within the chemical testing Categories.

3. In the manual, the laboratory shall properly designate by revision number and date the standard operating procedure (SOP) for a specified analytical method for a particular type of analysis.

4. Changes to SOPs are effective only if:

i. The change is made by the manager, supervisor or quality assurance officer of the laboratory; and

ii. The manager, supervisor or quality assurance officer makes the change in writing, signed and dated by the manager, supervisor or quality assurance officer.

5. The laboratory shall make manufacturers' instruction manuals and any applicable regulations readily available to laboratory personnel at all times. Textbooks may be used to supplement written instructions, but shall not be used in lieu thereof.

(c) A laboratory performing chemical testing shall conduct the quality control checks specified in the applicable DSAMs, and the following additional checks:

1. The laboratory shall calibrate dissolved oxygen instruments against air or air saturated water before each use or weekly, whichever is less frequent. The laboratory shall test dissolved oxygen instruments weekly using the Winkler method (azide modification) 4500–OC set forth in SM–18 or ASTM method D88–92(A), or another Winkler method promulgated by the USEPA.

2. The laboratory shall calibrate standards incorporated in visual comparison devices at least once every six months. The laboratory shall maintain records of the date and method of each such calibration in accordance with N.J.A.C. 7:18–5.6. The laboratory shall prepare visual calibration standards according to the applicable DSAM. The laboratory shall plot concentrations of the calibration standards against those of the incorporated standards, and calculate a correction factor. The laboratory shall document this correction factor and apply it to all future results until the factor is redetermined at the next six-month interval;

3. The laboratory shall check the wavelength setting of each spectrophotometer at least annually, by comparing the wavelength setting to the absorption maxima of colored standards or filters such as didymium glass. For each check, the laboratory shall record in a log book the date on which it performed the check, the wavelength observed, and the correction factor. The record shall include the analyst's signature;

4. The laboratory shall prepare calibration curves used in the spectrophotometric analysis and ion-selective electrode analysis of inorganic parameters as follows:

i. When using new calibration standards or quarterly, the laboratory shall prepare new calibration curves consisting of at least one reagent blank and five standards. The calibration coefficient shall be >0.995.

ii. The laboratory shall verify the calibration curve with the calibration check standard daily or after every 20 samples, whichever is more frequent. For analyses under the Drinking Water Program, the laboratory shall use a calibration check standard with a concentration at or near the maximum contaminant level (MCL). For analyses under other regulatory programs, the laboratory shall use a calibration check standard with a concentration at or near the middle of the concentration range of the calibration curve. If the applicable DSAM does not specify the permitted deviation, a verification is satisfactory only if the concentration as determined from the calibration curve is within a percent difference (PD) of 10 percent of the true concentration of the calibration check standard. If the PD is greater than 10 percent, the laboratory shall prepare a new calibration curve.

iii. The laboratory shall record all data used in determining the calibration curve, and have the record signed by the analyst. In the record, the laboratory shall include the date of calibration, identification and concentration standards;

5. The laboratory shall prepare calibration curves used in the analysis of metal parameters in Categories DW2, DW4, WP2, WP4, SHW4, and SHW9. The laboratory shall follow the requirements for calibration curves in 4 above, except that a minimum of one reagent blank and three standards are required. When the laboratory uses computer-controlled equipment, the laboratory shall follow the manufacturer's instructions for calibrating the instrument and shall verify the calibration curve with two calibration check standards, one at the low end of the concentration range and the other at the high end;

6. The laboratory shall analyze blanks at the frequencies required by the applicable DSAM;

7. For parameters in categories DW2, DW4, WP2, WP4, SHW4 and SHW9, the laboratory shall conduct quality control (QC) check sample analyses to verify the accuracy of the analytical system for the parameter. For each QC check sample analysis, the laboratory shall record the results of the analysis, the date on which the verification analysis was performed, and the method of verification. The laboratory shall have the analyst who performed the analysis sign the record.

i. If the laboratory analyzes 20 or more samples in a calendar month, it shall analyze one QC sample for every 20 samples analyzed during the month. If the laboratory analyzes fewer than 20 samples in a calendar month, it shall analyze one QC sample during the month; and

ii. The laboratory shall calculate the percent recovery (% R) for each parameter in the QC sample. The % R shall be within the limits listed in the applicable DSAM. If the applicable DSAM does not list such limits, the laboratory shall calculate such limits from its experimental data, using the procedure in (c)9 below. If the % R is not within three standard deviations of the limits, the laboratory shall re-analyze the samples in question;

8. In all cases, the laboratory shall conduct matrix spike and matrix spike duplicate sample analyses to verify the accuracy and precision of the DSAM for the applicable parameters in the Categories DW2, DW4, WP2, WP4, SHW4, and SHW9;

i. The laboratory shall verify the accuracy and precision of its analyses of parameters in the above categories. The laboratory shall maintain records of such verifications, signed by the analyst performing the verification. In the records, the laboratory shall include the date on which it performed the verification, the method of verification, and the results;

ii. If the laboratory analyzes 20 or more samples for any one parameter in a calendar month, it shall verify the accuracy and precision of such analyses on at least one of every 20 samples analyzed during the month. If the laboratory analyzes fewer than 20 samples for any one parameter in a calendar month, it shall verify the precision of the analysis once a month;

iii. The laboratory shall calculate the percent recovery (% R) for each matrix spike and the relative percent difference (RPD) between the matrix spike and matrix spike duplicate for each parameter. The % R and RPD shall meet requirements of the applicable DSAM. If the method does not list limits for % R and RPD values, the laboratory shall establish these limits from its experimental data, using the procedure in (c)9 below;

9. In all cases, the laboratory shall calculate and document standard deviations for all applicable measurements conducted in Categories DW2, DW4, WP2, WP4, SHW4, and SHW9, in accordance with the following requirements:

i. The laboratory shall calculate standard deviations for n–1 degrees of freedom (n samples—1) for all % R and RPD measurements in (c)7 and 8 above. For this calculation in connection with (c)7 above, the laboratory shall use ongoing data collected from the analysis of 10 QC samples; for this calculation in connection with (c)8 above, the laboratory shall use ongoing data collected from the analysis of 10 matrix, matrix spike pairs. For parameters in Category DW2 or DW4, the laboratory shall use samples that have been prepared at the MCL. For other parameters, the laboratory shall use samples that have been prepared to approximate the middle of the concentration range normally encountered in the analysis. The laboratory shall record the theoretical or true value. The laboratory shall calculate and plot the mean value, the warning limits (two standard deviations), and the corrective action limits (three standard deviations); and

ii. The laboratory shall record subsequent quality control results for each parameter, and compare the results against its control limits. The control limits shall be updated after a batch of 20 new measurements.

10. A certified environmental laboratory or a laboratory that is applying for certification shall determine its own MDLs in reagent water. MDL data are required for all DSAMs containing reference MDL data for which the laboratory possesses or is applying for certification. The laboratory shall make the MDL determinations in accordance with 40 CFR 136 Appendix B. The Office of Quality Assurance may require the laboratory to determine MDLs for any DSAMs for which it possesses certification. This data is required to support Water Technical Programs N.J.A.C. 7:9–4 and 6;

11. A certified environmental laboratory shall determine its MDL data (as stated in (c)10 above) annually. All regulatory sample data except CERCLA CLP shall include the most recent MDL values determined by the laboratory;

12. The laboratory shall maintain a permanent maintenance record containing the following information for each instrument:

i. The date of instrument installation;

ii. The date and a description of repairs, modifications, and preventive maintenance;

iii. The signature of the person performing the maintenance; and

iv. Chromatographic column information and installation date.

13. The laboratory shall maintain a bound notebook containing records of the preparation of standards. The laboratory shall include the following information in the records:

i. The manufacturer's name and lot number of reagent, date received, percent purity, name of chemical, concentrations if a solution;

ii. The identification number of the concentrated stock standard solution, date of preparation, expiration date, signature of the analyst who prepared the solution, all chemical compounds in the solution, purity, gross weight, tare weight, net weight, adjusted net weight (corrected for purity of primary standard) (only net weight and adjusted net weight are required when using balances with automatic tare features), dilution volume, and concentration in specified units;

iii. The identification number of the intermediate concentration standard solution (if needed), date of preparation, expiration date, signature of the analyst who prepared the solution, all chemical compounds in the solution, identification number of the concentrated stock, strength of concentrated stock, aliquot of concentrated stock, dilution volume, and final concentration in specified units; and

iv. The identification number of the working standard solution, date of preparation, expiration date, signature of the analyst who prepared the solution, all chemical compounds in the solution, identification number of the intermediate concentration standards, concentration of intermediate standards, aliquot volumes, dilution volumes, and final concentrations in specified units.

Cross References

Duties of environmental laboratory personnel, see N.J.A.C. 7:18–2.11.

7:18–5.6 Requirements for records and data reporting

(a) The laboratory shall retain records concerning chemical analyses. The records to be retained include raw data records, quality control data records (including records of all quality control checks under N.J.A.C. 7:18–5.5(c)), chain-of-custody forms, laboratory reports, and the information required under (d) below. The laboratory shall retain each record for at least five years after the date of the analysis, provided however, that the laboratory shall retain records of analyses for 10 years if the person requesting the analyses has informed the laboratory that the analyses were to be performed because of epidemiological or public health concerns.

(b) The laboratory shall file and maintain data and other records in an accessible location on the laboratory's premises for one year after the date of analysis so that reviews can be conducted during on-site audits.

(c) The laboratory shall not accept custody of regulatory samples unless a chain-of-custody form is submitted with the samples, in accordance with N.J.A.C. 7:18–9.3(b)4.

1. Before accepting custody of a regulatory sample, the laboratory shall determine that the sample is properly labeled and has met the handling and preservation requirements. If the sample fails to meet those requirements, the laboratory shall indicate that failure on the chain-of-custody section of the sample request form or the chain-of-custody form;

2. The laboratory's sample custodian accepting responsibility for the sample shall sign the chain-of-custody form;

3. The laboratory shall have an internal chain-of-custody procedure or an alternate sample tracking procedure which establishes a sample's integrity and completely tracks its custody during its lifetime in the laboratory; and

4. If the analysis was not performed at the environmental laboratory that first received the sample, the chain-of-custody form shall include the name, address and identification number of the New Jersey certified environmental laboratory to which the sample was forwarded.

(d) The laboratory shall retain the following information as part of the records of analysis:

1. The assigned laboratory sample number or other unique form of identification;

2. The date and time of sample preparation and analysis;

3. The name and signature of the person or persons who performed the analysis;

4. The type of analysis performed and the DSAM used;

5. The results of the analysis and the raw data generated by the analysis, including any correction factors; and

6. The results of the initial calibrations, calibration check standards, and method quality control requirements.

(e) The laboratory shall check all results reported on final report forms against original data to make sure there are no transcription errors.

(f) If the laboratory discovers an error in the analysis of a regulatory sample, and the error may affect the validity of the reported analytical result, the environmental laboratory manager shall report the error to the regulatory program for which the analysis was conducted, and to the client. The laboratory shall make this notification within 72 hours after discovery of the error.

(g) The laboratory shall not report results of analyses to the Department or to any other person unless the original or true duplicate of the results is sent to the client. The report shall be signed by the laboratory manager or designee identified pursuant to N.J.A.C. 7:18–2.11(a)1iii.

(h) The laboratory shall not refer samples to another laboratory for analysis, unless the other laboratory is also a certified environmental laboratory. The laboratory requesting the analysis shall provide the results to the client, on the original or true duplicate forms from the certified environmental laboratory that performed the analysis, containing the New Jersey environmental laboratory identification number of the certified environmental laboratory that performed the analysis.

(i) When the laboratory determines that the concentration of nitrate, nitrite, or nitrate/nitrite in a regulatory drinking water sample exceeds the MCL, the laboratory shall notify the affected parties as follows:

1. For non-transient non-community and transient non-community water systems, the laboratory shall notify the water purveyor and the municipal health agency (or, if there is no municipal health agency for the municipality in question, the county health agency) within 24 hours or during the next business day; or

2. For community water systems, the laboratory shall notify the water system's superintendent and the Department's Bureau of Safe Drinking Water within 24 hours or during the next business day.

(j) The laboratory shall include at least the following information in reporting analyses for the Safe Drinking Water Program or the Water Pollution Program:

1. The certified environmental laboratory name and New Jersey laboratory identification number;

2. The date and time of sampling, sample preparation and analysis;

3. Specific and unique identification of the sample;

4. The type of analysis performed and the analytical method employed, including the method number;

5. The name of each parameter;

6. The dilution factor (DF), if the sample was diluted (for example, to reduce matrix interference);

7. The sample MDL. If the sample was diluted, the laboratory shall adjust the MDL to reflect the dilution. To calculate the adjusted MDL, the laboratory shall multiply the reagent water MDL by the DF;

8. The name and signature of the environmental laboratory manager or designee identified pursuant to N.J.A.C. 7:18–2.11(a)1iii; and

9. The results generated by the analysis, reported as a quantitative number with units of measurement (such as mg/L, micrograms/L, or micrograms/kg) or as "not detected" (ND).

(k) In addition to the information required under (j) above, the laboratory may report an extended list of target compounds if it meets the standardization and quality control requirements of the applicable DSAM and N.J.A.C. 7:18–5.5 for the additional parameters on the extended list.

(*l*) The laboratory shall include at least the following information in reporting analyses for the Solid/Hazardous Waste program or the CERCLA–CLP program:

1. The certified environmental laboratory name and New Jersey environmental laboratory identification number;

2. The date and time of sampling, sample preparation and analysis;

3. Specific and unique identification of the sample;

4. The type of analysis performed and the analytical method employed, including the method number;

5. The name of each parameter;

6. The dilution factor (DF), if the factor was diluted (for example, to reduce matrix interference);

7. The sample MDL. If the sample was diluted, the laboratory shall adjust the MDL to reflect the dilution. To calculate the adjusted MDL, the laboratory shall multiply the reagent water MDL by the DF. MDL values are not required for CLP reporting;

8. The name and signature of the environmental laboratory manager or designee identified pursuant to N.J.A.C. 7:18–2.11(a)1iii; and

9. The results of the analysis, to be reported as specified in the DSAM.

(m) In addition to the information required under (*l*) above, the laboratory may report an extended list of target compounds if it meets the standardization and quality control requirements of the applicable DSAM and N.J.A.C. 7:18–5.5 for the additional parameters on the extended list.

SUBCHAPTER 6. RADIOCHEMICAL TESTING PROCEDURES INCLUDING RADON GAS/RADON PROGENY

7:18–6.1 Scope

(a) This subchapter applies to certified environmental laboratories when performing radiochemical testing or radon/radon progeny-in-air testing on regulatory samples, and to other laboratories performing radiochemical testing or radon/radon progeny-in-air testing on PE samples to become certified. This subchapter applies to radiochemical testing and radon/radon progeny-in-air testing for parameters in the following categories:

1. Drinking Water Program:

i. Category DW7, Radiochemistry: Radioactivity & Radionuclide Parameters; and

ii. Category DW8, Radon in Drinking Water for the Safe Drinking Water Program;

2. Water Pollution Program:

i. Category WP9, Radiochemistry: Radioactivity & Radionuclide Parameters; and

ii. Category WP10, Radon in Wastewater for Water Pollution Control Program; and

3. Radon/Radon Progeny-in-Air Program: Category RA1, Radon/Radon Progeny-in-Air Parameters for the Radon Act Program.

(b) In addition to satisfying the applicable requirements of N.J.A.C. 7:18–1 through 3, a laboratory performing radiochemical testing within the scope of (a) above shall follow:

1. All applicable requirements in this subchapter; and

2. All requirements specified in the applicable DSAMs, including without limitation any requirements that are more stringent than the requirements in this subchapter.

7:18–6.2 Requirements for radiochemistry environmental laboratory facilities

(a) The laboratory shall not perform radiochemical testing unless its facilities meet the requirements of (a)1 and 2 below, the applicable requirements of N.J.A.C. 7:18–3, and the requirements of the applicable DSAM.

1. The laboratory shall properly ground counting instruments required to measure activities or specific radionuclides described in 40 CFR l4l, Methods for the Safe Drinking Water Act. The laboratory shall have available a regulated power supply, either external or internal, for use with each such instrument. The laboratory shall not locate any such instruments:

i. In a room in which samples and standards are being prepared; or

ii. In a room in which other types of chemical analyses are being performed.

2. To avoid contamination of work surfaces and personnel in areas in which radioactive standards are being prepared, the laboratory shall use work surfaces meeting the requirements of (a)2i or ii below:

i. Bench surfaces of an impervious material covered with absorbent paper; or

ii. Trays constructed of stainless steel, plastic, or fiberglass and lined with absorbent paper.

7:18–6.3 Requirements for radiochemistry laboratory equipment and instruments

(a) The supervisor shall have control over the equipment and instruments used in radiochemical testing and radon/radon progeny-in-air testing. The laboratory shall have equipment and instruments that satisfy the applicable requirements listed in (a)1 and 2 below, in (b) and (c) below, in N.J.A.C. 7:18–3, and in the applicable DSAM.

1. The laboratory shall have a muffle furnace that:

i. Is automatically controlled;

ii. Has a chamber capacity of at least 2,200 cubic centimeters (cc), and measures at least 10 centimeters (cm) by 9.5 cm by 23 cm; and

iii. Has a maximum operating temperature of 1,000 degrees Celsius continuous and 1,100 degrees Celsius intermittent; and

2. The laboratory shall have a general purpose tabletop centrifuge that has a maximum speed of at least 3,000 revolutions per minute (rpm) and a loading option of 4 x 50 mL.

(b) A laboratory performing measurements involving radiation counting (as set forth in 40 CFR 141 and required by the Federal Safe Drinking Water Act) shall have the instruments meeting the requirements in (b)1 through 6 below and the requirements of the applicable DSAM:

ix. Upon completing the toxicity test, the laboratory shall send the original or true duplicate of the results to the client. The original or true duplicate shall be signed by the laboratory manager or a designee identified under N.J.A.C. 7:18–2.11(a)1iii.

Administrative change.
See: 28 N.J.R. 4098(a).
Amended by R.1997 d.192, effective May 19, 1997.
See: 28 N.J.R. 4149(a), 29 N.J.R. 2275(a).
In (a)1, inserted "or N.O.A.E.C."; and added (b)6.

7:18–7.7 Laboratory quality control and recordkeeping

(a) A laboratory performing acute toxicity testing shall develop and implement a quality control program. The laboratory shall not perform acute toxicity testing without having such a program. The laboratory shall have a written description of its program on file and be able to produce a copy during an on-site inspection. The written description shall include all methods manuals used for culturing test organisms, and all testing protocols used by the laboratory. The quality control program description, or standard operating procedures (SOP) manual, shall be specific to the operations of the laboratory and not a generalized document.

(b) The laboratory shall make records of all analytical control tests and quality control checks on equipment and materials. The laboratory shall maintain the records for at least five years. The laboratory shall file and maintain data and other records in an accessible location on the laboratory's premises for one year after the date of analysis so that reviews can be conducted during on-site audits.

(c) If the laboratory discovers an error in the analysis of a regulatory sample, and the error may affect the validity of the reported analytical result, the environmental laboratory manager shall report the error to the regulatory program for which the analysis was conducted, and to the client. The laboratory shall make this notification within 72 hours after discovery of the error.

(d) Laboratories performing acute toxicity testing shall comply with the following requirements when performing quality control checks of laboratory media, equipment, and supplies:

1. Operate each pH meter in accordance with N.J.A.C. 7:18–3.3(a)3. Rinse the probe with laboratory pure water immediately after each use period. Label commercial buffer solutions with the date of receipt and the date of initial use;

2. Operate top loader or pan balances in accordance with N.J.A.C. 7:18–3.3(a)2;

3. Verify all temperature measuring devices using the procedures listed in N.J.A.C. 7:18–3.3(a)5;

4. The temperature of air or water-jacketed incubators, aluminum block incubators, water baths, and incubator rooms shall be recorded either continuously or daily from in-place thermometers immersed in liquid and placed on at least one of the shelves in use. Keep the records in a log book, signed and dated by the analyst;

5. Record date, time, pressure and temperature of an autoclave either continuously, or individually during each sterilization cycle. Keep the records in a log book, signed and dated by the analyst;

6. The time and temperature of hot air ovens shall be measured with a thermometer either continuously or individually during each cycle, with the bulb of the thermometer placed in sand. Record the date, time and temperature of each cycle. Keep the records in a log book, signed and dated by the analyst;

7. Monitor the temperature of each refrigerator in accordance with the procedures listed in N.J.A.C. 7:18–3.3(a)7;

8. Label all reagents and solutions to indicate identity and, when applicable, titer, strength or concentration, manufacturer's recommended storage requirements, preparation and expiration date, and other information pertinent to identification. Do not use materials of substandard reactivity or deteriorated materials. Discard all outdated material immediately;

9. At least annually, check conductivity and salinity meters equipped with conductivity cells having platinum electrodes. Perform the check over the range of interest using at least five concentrations of a standard potassium chloride solution. Check conductivity cells not having platinum electrodes against a conductivity meter equipped with platinum electrodes. Perform this check annually and record the raw data, cell constant, and results in a log book, signed and dated by the analyst; and

10. Check dissolved oxygen meters weekly, using the Winkler method. Record the results in a log book signed and dated by the analyst.

(e) Only the laboratory manager, supervisor or quality assurance officer is authorized to make changes in laboratory procedures. Changes are effective only if:

1. The change is made by the manager, supervisor or quality assurance officer of the laboratory;

2. The manager, supervisor or quality assurance officer makes the change in writing, signed and dated by the manager, supervisor or quality assurance officer, and includes the change in the laboratory's SOP manual.

(f) A laboratory shall not perform acute toxicity tests unless it keeps current laboratory SOP and reference manuals in the immediate bench area of laboratory personnel engaged in examining samples and performing toxicity testing and other related procedures. The laboratory may use textbooks to supplement the manuals, but shall not replace

the manuals with the textbooks. The manuals shall include information relating to:

1. The analytical methods to be used, properly designated and dated to reflect the most recent supervisory reviews; and

2. Any applicable regulations.

(g) A laboratory conducting a flow-through toxicity test shall check the temperature in the exposure chambers, the flow rate through the exposure chambers, and the maintenance of effluent concentrations. The laboratory shall conduct these checks when the test is initiated, at least once every 24 hours for the duration of the test, and upon completion of the test. The laboratory shall document these measurements, and any resulting adjustments to the flow-through dilutor system, in the toxicity test report.

(h) A laboratory performing an acute toxicity test shall establish an acute toxicity test precision requirement that the 95 percent confidence interval be within ±30 percent of the estimated or incipient EC_{50} or LC_{50} value.

(i) A laboratory performing acute toxicity tests shall keep records and report data in accordance with the requirements of (i)1 and 2 below. The records to be retained include raw data records, quality control data records, chain-of-custody forms, laboratory reports, and the information required under (i)2 below.

1. The laboratory shall retain each record for at least five years after the date of the analysis. The laboratory shall file and maintain data and other records in an accessible location on the laboratory's premises for one year after the date of analysis so that reviews can be conducted during on-site audits.

2. The laboratory shall record the following information as part of the daily log of feeding, behavioral observations, and mortality of organisms during holding and acclimation:

i. The water temperature of holding tanks;

ii. The air temperature in the culturing/holding room;

iii. Mortalities or organisms per holding tank;

iv. The analysis of laboratory grade waters as specified in N.J.A.C. 7:18–7.4(b);

v. The food and feeding schedule; and

vi. General observations of behavior and condition.

(j) The laboratory shall not accept custody of regulatory samples unless a chain-of-custody form is submitted with the samples, in accordance with N.J.A.C. 7:18–9.5(c).

1. Before accepting custody of a regulatory sample, the laboratory shall determine that the sample is properly labeled and has been collected, preserved, processed, stored and transported in accordance with the provisions of this subchapter. If the sample fails to meet those requirements, the laboratory shall indicate that failure on the chain-of-custody section of the sample request form or the chain-of-custody form;

2. The laboratory's sample custodian accepting responsibility for the sample shall sign the chain-of-custody form;

3. The laboratory shall have an internal chain-of-custody procedure or an alternate sample tracking procedure which establishes the integrity and completely tracks the custody of a sample during its lifetime in the laboratory; and

4. If the analysis was not performed at the environmental laboratory that first received the sample, the chain-of-custody form shall include the name, address and identification number of the New Jersey certified environmental laboratory to which the sample was forwarded.

(k) If a laboratory violates any of the requirements of this subchapter in the process of performing an acute toxicity test, the laboratory shall prefix the test result, that is, LC_{50} or EC_{50} value, with the letter "J," and describe the violation in the "remarks" section of the test report.

Cross References

Duties of environmental laboratory personnel, see N.J.A.C. 7:18–2.11.

SUBCHAPTER 8. ANALYZE IMMEDIATELY ENVIRONMENTAL MEASUREMENTS

7:18–8.1 Scope and general requirements

(a) This subchapter applies to certified environmental laboratories when performing analyze-immediately environmental measurements on regulatory samples, and to other laboratories performing analyze-immediately environmental measurements on PE samples to become certified. This subchapter applies to environmental measurements of parameters in the following categories (including, but not limited to, chlorine dioxide, dissolved oxygen with probe, pH, ozone, residual chlorine, sulfite and temperature):

1. Drinking Water Program—Category DW3, Inorganic Parameters, Analyze–Immediately (<15 min);

2. Water Pollution Program—Category WP3, Inorganic Parameters, Analyze–Immediately (<15 min); and

3. Solid/Hazardous Waste Program—Category SHW3, Analyze–Immediately Parameters.

(b) In addition to satisfying the applicable requirements of N.J.A.C. 7:18–1 through 3, a laboratory performing analyze-immediately environmental measurements within the scope of (a) above shall follow:

1. All applicable requirements in this subchapter; and

2. All requirements specified in the applicable DSAMs, including without limitation any requirements that are more stringent than the requirements in this subchapter.

(c) A laboratory performing environmental measurements of a sample for parameters listed in (a)1, 2 or 3 above shall analyze the sample within 15 minutes after collection. The laboratory may perform the analysis in the field, in an on-site mobile laboratory, or in a facility laboratory (such as a laboratory at a wastewater treatment plant).

7:18–8.2 Requirements for environmental laboratory equipment, supplies, and materials

The supervisor shall have control over the equipment, supplies and materials used in analyze-immediately testing and analysis of regulatory samples. The equipment, supplies and materials shall be sufficient to perform those tests and analyses, and shall meet the requirements of N.J.A.C. 7:18–3, 7:18–5 and the applicable DSAM.

7:18–8.3 Required use of techniques specified in DSAMs

(a) In performing an analyze-immediately analysis of a regulatory sample (including, without limitation, analysis of a PE sample by a laboratory that is applying to become certified), a laboratory shall use only:

1. A DSAM from the applicable Category listed in N.J.A.C. 7:18– 8.1(a) for which the laboratory is certified; or

2. An ATP approved by the Department for the laboratory and, if applicable, for the facility in question.

(b) The requirements of (a) above do not apply to the analysis of a non-regulatory sample, if the requirements of N.J.A.C. 7:18–2.22(b) are satisfied.

7:18–8.4 Requirements for quality assurance/quality control program

(a) The laboratory shall develop and keep current a quality assurance/quality control manual. The laboratory shall not perform analyses of regulatory samples without having a current quality assurance/quality control manual covering the analysis in question. In the manual, the laboratory shall describe the following:

1. The procedures that the laboratory will use in meeting the quality control requirements of this subchapter, N.J.A.C. 7:18–3 and 5, and all applicable DSAMs, including without limitation requirements pertaining to laboratory equipment and instrumentation, supplies, and the frequency with which such procedures shall be performed; and

2. The frequency with which the laboratory will perform the procedures listed pursuant to (a)1 above.

(b) The laboratory shall develop and implement a written methods manual containing a standard operating procedure (SOP) for each DSAM, in accordance with the criteria and procedures of the DSAM and this chapter. A laboratory shall not perform analyses using a DSAM unless it has developed and implemented such an SOP for the DSAM.

1. The laboratory shall update the manual to reflect any changes in the procedures practiced by the laboratory.

2. The laboratory shall keep copies of the methods manual in the immediate bench area of personnel engaged in the analysis of samples and related procedures within the Chemical Testing Categories.

3. In the manual, the laboratory shall properly designate by revision number and date the standard operating procedure (SOP) for a specified analytical method for a particular type of analysis.

4. Changes to SOPs are effective only if:

i. The change is made by the manager, supervisor or quality assurance officer of the laboratory; and

ii. The manager, supervisor or quality assurance officer makes the change in writing, signed and dated by the manager, supervisor or quality assurance officer.

(c) A laboratory performing analyze-immediately environmental measurements shall conduct the quality control checks specified in the applicable DSAMs.

Cross References

Duties of environmental laboratory personnel, see N.J.A.C. 7:18–2.11.

7:18–8.5 Requirements for records and data reporting

(a) The laboratory shall retain records concerning "analyze immediately" analyses. The records to be retained include raw data records, quality control data records, chain-of-custody forms, laboratory reports, and the information required under (d) below. The laboratory shall retain each record for at least five years after the date of the analysis, provided however, that the laboratory shall retain records of analyses for 10 years if the person requesting the analyses has informed the laboratory that the analyses were to be

performed because of epidemiological or public health concerns.

(b) The laboratory shall file and maintain data and other records in an accessible location on the laboratory's premises for one year after the date of analysis so that reviews can be conducted during on-site audits.

(c) The laboratory shall retain the following information as part of the records of analysis:

1. The assigned laboratory sample number or other unique form of identification;

2. The date and time of sample analysis;

3. The name and signature of the person or persons who collected the sample;

4. The name and signature of the person or persons who analyzed the sample;

5. The type of analysis performed and the DSAM used; and

6. The results of the analysis and the raw data generated by the analysis.

(d) The laboratory shall check all results reported on final report forms against original data to make sure there are no transcription errors.

(e) The laboratory shall include the following information in reporting results to the client:

1. The certified environmental laboratory name and New Jersey laboratory identification number;

2. The date, time, and location of sample collection and sample analysis;

3. The type of analysis performed and the analytical method employed;

4. The results generated by the analysis; and

5. The name and signature of the environmental laboratory manager or designee identified under N.J.A.C. 7:18–2.11(a)1iii.

(f) The laboratory shall not report results of analyses to the Department or to any other person unless the original or true duplicate of the results is sent to the client. The report shall be signed by the laboratory manager or designee identified under N.J.A.C. 7:18–2.11(a)1iii.

SUBCHAPTER 9. SAMPLE REQUIREMENTS

7:18–9.1 Scope and general requirements

(a) This subchapter applies to certified environmental laboratories when:

1. Handling and preserving regulatory samples for microbiological, inorganic, organic, radiochemical, and acute toxicity testing;

2. Collecting regulatory samples for acute toxicity testing; and

3. Accepting regulatory samples that have been collected, handled or preserved by persons other than the laboratory.

(b) If the laboratory is collecting, handling or preserving regulatory samples within the scope of (a) above, the laboratory shall comply with the requirements of this subchapter. If the laboratory does not comply with those requirements, it shall not submit results of the analysis of the sample for regulatory purposes.

(c) If the laboratory is accepting any regulatory sample within the scope of (a) above that has been collected, handled or preserved by a person other than the laboratory, the laboratory shall obtain reasonable assurance (including, but not limited to, a complete and properly signed chain-of-custody form) that the sample has been collected, preserved and handled in accordance with this subchapter. If the laboratory is unable to obtain this assurance for a sample, it shall not submit results of the analysis of the sample for regulatory purposes. The laboratory shall reject any such sample, and request a new sample. The laboratory shall verbally notify the client of this action within 24 hours after rejecting the sample, and provide the client with written confirmation of this action within five business days after rejecting the sample.

7:18–9.2 Requirements for microbiological parameter samples

(a) For regulatory samples that are to be analyzed for microbiological parameters to demonstrate compliance with the drinking water program:

1. The requirements of (c) below shall be satisfied;

2. Sample containers, preservation techniques, and holding times shall satisfy the requirements under N.J.A.C. 7:18–9.4(b)1 and Table 9.1; and

3. Collection, handling, and preservation of drinking water samples to be analyzed on behalf of a water purveyor shall adhere to the sampling, identification, and transfer procedures described in the latest edition of Standard Methods approved by the USEPA. If there is any conflict between the collection, handling and preservation requirements in Standard Methods and the corresponding requirements in this subchapter, the requirements in Standard Methods shall control.

(b) For regulatory samples that are to be analyzed for microbiological parameters to demonstrate compliance with the water pollution program: