

CHAPTER 10

SAFE DRINKING WATER ACT

Authority

N.J.S.A. 13:1D-1 et seq., 58:11-9.1 et seq.,
58:11-23 et seq. and 58:12A-1 et seq.

Source and Effective Date

R.2010 d.094, effective April 30, 2010.
See: 41 N.J.R. 4381(a), 42 N.J.R. 642(a), 42 N.J.R. 1170(a).

Chapter Expiration Date

Chapter 10, Safe Drinking Water Act, expires on April 30, 2015.

Chapter Historical Note

Chapter 10, Bureau of Potable Water, was adopted and became effective prior to September 1, 1969.

Chapter 10, Bureau of Potable Water, was repealed and Chapter 10, Safe Drinking Water Act, was adopted as new rules by R.1979 d.271, effective July 13, 1979. See: 11 N.J.R. 170(a), 11 N.J.R. 374(b).

Pursuant to Executive Order No. 66(1978), Chapter 10, Safe Drinking Water Act, was readopted as R.1983 d.244, effective June 3, 1983. See: 15 N.J.R. 592(a), 15 N.J.R. 1019(c).

Pursuant to Executive Order No. 66(1978), Chapter 10, Safe Drinking Water Act, was readopted as R.1989 d.514, effective September 1, 1989. See: 21 N.J.R. 1945(a), 21 N.J.R. 3098(a).

Pursuant to Executive Order No. 66(1978), Chapter 10, Safe Drinking Water Act, was readopted as R.1994 d.482, effective August 25, 1994. See: 26 N.J.R. 2720(a), 26 N.J.R. 3833(a).

Pursuant to Executive Order No. 66(1978), Chapter 10, Safe Drinking Water Act, was readopted as R.1996 d.50, effective December 26, 1995. See: 27 N.J.R. 4060(a), 28 N.J.R. 850(a).

Chapter 10, Safe Drinking Water Act, except Subchapter 13, was repealed and Chapter 10, Safe Drinking Water Act, was adopted as new rules by R.1996 d.536, effective November 18, 1996. See: 27 N.J.R. 4064(a), 28 N.J.R. 4900(a).

Subchapter 13, Water Supply and Wastewater Collection and Treatment Systems: Examining and Licensing of Operators, was recodified as N.J.A.C. 7:10A-1 by R.1997 d.48, effective February 3, 1997. See: 28 N.J.R. 4300(a), 29 N.J.R. 480(c).

Pursuant to Executive Order No. 66(1978), Chapter 10, Safe Drinking Water Act, was readopted as R.2000 d.354, effective July 31, 2000, and Subchapter 13, Standards for Technical, Managerial, and Financial Capacity of Public Community and Noncommunity Water Systems, was adopted as new rules by R.2000 d.354, effective August 21, 2000. See: 31 N.J.R. 2717(a), 32 N.J.R. 3106(a).

Notice of Receipt of Petition for Rulemaking: Fluoridation of the Public Water Supply of the State of New Jersey. See: 35 N.J.R. 891(a), 1454(a).

Chapter 10, Safe Drinking Water Act, was readopted as R.2004 d.442, effective November 4, 2004. As a part of R.2004 d.442, Subchapter 6, Variances and Exemptions, was repealed, effective December 6, 2004. See: 36 N.J.R. 295(a), 36 N.J.R. 5383(b).

Chapter 10, Safe Drinking Water Act, was readopted as R.2010 d.094, effective April 30, 2010. See: Source and Effective Date.

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SUBCHAPTER 1. GENERAL PROVISIONS

7:10-1.1 Authority

These rules are promulgated pursuant to the New Jersey Safe Drinking Water Act, N.J.S.A. 58:12A-1 et seq., as amended; the Subsurface and Percolating Waters Act, N.J.S.A. 58:4A-4.1 et seq.; the Realty Improvement Sewerage and Facilities Act, N.J.S.A. 58:11-23 et seq.; the Water Supply Management Act, N.J.S.A. 58:1A-1 et seq.; and N.J.S.A. 58:11-9.1 et seq.

7:10-1.5 Severability

If any provision of this chapter or the application thereof to any person or circumstances is held invalid, such invalidity shall not affect other provisions or applications, and to this end, the provisions of this chapter are declared to be severable.

SUBCHAPTER 2. GENERAL REQUIREMENTS**7:10-2.1 Department inventory of public water systems**

(a) The Department, through the Bureau of Safe Drinking Water, shall at all times maintain a current inventory of all public water systems in the State, and all changes in said inventory shall be reported to the Administrator by January 1 of each year.

(b) Whenever a public water system is established or abandoned, the owner shall so notify the Department in writing.

7:10-2.2 Department recordkeeping and reporting

The Department, through the Bureau of Safe Drinking Water, shall keep such records, in such a manner, and for such times as shall be required under the National Regulations, 40 CFR 142, and shall submit each report to the Administrator and make each report available to the public as required under 40 CFR 142.

Amended by R.2004 d.442, effective December 6, 2004.
See: 36 N.J.R. 295(a), 36 N.J.R. 5383(b).

Amended C.F.R. references throughout.

7:10-2.3 Plan for the provision of potable water in emergencies

The Department shall prepare and maintain, within the Bureau of Safe Drinking Water, a plan for the provision of safe drinking water under emergency circumstances. The Department shall review and update such plan as necessary.

7:10-2.4 Reporting of changes to plants and emergencies

(a) A supplier of water shall notify in writing the Bureau of Safe Drinking Water at least five working days prior to undertaking any planned change in the treatment plant or its operation that may either temporarily or permanently tend to lessen the quality of water furnished, or increase the likelihood of the delivery of water that does not meet the standards set forth in N.J.A.C. 7:10-5.

(b) A supplier of water shall notify the Department by telephone at (609) 292-5550 during business hours, or (609) 292-7172 during non-business hours, within six hours of the occurrence of any emergency that may tend to lessen the quality or pressure of delivered water, or increase the

likelihood of delivery of water that does not meet the standards set forth in N.J.A.C. 7:10-5.

7:10-2.5 Ban on further connections to over-extended or otherwise inadequate systems

Whenever the Department determines that additional water service connections to any public water system may result in a degradation of service to existing users due to deficiencies in such public water system such as inadequate source, treatment, distribution or storage capacities, or inadequate pressure or volume, the Department may prohibit, by order, such additional connections. Upon receipt of such an order prohibiting additional water service connections, the supplier of water shall have 20 days to request a hearing in writing in accordance with N.J.A.C. 7:10-3.5 on said order. At the hearing, the supplier of water has the burden of showing that the prohibition on additional connections should not be imposed.

Amended by R.2000 d.354, effective August 21, 2000.
See: 31 N.J.R. 2717(a), 32 N.J.R. 3106(a).

Inserted a reference to treatment in the first sentence.

7:10-2.6 Program information

Unless otherwise specified, any questions concerning the requirements of this chapter shall be directed to the Bureau of Safe Drinking Water, Water Supply Administration, New Jersey Department of Environmental Protection, PO Box 426, Trenton, NJ 08625-0426, (609) 292-5550. All forms referenced in these rules can be obtained from the Bureau.

Amended by R.2000 d.354, effective August 21, 2000.
See: 31 N.J.R. 2717(a), 32 N.J.R. 3106(a).

7:10-2.7 Managerial and technical competence of water systems

(a) An existing water system which has undergone a change in status or ownership and/or is found by the Department to be in significant noncompliance with the State primary drinking water regulations shall, upon request, provide to the Department a demonstration of managerial capacity as provided in N.J.A.C. 7:10-13.4 and 13.6 and technical capacity as provided in N.J.A.C. 7:10-13.3 and 13.5.

1. Determinations made pursuant to this section with respect to a water system subject to the jurisdiction of the Division of Local Government Services within the Department of Community Affairs shall be made in consultation with the Director of that Division. Nothing in these rules shall infringe upon the regulatory jurisdiction of the Division of Local Government Services under N.J.S.A. 40A:1-1 et seq.

2. Determinations made pursuant to this section with respect to a public water system, which is a public utility subject to the jurisdiction of the Board of Public Utilities pursuant to N.J.S.A. 48:1-1 et seq., shall be made in consultation with the Board of Public Utilities. Nothing in these rules shall infringe upon the regulatory jurisdiction of the Board of Public Utilities under N.J.S.A. 48:1-1 et seq.

New Rule, R.2000 d.354, effective August 21, 2000.
See: 31 N.J.R. 2717(a), 32 N.J.R. 3106(a).

SUBCHAPTER 3. CIVIL ADMINISTRATIVE PENALTIES AND REQUESTS FOR ADJUDICATORY HEARINGS

7:10-3.1 Scope

This subchapter governs the Department's assessment of civil administrative penalties and the issuance of orders for the violation of any provision of the State Act or any regulation, rule, permit or order adopted or issued by the Department pursuant thereto. This subchapter shall also govern the procedure for assessment, settlement and payment of civil administrative penalties and for requesting an adjudicatory hearing on appeal from a notice of civil administrative penalty assessment or administrative order.

7:10-3.2 Authority

(a) Whenever the Department finds that a person has violated any provision of the State Act, or any regulation, rule, permit, or order adopted or issued by the Department pursuant thereto, the Department may, singly or in combination, pursue the remedies specified in (a)1 through 4 below. Pursuit of any of the remedies specified under this section shall not preclude the Department from seeking any other remedy. The Department may:

1. Issue an order requiring the person found to be in violation to comply in accordance with N.J.A.C. 7:10-3.3;
2. Bring a civil action for injunctive and other relief in accordance with N.J.A.C. 7:10-3.9;
3. Levy a civil administrative penalty in accordance with N.J.A.C. 7:10-3.6 and/or 3.7; and/or
4. Bring an action for a civil penalty in accordance with N.J.A.C. 7:10-3.8.

7:10-3.3 Procedures for issuing an administrative order pursuant to the State Act

(a) Whenever the Department finds that a person has violated any provision of the State Act, or any regulation, rule, permit, or order adopted or issued by the Department pursuant thereto, the Department may issue an order specifying the provision or provisions of the State Act, regulation, rule, permit, or order of which the person is in violation citing the action which constituted the violation, ordering abatement of the violation, and giving notice to the person of his or her right to a hearing on the matters contained in the order. The ordered party shall have 20 days from receipt of the order within which to deliver to the Department a written request for a hearing in accordance with N.J.A.C. 7:10-3.5. After the hearing and upon finding that a violation has occurred, the Department may issue a final order. If no hearing is requested, then the order shall become final after the expiration of the 20-day period. A request for hearing shall not automatically stay the effect of the order.

7:10-3.4 Procedures for assessment, settlement and payment of civil administrative penalties for violations

(a) To assess a civil administrative penalty under the State Act, the Department shall notify the violator by certified mail (return receipt requested) or by personal service. This notice of civil administrative penalty assessment shall:

1. Identify the section of the State Act, rule, administrative order or permit violated;
2. Concisely state the alleged facts which constitute the violation;
3. Specify the amount of the civil administrative penalty to be imposed; and
4. Advise the violator of the right to request an adjudicatory hearing pursuant to N.J.A.C. 7:10-3.5.

(b) Payment of the civil administrative penalty is due upon receipt by the violator of the Department's final order in a contested case, or when a notice of civil administrative penalty assessment becomes a final order, as follows:

1. If no hearing is requested pursuant to N.J.A.C. 7:10-3.5, a notice of civil administrative penalty assessment becomes a final order on the 21st day following receipt of the notice of civil administrative penalty assessment by the violator;
2. If the Department denies the hearing request pursuant to N.J.A.C. 7:10-3.5(b), a notice of civil administrative penalty assessment becomes a final order on the 21st day following receipt of the notice of civil administrative penalty assessment by the violator;
3. If the Department denies the hearing request pursuant to N.J.A.C. 7:10-3.5(c), a notice of civil administrative penalty assessment becomes a final order upon receipt of notice of such denial; or
4. If the Department grants the hearing request, a notice of civil administrative penalty assessment becomes a final order upon receipt by the violator of a final order in a contested case.

(c) The Department may treat an offense as a first offense solely for the purpose of determining the civil administrative penalty under N.J.A.C. 7:10-3.6 or 3.7 if the violator has not committed the same offense in the three years immediately preceding the date of the pending offense.

(d) The Department may settle any civil administrative penalty assessed pursuant to N.J.A.C. 7:10-3.6 or 3.7 according to the following factors:

1. Mitigating or extenuating circumstances not previously considered in the notice of civil administrative penalty assessment pursuant to N.J.A.C. 7:10-3.6;

2. The timely implementation by the violator of measures leading to compliance not previously considered in the assessment of penalties pursuant to N.J.A.C. 7:10-3.6;

3. The nature, timing and effectiveness of measures taken to mitigate the effects of the violation or prevent

future similar violations not previously considered in the notice of civil administrative penalty assessment pursuant to N.J.A.C. 7:10-3.6;

4. The compliance history of the violator not previously considered in the notice of civil administrative penalty assessment pursuant to N.J.A.C. 7:10-3.6;

5. The deterrent effect of the penalty not previously considered in the notice of civil administrative penalty assessment pursuant to N.J.A.C. 7:10-3.6; and/or

6. Any other terms or conditions acceptable to the Department.

7:10-3.5 Procedures to request an adjudicatory hearing to contest an administrative order and/or a notice of civil administrative penalty assessment; procedures for conducting adjudicatory hearings

(a) To request an adjudicatory hearing to contest an administrative order and/or a notice of civil administrative penalty assessment issued pursuant to the State Act, the person to whom the administrative order and/or notice of civil administrative penalty assessment was issued shall submit the following information in writing to the Department at the Office of Legal Affairs, ATTENTION: Adjudicatory Hearing Requests, Department of Environmental Protection, PO Box 402, Trenton, New Jersey 08625-0402:

1. The name, address, and telephone number of the person to whom the administrative order and/or notice of civil administrative penalty assessment was issued and his or her authorized representative;

2. A copy of the administrative order and/or notice of civil administrative penalty assessment being contested;

3. The person's defenses to each of the findings of fact stated in short and plain terms;

4. An admission or denial of each of the findings of fact. If the person is without knowledge or information sufficient to form a belief as to the truth of a finding, the person 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 person intends in good faith to deny only a part or a qualification of a finding, the person shall specify so much of it as is true and material and deny only the remainder. The person may not generally deny all of the findings but shall make all denials as specific denials of designated findings. For each finding the person denies, the person shall allege the fact or facts as the person 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. If the petitioner intends to attempt a resolution of the case pursuant to N.J.A.C. 1:1-8.1(b), a statement to that effect.

(b) If the Department does not receive the written request for a hearing within 20 days after receipt by the person of the administrative order and/or notice of civil administrative penalty assessment being contested, the Department shall deny the hearing request.

(c) If the person fails to include all the information required by (a) above, the Department may deny the hearing request.

(d) All adjudicatory hearings held pursuant to this section shall be conducted in accordance with the Administrative Procedure Act, N.J.S.A. 52:14B-1 et seq., and the Uniform Administrative Procedure Rules, N.J.A.C. 1:1.

Amended by R.2000 d.354, effective August 21, 2000.
See: 31 N.J.R. 2171(a), 32 N.J.R. 3106(a).

7:10-3.6 Civil administrative penalties for violation of the State Act-general

(a) The Department may assess a civil administrative penalty pursuant to this section of not more than \$5,000 for each first offense, not less than \$5,000 and not more than \$10,000 for the second offense, and not less than \$5,000 and up to \$25,000 for the third and each subsequent offense of the State Act or any regulation, rule, permit, or order adopted or issued by the Department pursuant thereto.

(b) If the violation is of a continuing nature, each day during which the violation continues subsequent to receipt of an order to cease the violation shall constitute an additional, separate and distinct violation.

(c) To assess a civil administrative penalty pursuant to this section, the Department shall:

1. Identify the matrix in (f) below by determining the level of offense, that is, first, second, third or subsequent offense as defined in N.J.A.C. 7:10-1.3.

2. Identify the civil administrative base penalty within the matrix in (f) below by determining the seriousness of violation pursuant to (d) below and the type of water system pursuant to (e) below; and

3. The civil administrative penalty shall be the amount within the matrix in (f) below, unless adjusted pursuant to (g) below.

(d) The seriousness of the violation shall be determined as major, moderate or minor as set forth in (d)1 through 3 below:

1. Major seriousness shall apply to any violation that has caused or has the potential to cause serious harm to human health or which seriously deviates from the requirements of the State Act, or any regulation, rule, permit, or order adopted or issued pursuant thereto. Violations of major seriousness shall include, but not be limited to, violations which are in complete contravention of such requirements or if some of the requirements are

met, which severely impair or undermine the operation or intent of the requirements. Violations of major seriousness shall include, but not be limited to:

i. Falsification of any statement, representation, or certification in any application, registration, record, or other document submitted or maintained, or falsification or tampering with any monitoring device or method required to be maintained under the State Act or any regulation, rule, permit, or order adopted or issued pursuant thereto;

ii. Failure to provide public notice of violations in accordance with 40 CFR 141.32(a)(1)(iii);

iii. The refusal, inhibition or prohibition of immediate lawful entry and inspection of any premises, building, or place, except private residences, by any authorized Department representative;

iv. Failure to obtain a sample and analyze for any primary contaminant during a sample period as required by the Department pursuant to the State Act, or any regulation, rule, permit or order adopted or issued by the Department pursuant thereto so that no sample analysis at all has been obtained for a specific contaminant for the sample period;

v. Intentional MCL violation for those parameters that a water system is designed and/or operated to treat; and

vi. Constructing or operating, or commencing or proceeding to build, modify, install, replace, expand or operate a water system without the proper authorization or permit issued or imposed pursuant to the State Act, and, if applicable, a permit cannot subsequently be obtained without major modification.

2. Moderate seriousness shall apply to any violation which has caused or has the potential to cause substantial harm to human health or which substantially deviates from the requirements of the State Act, or any regulation, rule, permit, or order adopted or issued pursuant thereto. Violations of moderate seriousness shall include, but not be limited to, violations which are in substantial contravention of such requirements or if some of the requirements are met, which substantially impair or undermine the operation or intent of the requirements. Violations of moderate seriousness shall include, but not be limited to:

i. Failure to comply with any condition or provision of a permit issued pursuant to the State Act;

ii. Constructing or operating, or commencing or proceeding to build, modify, install, replace, expand or operate a water system without the proper authorization or permit issued or imposed pursuant to the State Act, and, if applicable, a permit is subsequently obtained with only minor modifications; and

iii. Failure to institute corrective measures for MCL violations in accordance with N.J.A.C. 7:10-5.7.

3. Minor seriousness shall apply to any other violation not included in (d)1 or 2 above. Violations of minor seriousness shall include, but not be limited to:

i. Failure to provide public notice for violations in accordance with 40 CFR 141.32(b);

ii. Failure to report in accordance with N.J.A.C. 7:10-5.4;

iii. Constructing or operating, or commencing or proceeding to build, modify, install, replace, expand or operate a water system without the proper authorization or permit issued or imposed pursuant to the State Act, and, if applicable, a permit is subsequently obtained without the need of any modifications.

(e) The type of water system shall be determined as very small, small, medium or large as follows:

1. A very small water system shall serve a population of 500 or fewer;

2. A small water system serves a population greater than 500 and fewer than or equal to 3,300;

3. A medium water system serves a population greater than 3,300 and fewer than or equal to 10,000; and

4. A large water system serves a population greater than 10,000.

(f) The matrices of civil administrative base penalties are as follows:

1. For a first offense, the matrix of civil administrative base penalties is as follows:

SERIOUSNESS OF THE VIOLATION

TYPE OF WATER SYSTEM	Minor	Moderate	Major
Very small	\$250	\$500	\$1,000
Small	\$500	\$1,000	\$2,000
Medium	\$1,000	\$2,000	\$4,000
Large	\$2,000	\$4,000	\$5,000

2. For a second offense, the matrix of civil administrative base penalties is as follows:

SERIOUSNESS OF THE VIOLATION

TYPE OF WATER SYSTEM	Minor	Moderate	Major
Very small	\$5,000	\$5,500	\$6,000
Small	\$5,000	\$6,000	\$7,000
Medium	\$5,000	\$6,500	\$8,000
Large	\$5,000	\$7,500	\$10,000

3. For a third or subsequent offense, the matrix of civil administrative base penalties is as follows:

SERIOUSNESS OF THE VIOLATION

TYPE OF WATER SYSTEM	Minor	Moderate	Major
Very small	\$5,000	\$7,500	\$10,000
Small	\$6,000	\$9,000	\$12,000
Medium	\$7,000	\$11,000	\$15,000
Large	\$8,000	\$15,000	\$22,000

(g) The Department may adjust the amount of any penalty assessed pursuant to (f) above based upon any or all of the factors listed in (g)1 through 5 below. No such factor constitutes a defense to any violation. In no case shall the assessed penalty be more than \$5,000 for each first offense, less than \$5,000 or more than \$10,000 for the second offense, and less than \$5,000 or more than \$25,000 for the third and each subsequent offense.

1. The frequency with which any violation of the State Act, rules, permit or order occurred;
2. The timely implementation by the violator of measures leading to compliance;
3. The nature, timing and effectiveness of measures taken to mitigate the effects of the violation or prevent future similar violations, and the extent to which such measures are in addition to those required under an applicable statute or rule;
4. The deterrent effect of the penalty; and/or
5. Any other mitigating, extenuating, or aggravating circumstances.

Amended by R.2000 d.354, effective August 21, 2000.

See: 31 N.J.R. 2717(a), 32 N.J.R. 3106(a).

In (d)iv, inserted "primary" preceding "contaminant".

7:10-3.7 Civil administrative penalty for failure to pay a fee

(a) The Department may assess a civil administrative penalty pursuant to this section against any person who fails to pay a fee when due pursuant to the State Act, or any regulation, rule or permit adopted or issued pursuant thereto.

(b) The amount of the civil administrative penalty for a violation pursuant to this section shall be in an amount equal to the unpaid fee or \$250.00, whichever is greater, up to a maximum of \$5,000 for the first offense; two times the unpaid fee or \$500.00, whichever is greater, up to a maximum of \$10,000 for the second offense; and three times the unpaid fee or \$750.00, whichever is greater, up to a maximum of \$25,000 for the third and each subsequent offense.

7:10-3.8 Civil penalties for violations of the State Act

(a) Any person who violates the provisions of the State Act, any regulation, rule, permit, or order adopted or issued by the Department pursuant thereto, or an administrative order or a court order issued pursuant to the State Act, or who fails to pay a civil administrative penalty in full pursuant to N.J.A.C. 7:10-3.4(b), shall be subject, upon order of a

court, to a civil penalty of not more than \$10,000 for each violation, and each day during which a violation continues shall constitute an additional, separate, and distinct violation.

(b) Any penalty established pursuant to this section may be imposed and collected with costs in a summary proceeding pursuant to the Penalty Enforcement Law, N.J.S.A. 2A:58-1 et seq. The Superior Court shall have jurisdiction to enforce the provisions of the Penalty Enforcement Law in connection with the State Act.

7:10-3.9 Civil actions for violations of the State Act

The Department may institute an action or proceeding in a court of competent jurisdiction for injunctive and other relief for any violation of the State Act, or any regulation, rule, permit or order adopted or issued by the Department pursuant thereto, and the court may proceed in the action in a summary manner.

SUBCHAPTER 4. DISINFECTION

7:10-4.1 Disinfection

(a) Except in accordance with (b) below, every supplier of water from a public community water system shall disinfect all water in accordance with the method and equipment requirements of N.J.A.C. 7:10-11.16 in order to ensure delivered water is of microbiologically safe quality.

(b) Except for public community water systems that use surface water source(s), the supplier of water from a water system that serves 100 or fewer dwellings or properties may elect not to disinfect its water, provided it increases the number of microbiological samples taken from its distribution system to a minimum of two samples per month at biweekly intervals.

(c) Notwithstanding (a) and (b) above, any supplier of water from any public community water system or public noncommunity water system may be required to disinfect its water if the Department determines that said water is microbiologically unacceptable.

(d) Any supplier of water from a public community water system that purchases treated water from another public water system on a regular or continuous basis may be required to redisinfect said water if deemed necessary by the Department.

SUBCHAPTER 5. STATE PRIMARY DRINKING WATER REGULATIONS

7:10-5.1 Applicability of National Regulations

Except as provided in this subchapter, the Department adopts and incorporates herein by reference the National

Primary Drinking Water Regulations, 40 CFR 141, as amended and supplemented, including all siting requirements, filtration and disinfection requirements, maximum contaminant levels, monitoring and analytical requirements, reporting requirements, public notification requirements, recordkeeping requirements, and the National Primary Drinking Water Regulations Implementation, 40 CFR 142 Subparts E, F, G and K, for variance and exemption requirements as the New Jersey primary drinking water regulations, applicable to all public water systems. All maximum contaminant levels and action levels in this subchapter shall apply to all public and nonpublic water systems, and shall be subject to monitoring requirements established by the appropriate administrative authority. Copies of the National Regulations may be obtained from either Drinking Water Section of the Water Programs Branch, U.S. Environmental Protection Agency, 290 Broadway, New York, New York 10007-1861, (212) 637-3880; or the Bureau of Safe Drinking Water, Water Supply Administration, Department of Environmental Protection, PO Box 426, Trenton, New Jersey 08625-0426, (609) 292-5550.

Amended by R.2000 d.354, effective August 21, 2000.

See: 31 N.J.R. 2717(a), 32 N.J.R. 3106(a).

Rewrote the last sentence.

Amended by R.2004 d.442, effective December 6, 2004.

See: 36 N.J.R. 295(a), 36 N.J.R. 5383(b).

Rewrote the section.

Case Notes

Federal regulations on primary drinking water adopted by the State; construction permit application denied due to anticipated nitrate production. *Andover Mobile Home Park v. Dept. of Environmental Protection*, 4 N.J.A.R. 420 (1981).

7:10-5.2 Discretionary changes to National Regulations

(a) In accordance with the discretionary authority permitted by the National Regulations, for compliance with the State primary drinking water regulations, the following shall apply:

1. Surface water treatment requirements shall be those established under the National Regulations except as provided in N.J.A.C. 7:10-9.

2. Microbiological monitoring shall be undertaken as required under the National Regulations, except:

i. The Department will not reduce the microbiological sampling frequency to less than one sample per month for a public community water system serving 25 to 1000 persons; and

ii. The Department will not reduce the microbiological sampling frequency to less than one sample per quarter for a public noncommunity water system (transient or nontransient) using only ground water source(s) and serving 25 to 1000 persons.

3. MCLs and monitoring requirements for inorganic chemicals (IOCs) shall be those established under the National Regulations and at (a)7 below, except for the State-regulated contaminant arsenic, for which an MCL of five $\mu\text{g/l}$ shall apply.

4. MCLs and monitoring requirements for volatile organic compounds (VOCs) shall be those established under the National Regulations and at (a)7 below except as listed in Table 1, below, for State-regulated VOCs.

TABLE 1
MCLs FOR STATE-REGULATED VOCs*

State-regulated VOC	MCL (in $\mu\text{g/l}$ or ppb)
Benzene	1
Carbon tetrachloride	2
Chlorobenzene	50
1,3 Dichlorobenzene	600
1,2 Dichloroethane	2
1,1 Dichloroethylene	2
Methylene chloride	3
Tetrachloroethylene	1
Trichlorobenzene(s)	9
1,1,1 Trichloroethane	30
Trichloroethylene	1
Xylene(s)	1,000
1,1 Dichloroethane	50
1,1,2 Trichloroethane	3
1,1,2,2 Tetrachloroethane	1
Naphthalene	300
Methyl tertiary butyl ether (MTBE)	70

* The MCLs in this table are more stringent than those in the National Regulations, with the exception of the following chemicals, which do not have Federal MCLs: 1,3-dichlorobenzene; 1,1-dichloroethane; 1,1,2,2-tetrachloroethane; naphthalene; and methyl tertiary butyl ether.

i. As of January 1, 1997, monitoring requirements for all VOCs, including State-regulated contaminants, shall be those established under the National Regulations.

5. For public noncommunity water systems, monitoring requirements and MCLs for VOCs shall be those established under the National Regulations, except that the MCLs for State-regulated contaminants shall be those listed in Table 1 at (a)4 above.

6. MCLs for synthetic organic compounds (SOCs) and pesticides shall be those established under the National Regulations except for the State-regulated contaminant chlordane, for which an MCL of 0.5 $\mu\text{g/l}$ shall apply.

7. As required pursuant to 40 CFR 142.16, the monitoring period for each contaminant group, specifically, inorganics (except asbestos, nitrate and nitrite), volatile organic compounds, synthetic organic compounds, and radionuclides shall be as follows. Monitoring for radionuclides shall begin on January 1, 2005.

Monitoring Period
Year one of the three year
Federal compliance period

Water System Type
All public community water
systems (PCWS) using a sur-
face

2. For existing treatment plants with a capacity greater than or equal to 10 MGD, the tracer study evaluation report prepared as recommended in the U.S. Environmental Protection Agency's "Guidance Manual for Compliance with the Filtration and Disinfection Requirements for Public Water Systems Using Surface Water Sources" (dated March 1991) as amended and supplemented, shall be submitted to the address noted in N.J.A.C. 7:10-9.4(f) by June 30, 1997. The tracer study evaluation must be performed by either a New Jersey licensed professional engineer who is familiar with water filtration and disinfection treatment design or the water treatment system operator licensed pursuant to N.J.A.C. 7:10A.

3. For new water treatment plants with a capacity greater than or equal to 10 MGD, the tracer study evaluation report shall be submitted within one year of commencement of operation of the plant.

Amended by R.2004 d.442, effective December 6, 2004.

See: 36 N.J.R. 295(a), 36 N.J.R. 5383(b).

In (a), amended the N.J.A.C. reference.

7:10-9.6 Additional requirements

(a) Each supplier of water with an existing surface water filtration plant shall install a continuous analyzer/recorder to monitor the turbidity of the combined filter effluent or plant effluent by June 30, 1997 and shall install a continuous analyzer/recorder to monitor the turbidity of the effluent from each individual filter by December 31, 2000.

(b) The supplier of water shall verify the accuracy of performance of each analyzer/recorder required pursuant to (a) above by taking a grab sample of the effluent at least once in every 24-hour period. In the case of analyzer/recorder failure, the supplier of water shall take a grab sample at least once every four hours during the period in which the analyzer/recorder is out of service.

(c) Each supplier of water shall establish and maintain on-site written routine operating procedures for minimizing initial turbidity peaks that occur after filter backwashing.

(d) Any filter removed from service for longer than one week shall be backwashed prior to being placed back into service in order to remove microbiological buildup.

(e) Each supplier of water that uses conventional filtration treatment or direct filtration shall continuously apply a coagulant while the treatment plant is in operation.

(f) For the purpose of complying with the minimum total removal/inactivation requirements of the National Regulations, 40 CFR 141.70, the following total minimum removal/inactivation requirements for disinfection shall apply:

1. For treatment plants that use conventional filtration treatment, the supplier of water shall provide sufficient disinfection to achieve a minimum of 0.5-log (68

percent) inactivation of Giardia cysts and a 2-log (99 percent) inactivation of viruses.

2. For treatment plants that use direct filtration, slow sand filtration and diatomaceous earth filtration, the supplier of water shall provide sufficient disinfection to achieve a minimum of 1-log (90 percent) inactivation of Giardia cysts and a 3-log (99.9 percent) inactivation of viruses.

3. For treatment plants that use filtration technologies other than those specified in (f)1 and 2 above, the Department will determine the minimum disinfection requirements on a case-by-case basis.

(g) The Department may modify the minimum removal/inactivation requirements for disinfection set forth in (f) above if it determines that the removal efficiency of a filtration plant exceeds or is less than optimum based on the results of filtration efficiency studies, conducted at the treatment plant by the supplier of water, that indicate log inactivation of Giardia and viruses.

(h) Each supplier of water shall install a continuous analyzer/recorder on each filtration plant to monitor the disinfectant residual entering the distribution system. The supplier of water shall verify the accuracy of the performance of each analyzer/recorder by taking a grab sample of disinfectant residual at least once in every 24-hour period. In the case of analyzer/recorder failure, the supplier of water shall take a grab sample at least once every four hours during the period in which the analyzer/recorder is out of service.

Amended by R.2000 d.354, effective August 21, 2000.

See: 31 N.J.R. 2717(a), 32 N.J.R. 3106(a).

In (a), rewrote the last sentence.

SUBCHAPTER 10. PHYSICAL CONNECTIONS AND CROSS CONNECTION CONTROL BY CONTAINMENT

7:10-10.1 Purpose and scope

(a) This subchapter establishes the permit, design, and testing requirements of a backflow prevention device at facilities with physical connections between public community water systems and facilities which have sources of water which may be contaminated or of questionable or unknown quality over which the supplier of water has little or no control for the purpose of protecting the public community water system from backflow from such waters. This subchapter also establishes a framework for a public community water system to implement a cross-connection control program that would require the installation of a containment backflow prevention device at facilities with cross-connection hazards as outlined in N.J.A.C. 7:10-10.9.

(b) The requirements of this subchapter apply in conjunction with the requirements of the Plumbing Subcode of the New Jersey State Uniform Construction Code, N.J.A.C. 5:23-3.15, for the prevention of illegal plumbing cross-connections, and with any other state or local requirements for the practice or procedure known as "cross-connection control by containment" whereby a backflow prevention device may be required to protect a public community water system from contamination as a result of plumbing cross-connections, or any other cross-connections.

Amended by R.2000 d.354, effective August 21, 2000.
See: 31 N.J.R. 2717(a), 32 N.J.R. 3106(a).
Rewrote (a).

7:10-10.2 General provisions and prohibitions

(a) Except as provided in (e) below, each owner of a facility containing an unapproved water supply shall obtain a physical connection permit pursuant to N.J.A.C. 7:10-10.5 for an approved physical connection installation and shall install such installation in accordance with the requirements of this subchapter as follows:

1. At each connection between a public community water system and any unapproved water supply; and/or
2. Where dual but physically separate water lines from a public community water system and from an unapproved water supply are located within the same building, including fire service lines.

(b) An approved physical connection installation shall be installed in accordance with this subchapter on each pipe conveying water from the public community water system into a facility supplied with water in the manner described in (a)2 above, including fire service lines.

(c) An authorized representative of the Department, administrative authority or the owner of the public community water system, who shall produce proper identification upon request, may enter a facility where an unapproved water supply is (or suspected to be) located during regular business hours for the purpose of conducting an inspection and/or test of an approved physical connection installation, or investigating a suspected violation of this subchapter, or verifying information submitted to the Department pursuant to this subchapter.

(d) Any holder of a current physical connection permit may, at his option, use a certified tester selected from the most current list of certified testers supplied by the certifying agency to the Department pursuant to N.J.A.C. 7:10-10.8(f) for the purpose of performing quarterly pressure tests and inspections of backflow prevention devices pursuant to N.J.A.C. 7:10-10.6.

(e) The requirements of N.J.A.C. 7:10-10.3 through 10.7 do not apply to physical connection installations in private residences. A physical connection installation shall not be installed in a private residence except as follows:

1. The licensed operator of the public community water system approves the installation and verifies that:

i. No portion of the potable water plumbing system of the private residence is interconnected with an unapproved water supply (for example, private residence well); and

ii. A reduced pressure zone backflow preventer assembly, a double check valve assembly, or similar backflow prevention device is installed on the public community water system service line. The supplier of water shall determine the type of device that must be installed.

Amended by R.2000 d.354, effective August 21, 2000.
See: 31 N.J.R. 2717(a), 32 N.J.R. 3106(a).

In (a)1, deleted "physical" preceding "connection" and substituted "and/or" for "and".

7:10-10.3 Approved physical connection installation requirements

(a) An approved physical connection installation shall be either a double check valve assembly or a reduced pressure zone backflow preventer assembly, as defined at N.J.A.C. 7:10-1.3, designed and constructed in accordance with the requirements of this subchapter.

(b) The approved physical connection installation shall be a reduced pressure zone backflow preventer assembly when the unapproved water supply is a non-potable water source or a source in which contaminant levels measured pursuant to the State primary drinking water regulations at N.J.A.C. 7:10-5 exceed the maximum contaminant levels specified therein.

(c) The requirements of (b) above shall not apply to any physical connection installation operated under a current physical connection permit issued before November 18, 1996 until such time as the existing physical connection is replaced or modified.

(d) Each backflow prevention device used in an approved physical connection installation shall be constructed as follows:

1. For devices up to and including two inches in diameter, the double check valve assembly or the reduced pressure zone backflow preventer assembly shall be of durable, non-toxic plastic, or of all stainless steel, all bronze, or all brass construction;

2. For devices larger than two inches in diameter, the double check valve assembly or the reduced pressure zone backflow preventer assembly shall be constructed as described in (d)1 above or shall be constructed of cast iron or steel, lined with brass, bronze, epoxy resin, stainless steel, or other durable nontoxic, non-corrodible material acceptable to the Department;

3. The clappers, discs or poppets, hinges, bushings, and seatings of the check valve assemblies in any device used for an approved physical connection installation shall be constructed of brass, bronze, stainless steel or non-toxic plastic, and shall be so designed and installed as to be readily replaceable;

4. Facing rings of the clappers, poppets or discs, or differential relief valves shall be composed of durable molded natural rubber, synthetic rubber or neoprene, shall be of even thickness, smoothfaced, water-absorption resistant and shall provide a positive seal against the backflow of water through the device;

5. Every double check valve assembly and reduced pressure zone backflow preventer assembly shall have test cocks installed to facilitate the pressure testing required pursuant to N.J.A.C. 7:10-10.6;

6. Every backflow prevention device up to two inches in diameter shall be installed with full port ball type shutoff valves. For backflow prevention devices that are larger than two inches in diameter, shutoff valves of the ball valve type are recommended; and

6. Every backflow prevention device up to two inches in diameter shall be installed with full port ball type shutoff valves. For backflow prevention devices that are larger than two inches in diameter, shutoff valves of the ball valve type are recommended. Strainers installed upstream of the leading shutoff valve are recommended for all backflow prevention devices regardless of sizes; and

7. The pipe conveying water from the differential relief port of a reduced pressure zone backflow preventer assembly shall allow an air gap between the assembly and the drain pipe, and the pipe shall be of the same diameter as, or larger than, the relief port.

(e) All approved physical connection installations shall meet the following operating conditions:

1. The turbulence in the backflow prevention device shall not be excessive for flow rates up to the rated flow so as not to interfere with proper operation of the device;

2. All moving parts shall be designed to operate up to the rated flow in a positive manner without chatter;

3. The backflow prevention device shall not cause water hammer, nor be adversely affected by water hammer arising from an outside condition; and

4. The backflow prevention device shall not permit leakage in a direction reverse to normal water flow.

(f) In addition to the operating conditions set forth at (e) above, all double check valve assemblies shall, under normal flow conditions, operate so that the independently operating check valves remain closed until there is a demand for water. Each of the check valves in series must maintain a minimum of one psi pressure differential in the direction of flow. If, at any time, pressure downstream of the device

increases to within one psi of supply pressure, both check valves must close to prevent backflow.

(g) In addition to the operating conditions set forth at (e) above, all reduced pressure zone backflow preventer assemblies shall, under normal flow conditions, operate so that both check valves are open and the pressure area between the check valves, called the zone, is at least five psi lower than the supply pressure. The relief valve, within the zone, is held shut by supply pressure acting through an internal sensing passage on the relief valve diaphragm. The first check valve in the line of flow must maintain a minimum pressure differential of five psi and the second check valve in the line of flow must maintain a minimum pressure differential of one psi. If the first or second check valve becomes fouled, the pressure in the zone will increase causing the relief valve in the zone to open automatically and discharge to the atmosphere in order to maintain a pressure in the zone which is at least two psi lower than the supply pressure, thus preventing backflow.

Amended by R.2000 d.354, effective August 21, 2000.

See: 31 N.J.R. 2717(a), 32 N.J.R. 3106(a).

Rewrote (b); and in (d)6, added a third sentence.

7:10-10.4 Installation

(a) The approved physical connection installation shall be installed on the customer's side of the water meter on the pipe(s) conveying the water from the public community water system into a facility, shall be installed as close to the meter as is reasonably practicable, and shall be prior to any other connection, unless such other connection is also protected by means of an approved physical connection installation. For a fire service line, the approved physical connection installation shall be installed prior to the alarm check and siamese connection.

(b) The approved physical connection installation shall be installed so as to allow easy access, with adequate space for maintenance, inspection, and testing. No part of the device shall be submerged or subjected to freezing temperatures unless such part is thermally protected.

(c) The approved physical connection installation shall not be installed in a pit or vault.

1. This subsection shall not apply to any physical connection installation operated under a current physical connection permit issued before November 18, 1996 until such time as the existing physical connection installation is replaced or modified.

(d) Unless specifically designed for installation in a vertical position, any device used as an approved physical connection installation shall be installed in the horizontal position. Devices specifically designed for vertical installation shall be installed in an up-feed position.

(e) There shall be no bypass around any approved physical connection installation unless such bypass is also protected by an approved physical connection installation.

(f) When a physical connection installation is proposed for a facility whose supply of water from the public community water system cannot be interrupted for testing and/or maintenance, a redundant backflow prevention device shall be provided at the facility.

Amended by R.2000 d.354, effective August 21, 2000.
See: 31 N.J.R. 2717(a), 32 N.J.R. 3106(a).
Added (f).

7:10-10.5 Physical connection permit application and renewal procedures

(a) Initial physical connection permit regulations are as follows:

1. Prior to the installation of a physical connection, the owner of the facility where the installation is to be made shall submit to the Department and to the owner of the public community water system a completed application form for an initial physical connection permit. The application form may be obtained from the Department at the Bureau of Safe Drinking Water, PO Box 426, Trenton, New Jersey 08625-0426.

2. The initial physical connection permit application form includes the following information:

- i. The facility name, location and municipality;
- ii. The facility owner's name, address and telephone number;
- iii. The name of the public community water system;
- iv. The name of the administrative authority;
- v. The source of the unapproved water supply;
- vi. The uses of the public community water system water and the unapproved water supply;
- vii. The type of operation conducted at the facility;
- viii. The type and size of backflow prevention devices and service connections from the public community water system;
- ix. A certification by the owner of the facility that the proposed installation complies with the requirements of this subchapter; and
- x. As an attachment, a drawing showing the facility layout with street locations, location of any unapproved water supply, all service connections from the public community water system, location of backflow prevention device(s) and sufficient longitudinal and transverse sections to adequately explain the installation.

3. The Department and the owner of the public community water system shall review the application and notify the owner of the facility in writing if the proposed physical connection installation meets the requirements of this subchapter.

4. Upon receipt of the notification from the Department and the owner of the public community water system pursuant to (a)3 above, the owner of the facility shall ensure that the physical connection installation is installed in accordance with the application approved pursuant to this section.

5. Upon completion of the physical connection installation, the owner of the facility shall contact the owner of the public community water system, the Department, and the administrative authority to arrange for the initial inspection and pressure testing of the physical connection installation in accordance with N.J.A.C. 7:10-10.6. The pressure test results shall be recorded on the Quarterly Physical Connection Test and Maintenance Report form.

6. Upon completion of the inspection and pressure testing of the device pursuant to (a)5 above, the authorized representatives of the public community water system, the administrative authority and the Department shall complete the Certification of Inspection and Testing Results form obtained from the Department.

7. The owner of the facility shall obtain the Certification of Inspection and Testing Results form completed in accordance with (a)6 above and submit the completed certification to the Department.

8. The Department shall review the application and results of the inspection and pressure testing conducted and certified pursuant to (a)5 and 6 above, and shall notify the owner of the facility, the supplier of water, and the administrative authority in writing of its decision to issue a physical connection permit or to deny the application. If an application is denied, the Department shall state the reason(s) for the denial.

(b) Permit renewal rules are as follows:

1. Prior to the expiration of a permit, the Department shall mail a Physical Connection Permit Renewal application form to each holder of a current physical connection permit issued pursuant to this subchapter.

2. The Physical Connection Permit Renewal application form includes the following information:

- i. The physical connection permit number;
- ii. The facility name, location and municipality;
- iii. The facility owner's name, address and telephone number;
- iv. The facility owner's signature;
- v. The number, type and size of device(s) permitted;

vi. A record of the dates of quarterly pressure tests and internal inspections; and

vii. Either certifications from the supplier of water and/or the administrative authority that the backflow prevention device(s) was functioning satisfactorily at the time of the tests, if the administrative authority and/or the supplier of water representative was present during the tests or certification from the certified tester through submission of the Quarterly Physical Connection Test and Maintenance Report recommending that the physical connection permit be renewed for one year.

3. Upon completion of the inspection and pressure testing of the existing installation, the permit holder shall obtain the certification of the authorized representative of the administrative authority and/or the owner of the public community water system as to the results of the inspection and quarterly pressure tests recorded on the Quarterly Physical Connection Test and Maintenance Report form if the administrative authority and/or the supplier of water's representative was present during the tests.

4. The permit holder shall submit the completed Physical Connection Permit Renewal application form to the Department, along with the completed Quarterly Physical Connection and Maintenance Report forms for the preceding year required by N.J.A.C. 7:10-10.6. Upon notification from the Department, the permit holder shall submit the completed Physical Connection Permit Renewal application form to the Department, along with the completed Quarterly Physical Connection and Maintenance Report forms for the preceding year required by N.J.A.C. 7:10-10.6, electronically in a format compatible with the Department's computer system.

5. The Department shall review the completed Physical Connection Permit Renewal application form and results of the inspection and pressure testing conducted pursuant to (b) 3 and 4 above, and shall notify the applicant-owner of the facility in writing of its decision to renew the physical connection permit or deny the application. If an application is denied, the Department shall state the reason(s) for the denial.

(c) Each physical connection permit issued or renewed pursuant to this section shall expire March 31 of each year, unless otherwise specified in the permit.

(d) Each applicant for an initial physical connection permit or physical connection permit renewal pursuant to this section shall pay the applicable fee set forth at N.J.A.C. 7:10-15.

Amended by R.2000 d.354, effective August 21, 2000.
See: 31 N.J.R. 2717(a), 32 N.J.R. 3106(a).

Rewrote (b)2vii.

Amended by R.2004 d.442, effective December 6, 2004.
See: 36 N.J.R. 295(a), 36 N.J.R. 5383(b).

In (b), added the second sentence in 4.

7:10-10.6 Inspection and testing requirements and procedures for physical connection installations

(a) Each physical connection installation shall be inspected and tested as follows:

1. A test for tightness under prevailing pressure conditions shall be conducted as required pursuant to N.J.A.C. 7:10-10.5(a) for an application for an initial physical connection permit and at least once every three months under an existing physical connection permit pursuant to N.J.A.C. 7:10-10.5(b).

2. An internal inspection shall be conducted within six months prior to the submission of an application for permit renewal pursuant to N.J.A.C. 7:10-10.5(b) and, after reassembly, the owner of the facility shall test the backflow prevention device for tightness to ensure the integrity of the device. An internal inspection shall consist of the dismantling of a double check valve assembly or a reduced pressure zone backflow preventer assembly to visually inspect the integrity of the internal mechanism including the clappers, discs, and facing rings.

3. The Department shall approve a reduction in the frequency of the pressure tests conducted pursuant to (a)1 above if the owner of the facility in which the physical connection installation is located demonstrates to the Department that the facility is not in operation during any time in a calendar quarter.

4. A reduced pressure zone backflow preventer assembly shall not be subject to the internal inspection requirement of (a)2 above except for routine maintenance as specified by the manufacturer, or for investigation of a malfunction, or as specifically required by the supplier of water.

(b) The inspection and testing required pursuant to (a) above shall be conducted either by an authorized representative of the owner of the facility where the backflow prevention device is installed in the presence of an authorized representative of the administrative authority and/or the supplier of water, or by a certified tester who holds a valid backflow prevention device tester certificate issued by a certifying agency approved by the Department pursuant to N.J.A.C. 7:10-10.8.

1. The owner of the facility may only select certified testers from the most current list of certified testers supplied by the certifying agency to the Department pursuant to N.J.A.C. 7:10-10.8(f).

2. The administrative authority and/or the supplier of water may require that an authorized representative of the administrative authority or supplier of water be present to witness the inspection and tests conducted by a certified tester.

3. If the tests and inspections are performed by a certified tester, the owner of the facility shall mail copies of the Quarterly Physical Connection Test and Maintenance

nance Report to the administrative authority and to the supplier of water within five days of conducting the tests and inspections. The Quarterly Physical Connection Test and Maintenance Report form may be obtained from the Department at the Bureau of Safe Drinking Water, PO Box 426, Trenton, New Jersey 08625-0426.

(c) Any test of a physical connection installation conducted by an authorized representative of the Department as part of an investigation or inspection pursuant to N.J.A.C. 7:10-10.2 or any other provision of this chapter shall not be considered as a substitute for the inspection and testing required pursuant to (a) above.

(d) The procedures for testing a double check valve assembly are as follows (see Figure 1 in Appendix B):

1. Utilizing the differential pressure gauge and not shutting off number 1 shut-off valve.

i. Step 1—Test number 1 check valve as follows:

(1) Verify that the number 1 shut-off is open and number 2 shut-off valve is closed;

(2) Connect the high hose to test cock number 2;

(3) Connect the low hose to test cock number 3;

(4) Open test cocks 2 and 3;

(5) Open high side bleed needle valve on test kit bleeding the air from the high hose. Close the high side bleed needle valve after high hose bleeding is completed;

(6) Open low side bleed needle valve on test kit bleeding the air from the low hose. Close the low side bleed needle valve after low hose bleeding completed;

(7) Record the differential gauge pressure reading. It should be a minimum of 1 psi; and

(8) Shut off test cocks 2 and 3 and disconnect the hoses.

ii. Step 2—Test number 2 check valve as follows:

(1) Connect the high hose to test cock number 3;

(2) Connect the low hose to test cock number 4;

(3) Open test cocks number 3 and 4;

(4) Open high side bleed needle valve on test kit bleeding the air from the high hose. Close the high side bleed needle valve after high hose bleeding is completed;

(5) Open low side bleed needle valve on test kit bleeding the air from the low hose. Close the low side bleed needle valve after low hose bleeding is completed;

(6) Record the differential gauge pressure reading. It should be a minimum of one psi; and

(7) Shut off test cocks 3 and 4 and disconnect the hoses.

iii. Step 3—To check tightness of number 2 shut-off valve, both the number 1 and number 2 check valves shall be tight and holding a minimum of one psi. Also, little or no fluctuation of inlet supply pressure can be tolerated. The testing is performed as follows:

(1) Connect the high hose to test cock number 2;

(2) Connect the low hose to test cock number 3;

(3) Open test cocks numbers 2 and 3;

(4) Open high side bleed needle valve on test kit bleeding the air from the high hose. Close the high side bleed needle valve after bleeding of the high hose is completed;

(5) Open low side bleed needle valve on test kit bleeding the air from the low hose. Close the low side bleed needle valve after bleeding of the low hose is completed;

(6) Record the differential gauge pressure reading. It should be a minimum of one psi;

(7) Connect the bypass hose to test cock number 4 and open test cock number 4;

(8) Open the high side control needle valve and the bypass hose control needle valve on the test kit. (This supplies high pressure water downstream of check valve number 2);

(9) Close test cock number 2. (This stops the supply of high pressure water downstream of number 2 check valve). If the differential pressure gauge holds steady, the number 2 shut-off valve may be recorded as being tight. If the differential pressure gauge drops to zero, the number 2 shut-off valve shall be recorded as leaking.

(A) With a leaking number 2 shut-off valve, the device is, in most cases, in a flow condition, and the previous test readings taken from Step 1 and Step 2 are invalid. Unless a non-flow condition can be achieved, either through the operation of an additional shut-off downstream, or the use of a temporary compensating by-pass hose, accurate test results will not be achieved. The tester shall retest until valid results are achieved.

iv. This completes the standard field test for a double check valve assembly. Prior to removal of the test equipment, the tester should ensure that the number 2 shut-off valve is opened, thereby reestablishing flow and the test kit drained of water.

(e) The procedures for testing a reduced pressure zone backflow preventer assembly are as follows:

1. Install test equipment as shown in Figure 2 in Appendix B.

i. Step 1—Test to ensure that the first check valve is tight and maintains a minimum pressure of five psi differential pressure as follows:

(1) Verify that the number 1 shut-off valve is open. Close the number 2 shut-off valve. If there is no drainage from the relief valve, the first check can be assumed to be tight;

(2) Close all test kit valves;

(3) Connect the high pressure hose to test cock number 2;

(4) Connect the low pressure hose to test cock number 3;

(5) Open test cocks number 2 and number 3;

(6) Open high side bleed needle valve on test kit bleeding the air from the high hose. Close the high side bleed needle valve after the high hose bleeding is completed;

(7) Open the low side bleed needle valve on test kit bleeding air from the low hose. Close the low side bleed needle valve after the low hose bleeding is completed; and

(8) Record the differential gauge pressure. It should be a minimum of five psi.

ii. Step 2—Test to ensure that the second check valve is tight against backpressure as follows:

(1) Leaving the hoses hooked up as at the conclusion of Step 1 in (e)1i above, connect the bypass hose to test cock number 4;

(2) Open test cock number 4, the high control needle valve and the bypass hose control needle valve on the test kit. This supplies high pressure water downstream of check valve number 2. If the differential pressure gauge remains steady, and no water comes out of the relief valve, the second check valve may be recorded as tight. If the differential pressure gauge shows a drop in pressure and water comes out of the relief valve, the second check shall be recorded as leaking;

(3) To check the tightness of the number 2 shut-off valve, leave the hoses hooked up the same as at the conclusion of Step 2 above, and then close test cock number 2. This stops the supply of any high pressure water downstream of check valve number 2. If the differential pressure gauge reading holds steady, the number 2 shut-off valve may be recorded as being tight. If the differential pressure gauge drops to zero, the number 2 shut-off valve shall be recorded as leaking;

(A) With a leaking number 2 shut-off valve, the device is, in most cases, in a flow condition and the previous readings taken from Step 1 and Step 2 are

invalid. Unless a non-flow condition can be achieved, either through the operation of an additional shut-off downstream, or the use of a compensating temporary bypass hose, (see Figure 2A, Appendix B) accurate test results will not be achieved. The tester shall retest until valid results are achieved.

iii. Step 3—Check that the relief valve opens at a minimum pressure of two psi below inlet pressure, as follows:

(1) With the hoses hooked up the same as at the conclusion of Step 2 in (e)1ii above, slowly open up the low control needle valve on the test kit and record the differential pressure gauge reading at the point when the water initially starts to drip from the relief valve opening. This pressure reading should not be below two psi.

iv. This completes the standard field test for a reduced pressure zone backflow preventer assembly. Prior to removal of the test equipment, the tester should ensure that the number 2 shut-off valve is opened, thereby reestablishing flow and test kit drained of water.

(f) The results of the pressure tests conducted pursuant to (d) and (e) above shall be recorded on the Quarterly Physical Connection Test and Maintenance Report form submitted with either the initial or renewal application form as specified at N.J.A.C. 7:10-10.5(a) or (b) as appropriate.

1. The Quarterly Physical Connection Test and Maintenance Report form is available from the Department and includes the following information:

- i. The date of pressure test and inspection;
- ii. The physical connection permit number;
- iii. The make, type, size, model, and serial number of the backflow prevention device;
- iv. The facility name and address;
- v. Pressure test and internal inspection results; and
- vi. A certification of the certified tester (if applicable), administrative authority and supplier of water.

(g) The owner of a facility shall repair and retest within 30 days any approved physical connection installation which fails a pressure test and/or an internal inspection. If repairs are not possible and a new physical connection is required, the facility owner shall secure approval from the Department of the new backflow prevention device as specified in N.J.A.C. 7:10-10.7.

(h) Any test kit utilized to conduct the tests pursuant to this section shall be calibrated in accordance with the recommendations of the test kit manufacturer.

Amended by R.2000 d.354, effective August 21, 2000.

See: 31 N.J.R. 2717(a), 32 N.J.R. 3106(a).
In (g), added second sentence.

**7:10-10.7 Physical connection permit modifications;
termination of physical connection permits on
removal of physical connection installations**

(a) To effect an administrative change to an existing physical connection permit, the holder of the physical connection permit shall notify the Department in writing within 14 days of such change. The notification shall specify the permit holder's name, permit number, and address, and shall describe the administrative change. An administrative change to an existing physical connection permit is required for any one or more of the following:

1. A change in permit holder's name and/or mailing address;
2. A change in ownership of the facility;
3. A change in any manufacturing process that may have an impact on the public community water system's water supply; and/or
4. A change in tenancy of the facility in which the physical connection installation is located.

(b) A holder of an existing physical connection permit who seeks to make any of the below-listed modifications to an approved physical connection installation shall submit a written request for approval to the Department. The request for approval and an application for an initial physical connection permit as required pursuant to (c) below shall specify the permit holder's name, permit number, and address, and shall describe the proposed modification(s). A written request for approval is required for any one or more of the following:

1. Replacement of a backflow prevention device, except as provided at (d) below;
2. Installation of additional backflow prevention devices on water service lines from the public community water system; or
3. Installation of a new service connection from the public community water system.

(c) In addition to the written request for approval required pursuant to (b) above, the holder of an existing physical connection permit shall submit an application in accordance with the requirements of N.J.A.C. 7:10-10.5(a) to modify the existing physical connection permit for either of the modifications specified at (b)2 and (b)3 above, or for the modification specified at (b)1 above if the replacement of the backflow prevention device is the replacement of a double check valve assembly with a reduced pressure zone backflow preventer assembly pursuant to N.J.A.C. 7:10-10.3(b) and (c).

(d) Notwithstanding the requirements of (c) above, an application to modify an existing physical connection permit is not required for the replacement of a reduced backflow preventer assembly with another reduced backflow preventer assembly of the same kind and size.

(e) The Department shall terminate a physical connection permit when the physical connection permit holder removes an approved physical connection installation in accordance with the following procedure:

1. The permit holder shall notify the supplier of water and the administrative authority within seven days after the permit holder removes the approved physical connection installation;
2. When one or more of several approved physical connection installations is removed from a facility, an authorized representative of the supplier of water and/or the administrative authority shall visually inspect and certify in writing to the owner of the facility that the approved physical connection installation or installations have been removed and that the remaining physical connection installation or installations meet the requirements of N.J.A.C. 7:10-10.2(a);
3. When all approved physical connection installations are removed from a facility, an authorized representative of the supplier of water and/or the administrative authority shall visually inspect and certify in writing to the owner of the facility that the unapproved water supply has been rendered inoperable;
4. Within seven days of receipt by the facility owner of the written certification required under (e)2 or 3 above, the owner of the facility shall submit to the Department a copy of the certification and a written explanation of the reason(s) for the removal of the approved physical connection installation or installations, identifying which installations have been removed, and, in the case of removal of all installations pursuant to (e)3 above, stating that the unapproved water supply has been rendered inoperable;
5. The Department shall terminate the applicable physical connection permit upon receipt of the certification and explanation required pursuant to (e)4 above, and shall send written confirmation of the termination to the owner of the facility, the administrative authority, and the supplier of water. The Department reserves the right to inspect the site of the removed physical connection installation(s) to ensure compliance with this subchapter.

7:10-10.8 Requirements for approval as a certifying agency

(a) Any person, organization or corporation wishing to be approved by the Department as a certifying agency to certify individuals as certified testers of backflow prevention devices shall meet the requirements of this section.

9. Total estimated cost of construction of the proposed system, and in addition estimated legal and engineering fees, and the estimated cost of all related infrastructures;

10. In the case of modification or an addition to an existing water treatment plant, plans for maintaining existing treatment units in operation during construction or for providing an adequate alternative water supply; and

11. If any existing treatment unit will be shut down during construction, a schedule for delivering water meeting the requirements of the State primary and secondary drinking water regulations at N.J.A.C. 7:10-5 and 7 during the shutdown period.

(e) Except for a non-capacity-related water system modification, a firm capacity and water allocation analysis for the proposed water system shall be submitted on the form available from the Department, Water Supply Administration, 401 East State Street, PO Box 426, Trenton, N.J. 08625-0426, or from the Department's website at www.state.nj.us/dep/watersupply. The firm capacity and water allocation analysis shall demonstrate that either (e)1 and 2 below are both met, or, as an alternative to (e)1 and 2 below, that (e)3 below is met:

1. The proposed water system will have adequate firm capacity to meet peak daily demand, including:

i. Existing peak daily demand, that is, the average daily demand as recorded in the peak month of the prior five years;

ii. Anticipated peak daily demand estimated in accordance with (f) below; and

iii. Anticipated peak daily demand, as of the date of application submission, from:

(1) All previously approved, but not yet constructed, water main extensions or connections to the water system authorized pursuant to N.J.A.C. 7:10-11.10(b); and

(2) Where a permit is not required pursuant to N.J.A.C. 7:10-11.10(b), all water main extensions or connections to the water system, committed to, but not yet completed, by the water supplier.

2. The applicant for the proposed water system possesses a valid water allocation permit issued by the Department under N.J.A.C. 7:19, with applicable limits and/or bulk purchase agreements to divert or obtain the amount of water needed to meet the monthly and annual estimated demands for the proposed system in accordance with (g) below.

3. The proposed water system is necessary to alleviate an adverse environmental impact or a threat to public health, safety or welfare, including, for example, where the existing water supply provided by a public noncommunity or nonpublic system does not meet drinking water

standards, or an individual domestic well has lost yield and is unable to meet existing demand or is threatened by contamination.

(f) Anticipated peak daily water demand shall be estimated as follows:

1. For residential development, determine the average daily water demand in accordance with the Department of Community Affairs' Residential Site Improvement Standards (RSIS) at N.J.A.C. 5:21-5.2, Table 5.1 "Water Demand/Generation by Type/Size of Housing";

2. For non-residential development, determine the average daily water demand in accordance with N.J.A.C. 7:10-12.6(b)2, Table 1; and

3. Multiply the sum of the average daily water demand determined under (f)1 and 2 above by a peaking factor of three.

(g) For the purposes of demonstrating compliance with the applicable water allocation permit limits and/or bulk purchase agreements under (e)2 above, the applicant shall estimate anticipated water demand as follows:

1. Determine average daily water demand in accordance with (f)1 or 2 above, as applicable;

2. Multiply the average daily water demand determined under (g)1 above by a peaking factor of 1.5 and then by 31 to determine the estimated peak monthly water demand;

3. Multiply the average daily water demand determined under (g)1 above by 365 to determine the estimated annual water demand;

4. To the estimated peak monthly and annual demand calculated in (g)2 and 3 above, add the anticipated peak monthly and annual water demand on the proposed water system, as of the date of application submission, from:

i. All previously approved, but not yet constructed, water main extensions or connections to the water system authorized pursuant to N.J.A.C. 7:10-11.10(b); and

ii. Where a permit is not required pursuant to N.J.A.C. 7:10-11.10(b), all water main extensions or connections to the water system committed to but not yet completed by the water supplier.

5. The existing peak monthly demand and existing peak annual demand, as recorded in the prior five years, shall be added to the estimated peak monthly and estimated annual demand calculated under (g)4 above and compared to the monthly and annual diversion limits in an applicable water allocation permit along with any bulk purchase agreements to ensure that anticipated demand will not exceed the volume of water authorized to be diverted in a permit issued by the Department pursuant to N.J.A.C. 7:19.

(h) The application shall include specifications that describe the sanitary safeguards of the proposed system, including the method or methods of disinfecting facilities. Specifications regarding the general contract, notice to bidders, and detailed specifications for items such as doors, windows, fittings, fixtures, steel work, concrete and wood are not required to be submitted for purposes of this subchapter.

(i) The engineering design plans shall meet the following requirements:

1. Plans shall include construction drawings in sufficient detail to facilitate examination of and comprehension of the proposed water system. The north point and datum shall be noted on each drawing. Topography shall be shown by elevations, contours or other suitable methods. Where pertinent, roads, streams, municipal boundaries, flood elevations, and other relevant geographical features shall be shown, including locations of watersheds, reservoirs, wells and well fields, water treatment plants, existing water transmission mains and distribution mains, water storage tanks, fire hydrants, and major and minor pollutant sources. In the case of transmission and distribution mains, an index page shall be supplied showing by number the area and districts covered by the various sheets.

2. Plans shall be drawn to standard scale on uniformly sized sheets. Each sheet shall contain necessary titles, scales, dates, water system owner's name and a general description of the water system. Each sheet shall bear the engineer's seal as required by N.J.S.A. 45:8-45.

3. The preferred drawing size is 24 inches by 36 inches, including suitable margins. Lettering shall be sufficiently large to permit photo-reduction, and all plans shall have graphic scales.

4. Sheets shall be bound together.

5. All topographical symbols and conventions shall be defined. Water transmission and distribution mains to be constructed for the portion of the water system for which the permit to construct is sought, if the proposed system is to be built in stages, and/or in the future shall be shown by suitable conventions. Where applicable, existing sanitary sewers and combined sewers shall be shown by clear designations.

6. Surface elevations shall be drawn for all relevant parts of the proposed water system, with dimensions sufficient to permit verification of the operations of the system. Datum shall be stated.

7. Plans for intake structures, pumping equipment, water treatment plants, and similar structures shall include a general plan showing the various treatment and pumping units and structures of the proposed water system, and, except as provided in (f)ii below, detail plans for all such units and structures.

- i. All plans shall show longitudinal and transverse sections sufficient to explain the construction of each treatment unit, including the hydraulic profile through the plant, when applicable.

- ii. Pursuant to N.J.A.C. 7:10-11.4(f), only the detail plans relevant to the examination conducted by the Department must be included. Detail drawings for the guidance of builders or contractors (for example, structural details, reinforcement details, details of heating, ventilation, electrical work, architectural details, and the electrical-mechanical details of pumps, engine and machinery) need not be included.

8. Plans for wells shall include site plans, schematic drawings and detail drawings as follows:

- i. Site plans for wells shall show:

- (1) The topography and the location of existing and/or planned wells in the well field for the proposed water system. Each well shall be given an identifying number in chronological order of planned construction;

- (2) The identification of the ownership of all land within a fifty foot radius of each well and the location of all potential major and minor pollutant sources; and

- (3) The elevation of each well head above a common datum plane and the 100 year flood elevation.

- ii. Schematic drawings for wells shall include as much detail as practicable, and shall show:

- (1) The length, size and location of casings and screens;

- (2) The method of sealing off shallow ground water and waters from other aquifers from entering the well, including the sealing of the annular space between the drill hole and the outer casing and the surface strata;

- (3) Drawing(s) of the pumping unit(s), including prime and standby power sources;

- (4) The plan and section view of the pump house or any similar structure; and

- (5) The method of connecting the well or other ground water source with the distribution system of the existing or proposed water system.

- iii. Detail drawings for wells shall show:

- (1) Details of the well head, including elevations of protective curbing, top of casing, pump house floor and surrounding grade;

- (2) The method of sealing the well head against surface water contamination;

- (3) The location of well vents and the methods for protecting them against contamination; and

(4) The well head piping details, showing locations of check valve, surge or air relief valve, shutoff valves, sampling taps, water level indicator, flow meter, discharge pressure gauge, and blowoff connection to permit pumping to waste.

9. Plans for water main extensions shall include:

i. Site plans showing the location of the proposed water main, the right-of-way or easement, sanitary and storm sewers and other utilities in the proposed construction area;

ii. Elevations and details sufficient to show clearances and construction methods in the vicinity of sanitary sewers;

iii. The methods of connecting to the existing water supply and maintaining adequate protection of the existing water supply; and

iv. The locations of valves, hydrants, blowoffs and flushing connections.

(j) The Department shall make a determination of administrative completeness for each application as follows:

1. If the application does not contain all documents and information required pursuant to this section, the Department shall within 20 working days after receipt of the application, either return the application or advise the applicant in writing as to the additional information required to make the application administratively complete and the date by which the additional information must be received by the Department. If an application is returned, the applicant will be advised in writing as to the additional information required to make the application complete; and

2. If the application contains all documents and information required pursuant to this section and is determined to be administratively complete, the Department, within 20 working days after receipt of the application, shall so advise the applicant in writing.

(k) The Department shall make a determination of technical completeness for each application within 60 working days after declaring the application administratively complete as follows:

1. If the application does not contain sufficient technical information as required pursuant to this section or if the technical information requires clarification, the Department shall so advise the applicant in writing and establish a date by which additional or clarifying information must be received by the Department. If additional or clarifying information is not received by the specified date, the Department may:

i. Return the application;

ii. Extend the date by which the applicant must provide the additional or clarifying information; or

iii. Deny the application

2. Upon making a determination that an application is technically complete, the Department will perform a detailed analysis and will develop a staff recommendation to issue the permit or deny the application. The staff recommendation shall include any conditions to be attached to the permit if the recommendation is to issue the permit or an explanation of the reasons for denial if the recommendation is to deny the application.

(l) The Department shall issue a permit, with any conditions deemed appropriate by the Department, for the construction of the proposed water system and distribution of potable water from said water system if the application meets all applicable requirements of this chapter. If the Department denies the application, the Department shall provide a written explanation of the reasons for denial.

Amended by R.2000 d.354, effective August 21, 2000.
See: 31 N.J.R. 2717(a), 32 N.J.R. 3106(a).

In (a), added 1.

Amended by R.2004 d.442, effective December 6, 2004.
See: 36 N.J.R. 295(a), 36 N.J.R. 5383(b).

Rewrote the section.

7:10-11.6 General requirements for source, treatment, storage and distribution components

(a) The components of a public community water system, including source, treatment, storage and distribution facilities shall be designed and constructed to meet all the demand requirements imposed on the water system and shall have the firm capacity to meet the applicable peak daily demand as defined at N.J.A.C. 7:10-11.4(a).

(b) Regulations for instrumentation are as follows:

1. Each water supply source shall be equipped with a totalizing flow meter. For water systems for which the total average flow exceeds 0.1 MGD, flow recording equipment shall be installed for all wells and pump stations.

2. Each water supply source shall be equipped with instrumentation sufficient to ensure the proper operation of the treatment plant associated with the water supply source.

3. There shall be devices and/or equipment to determine the water level elevation in each distribution storage tank.

4. Each pump shall be equipped with a discharge pressure gauge.

(c) Every water treatment plant shall be equipped, at a minimum, with analytical equipment for the determination of chlorine residual concentrations, and, if treating surface water, with equipment for the measurement of turbidity. In addition, every water treatment plant shall be equipped with analytical equipment for water quality control tests appropriate to the type of water treatment used. A laboratory

located at a water treatment plant that provides only day-to-day water quality control testing need not be a certified laboratory, but the analytical methods and procedures it uses must be in accordance with Standard Methods for the Examination of Water and Waste Water, 17th Edition, as amended and supplemented, incorporated herein by reference. Standard Methods is available from the American Public Health Association, 1015 Fifteenth Street, Washington, DC 20005.

(d) Upon completion of the construction of any component of a public community water system, including source, treatment, storage, and distribution mains, and before such component is placed into service, all surfaces which may come in contact with adequately protected water shall be disinfected in accordance with American Water Works Association (AWWA) standards for disinfection of facilities ANSI/AWWA-C651 through C654, as amended and supplemented, incorporated herein by reference. AWWA standards may be obtained from the American Water Works Association, 6666 West Quincy Avenue, Denver, Colorado 80235.

(e) Cross connections are prohibited as follows:

1. Cross connections are prohibited in any water treatment plant between any pipe or conduit carrying finished water and another pipe or conduit carrying wastewater, raw water, or water in any prior stage of treatment.

2. No conduit or chamber containing finished water shall have a common partition with another conduit or chamber containing waste filter wash water or water in any prior stage of treatment, unless the common partition is made completely impermeable by use of an acceptable protective membrane.

3. Sludge draw-off lines, filter backwash discharge lines, well blow-off lines, and overflows from any water treatment or treated water storage reservoir or tank shall not be connected directly into any storm drain, sanitary sewer, or water source, but shall be protected by a suitable one way air-gap-delivery connection to ensure that no backflow can occur under any condition.

4. Priming systems for pumps shall prevent the contamination of adequately protected water.

5. Sump pumps for underground pump stations shall not discharge into sanitary sewers.

(f) Regulations for treatment and disposal of water treatment plant process wastes are as follows:

1. Water treatment plant process waste, such as sludge from coagulation and sedimentation tanks and filter backwash water, shall ordinarily be treated before being discharged into any waters of this State. The degree of treatment shall be contingent upon the character of the waste and its effect upon the receiving waters. The discharge of process waste is prohibited except in accordance with the requirements of a New Jersey Pollution Discharge Elimination System (NJPDES) permit issued pursuant to N.J.A.C. 7:14A.

2. When the water treatment plant process waste is required to be treated on site, the minimum treatment of water treatment plant process waste shall be by plain sedimentation in a minimum of two lagoons, and shall be provided with a minimum total combined capacity equivalent to 24 hours of wastewater flow.

3. Water treatment plant process waste shall not be discharged to a sanitary sewer system except in accordance with the New Jersey Pollutant Discharge Elimination System rules, N.J.A.C. 7:14A, and with written approval from the appropriate sewerage authority.

(g) Regulations for building construction, safety, and security are as follows:

1. Each water treatment plant and pump station shall be housed in a building constructed of durable and fire-resistant materials.

2. Buildings shall be constructed so that surface water will not enter or lie against the building. Normally, the ground floor shall be at least six inches above the surrounding ground. Buildings shall be protected against flooding by locating them above the 100 year flood plain or providing waterproof doors or covers for all openings below that level.

3. All floors, dry wells, meter pits, interconnection chambers, piping galleries and similar structures not intended to contain water shall be self-draining without possibility of backflow. If necessary, sufficient sump pumping capacity shall be provided for the removal of water.

4. Adequate heating, lighting, ventilation and, if required, dehumidification shall be provided.

5. Buildings shall be protected against unauthorized entry and vandalism.

6. Treatment facilities in pits are prohibited.

7. Office space, a workshop, a laboratory, and storage shall be provided, as needed.

8. All surface water treatment plants shall contain drinking water and lavatory facilities for personnel.

9. A safety shower is required in locations where hazardous chemicals are handled pursuant to N.J.A.C. 7:10-11.12(e) and is recommended for all facilities where chemicals are stored or handled.

10. All facilities shall be equipped with necessary safety features, including access ladders, railings at the tanks and walkways, guards around belts and other moving parts, handrails at stairs or steps, adequate ventilation of enclosures, and such special provisions for handling of chemicals as are required pursuant to N.J.A.C. 7:10-11.12. Nonslip treads on stairs shall be provided, and the slope of the stairs shall meet New Jersey Department of Labor requirements. Warning signs shall be posted in hazardous locations. A first aid kit shall be provided.

(h) All water treatment plants, which have a capacity of 1 MGD or more and include filtration treatment, shall have readily available a complete outfit of necessary tools and accessories for the proper operation and maintenance of the facility.

(i) Auxiliary power requirements are as follows:

1. Auxiliary power shall be provided for a water supply source and/or treatment facility when such facility is a primary component of a water system and is indispensable to the effective operation of the water system.

2. Auxiliary power shall be provided for a distribution system pump station when a pump station has to pump continuously into a pressure zone without storage facilities. If needed, pump stations shall be provided with one electrical source, and one standby source either for emergency power generation or direct drive to the pumping equipment.

3. Auxiliary power equipment, when provided or required, shall be designed and have sufficient capacity so as to effectively operate all pumping and water treatment processes in the event of failure of the primary power source for the water system.

(j) Materials and equipment used to construct a public community water system shall meet the following requirements:

1. Material and/or equipment shall not contribute contaminants to the drinking water nor impart any taste and odor to the drinking water.

2. Coating materials that are in contact with adequately protected water shall comply with ANSI/NSF Standard 61, as amended and supplemented, incorporated herein by reference. ANSI/NSF standard 61 may be obtained as provided at N.J.A.C. 7:10-8.2(a).

3. The use of lead in any component of a water system shall meet the following standards:

- i. The lead content of solder and flux shall not exceed 0.2 percent by weight;
- ii. The lead content of pipes, fittings and any other metallic component shall not exceed eight percent by weight;
- iii. Lead packers shall not be used for well construction; and
- iv. Lead packers may be used in the repair of cast iron pipe joints.

7:10-11.7 Standards for the construction and development of ground water sources

(a) Any public community water system that uses only ground water sources of supply shall have the firm capacity to meet the applicable peak daily demand as required pursuant to N.J.A.C. 7:10-11.6(a), except as provided (a)1 below.

1. The Department shall approve an interconnection with another public community water system in lieu of a backup well if a contract or other written binding agreement to obtain sufficient water is executed between the owners of the water systems to be interconnected and if it can be shown to the satisfaction of the Department that such an interconnection will enable the public community water system seeking the interconnection to comply with this subsection.

(b) Ground water sources of supply shall be protected as follows:

1. A public community water system shall acquire and control all land within at least a 50 foot radius of any ground water source used for its water supply. Major and minor pollutant sources and non-water system related activities shall be prohibited within the specified area. The public community water system may control the land by lease or easement only with prior written approval of the Department.

i. The Department recommends that a public community water system control and/or obtain a conservation easement to land surrounding a ground water source beyond that required pursuant to (b)1 above for watershed protection and future water supply development. If ground water sources are located in unconfined or bedrock aquifers, the Department recommends the minimum land acquisition, dependent upon well capacity, shown in the table below:

Source Capacity (MGD)	Land Requirement (Acres)
0-1	1
> 1-2	2
> 2-3	3
> 3-5	5
> 5	5 + $\frac{1}{2}$ acre for each MGD or portion hereof in excess of 5 MGD

ii. The Department recommends that land acquired for the purpose of watershed protection be in up-gradient areas and equivalent to Tier I as defined in the Well Head Protection Plan (WHPP) adopted by the Department pursuant to the Federal Act.

2. Storm and/or sanitary sewer lines, industrial waste lines, septic tanks, distribution boxes and dry wells are prohibited within 50 feet of a well. Any such line within 100 feet of a well shall be of completely watertight construction (that is, steel, reinforced concrete, cast iron, PVC or other suitable material). Sewage disposal fields and seepage pits are prohibited within 200 feet of a well. Cesspools are prohibited within 200 feet of a well.

i. The Department may reduce the distance restrictions under (b)2 above if a well is constructed in a confined aquifer.

3. Manholes and/or connections to a sanitary sewer system are prohibited within 100 feet of a well, unless the well is constructed in a confined aquifer.

(c) The public community water system shall submit as part of the permit application under this subchapter an inventory of all major and minor pollutant sources and an evaluation of their possible impact on the quality of the ground water source as follows:

1. If a well is proposed to be constructed to withdraw water from a confined aquifer, an inventory and evaluation of major and minor pollutant sources within 500 feet of the well and a detailed description of how the well will be protected from the pollutant sources.

2. If a well is proposed to be constructed to withdraw water from an unconfined or consolidated aquifer, a delineation of the well head protection area (WHPA) in accordance with the New Jersey Well Head Protection Plan (WHPP) adopted by the Department pursuant to the Federal Act and an evaluation of major and minor pollutant sources as follows:

i. All major pollutant sources within the well's zone of contribution (ZOC) of a distance not greater than 12 years time of travel (TOT) or 10,000 feet; and

ii. All minor pollutant sources within the greater distance of either 200 days TOT or 500 feet of the well.

3. Major pollutant sources identified pursuant to (c)2 above that are within either 200 days TOT or 500 feet of the well, whichever is greater, are prohibited unless an appropriate treatment barrier is provided.

4. The supplier of water shall provide an appropriate treatment barrier, or establish a sampling program in order to detect the presence of contamination from any major pollutant source identified pursuant to (c)2 above, if any such source exists in an area bounded by the greater distance of either 200 days TOT or 500 feet from the well and bounded by the lesser distance of either five years TOT or 10,000 feet from the well.

(d) Subject to the provisions of this section, well construction shall meet all applicable requirements of N.J.A.C. 7:9D-2 and also conform to any American Water Works Association Standard, ANSI/AWWA-A100-90 as amended and supplemented, incorporated herein by reference, where such standard exceeds the minimum construction standards of N.J.A.C. 7:9D-2. ANSI/AWWA-A100-90 may be obtained as provided at N.J.A.C. 7:10-11.6(d).

(e) The general requirements for the construction of wells are set forth at N.J.A.C. 7:9D-2. Additional requirements for public community water wells are as follows:

1. No portion of a public community water supply system well shall be constructed unless a permit is obtained pursuant to this subchapter.
2. Water used for the drilling or driving of a well shall be obtained only from a source of known potable quality, or shall have been disinfected to meet the chlorine contact period and chlorine residual requirements pursuant to N.J.A.C. 7:10-11.16(e).

(f) Regulations for pumping equipment are as follows:

1. The pumping equipment for each well shall be designed and installed to prevent contamination and, where necessary, prevent freezing of the water supply.
2. The pump setting shall be such that the pumping level will not fall below the lowest pump bowl when the well is operated at maximum pump capacity.
3. The pump suction inlet shall be set above the screen and in no case shall it be set in the screened area.
4. The pump setting level shall be such as to ensure that the water level does not fall below the top of the screen.

(g) Regulations for auxiliary well piping and equipment are as follows:

1. The discharge pipe from each well shall be provided with a check valve located between the pump and any blowoff, bypass or other connection to the discharge pipe.
2. A well blowoff shall be located after the check valve. The blowoff shall terminate above ground, and shall be protected against contamination.
3. A shutoff valve shall be located on the discharge pipe, after the blowoff, to allow water to be discharged to waste without entering the distribution system.
4. An air relief valve shall be located between the check valve and the well pump.
5. Each well shall be equipped with a water level indicator, discharge pressure gauge, raw water sampling tap, totalizing flow meter, well casing vent, and protected access to the well to permit the direct measurement of the water level.

6. Each well shall be equipped with instrumentation pursuant to N.J.A.C. 7:10-11.6(b).

7. If the well casing vent is utilized as the access for direct measurement of water level, the inside vent diameter shall not be less than $\frac{3}{4}$ of an inch and the well vent shall not be bent at an angle greater than 45 degrees to the well casing.

(h) Regulations for pump testing, sampling and record-keeping are as follows:

1. Each well shall be tested to determine the water yield. Except as provided in (k)3 below, such testing shall be run at 120 percent of design pump capacity and until either the drawdown or the rate of drawdown is stabilized (0.2 ft/hour or less) for a minimum period of six hours. Minimum pumping durations are as follows:

i. Continuous pumping for at least 72 hours in consolidated formations.

ii. Continuous pumping for at least 24 hours in unconsolidated formations or longer when required by the Department under a water supply allocation permit issued pursuant to N.J.A.C. 7:19.

2. Records of flow rate and drawdown shall be made at least at one hour intervals (or more frequent for tests pursuant to N.J.A.C. 7:19-2.2) during the test, and the water levels during the recovery period shall be recorded in accordance with the New Jersey Geological Survey Report GSR 29, Guidelines for Preparing Hydrogeological Reports for Water-Allocation Permit Applications. These guidelines can be obtained from the Department, Maps and Publications Office, PO Box 438, Trenton, New Jersey 08625-0438.

3. A pump test may be run at 100 percent of design pump capacity for a minimum period of 72 hours if stabilized drawdown is achieved and the well is designed so that the pump intake level is not dewatered if the well were to pump continuously for 30 days.

4. For wells in unconfined or rock aquifers, the discharge during a pump test shall be released at a distance where there is no interference or recharge during the test.

5. Water samples shall be taken during the pump test period and examined for bacteriological and chemical quality in accordance with State primary and secondary drinking water regulations at N.J.A.C. 7:10-5 and 7.

(i) Regulations for protection of well heads are set forth at N.J.A.C. 7:9D-2. Additional requirements for the protection of well heads for public community water supplies are as follows:

1. The well head shall be constructed so as to ensure the protection of the well from contamination.

2. The casing pipe and protective curbing of all wells shall extend at least 12 inches above the pump house floor or the grade near the well.

3. The pump house floor shall be sloped away from the well head and the floor shall be above the 100 year flood elevation.

4. The space between the pump column and the inner casing of the well shall have a vent protected with a downfacing elbow or a mushroom type head located above the flood level. All vents shall be screened against the entry of insects.

(j) Any well with unsuitable water quality that cannot be treated to meet the standards of this chapter, any nonproductive well or any abandoned well shall be sealed in accordance with N.J.S.A. 58:4A-4.1 et seq. and N.J.A.C. 7:9D-3.

(k) Upon completion of well construction and the installation of permanent pumping equipment and before the well is placed in service, the well suction piping, pumping equipment and discharge piping shall be disinfected in accordance N.J.A.C. 7:10-11.6(d).

(l) Additional requirements for ground water sources other than wells are as follows:

1. Where an application for a permit under this subchapter is made for the derivation of water from ground sources, such as a radial collector, infiltration gallery or spring, the provisions of (a) through (n) above shall apply.

2. Such application shall sufficiently detail the proposed construction method so that the Department can fully evaluate the sanitary features of the proposed ground water source. A preapplication conference is recommended.

(m) Any well or other ground water source of supply constructed in accordance with a permit issued under this subchapter shall not be placed in operation until the Department approves the well or source, as follows:

1. Following disinfection of the well or ground water source pursuant to (n) above, the well or source shall be pumped to waste until the water is free of chlorine residual.

2. The Department shall inspect the well or source and test the well or source water to determine compliance with the State primary and secondary drinking water regulations at N.J.A.C. 7:10-5 and 7. The well shall stand idle for at least 24 hours prior to such testing and the raw water shall not contain any chlorine residual.

Amended by R.2000 d.354, effective August 21, 2000.

See: 31 N.J.R. 2717(a), 32 N.J.R. 3106(a).

In (c)3 and (c)4, inserted internal references; in (d), amended N.J.A.C. references; and in (k)2, rewrote the last sentence.

Amended by R.2001 d.313, effective September 4, 2001 (operative October 4, 2001).

See: 32 N.J.R. 2832(a), 33 N.J.R. 3194(a).
Rewrote the section.

7:10-11.8 Standards for the construction and development of surface water sources and ground water sources under the direct influence of surface water

(a) A supplier of water seeking a permit under this subchapter for a public community water system using a surface water source of supply shall submit for approval and implement a watershed monitoring plan and inventory that includes the following:

1. A record of raw water quality at the point of intake over a one year period. Required water quality data shall include, at a minimum, monthly sampling for physical, chemical, and primary contaminants regulated pursuant to this chapter; quarterly sampling for radiological contaminants, *Giardia lamblia*, and *Cryptosporidium*; and weekly sampling for turbidity, temperature and bacteria (total and fecal coliform). Sampling shall be conducted at least once during or immediately after a storm event;

2. An inventory of all major pollutant sources as defined pursuant to N.J.A.C. 7:10-11.4(a)4 located within the watershed and minor pollutant sources as defined pursuant to N.J.A.C. 7:10-11.4(a)5 located within one mile upstream of the water system intake, with an evaluation of their potential impact on water quality.

3. A watershed monitoring and an emergency response plan that includes a regular inspection schedule for the watershed, an inventory of all major pollutant sources within five miles upstream of the water system intake and 500 feet back from the stream banks, and a detailed emergency response plan for a contamination event.

4. A preapplication conference to discuss the requirements of this subsection is recommended.

(b) Each supplier of water with a surface water source of supply shall notify the Department, the New Jersey Department of Transportation, the county planning board, and municipal police and fire departments of the location of each intake and the road drainage areas which may affect water quality. The supplier of water shall identify areas where storm drains bring water from another area or watershed into the watershed area where the intake is located. The supplier of water shall request the Department to notify the supplier of water of applications for discharge permits received and discharge permits issued for locations upstream of the intake on a periodic basis. The supplier of water shall make similar requests of local planning and zoning boards of counties and municipalities upstream of the intake. Also, the county emergency network shall be advised of the drainage area and fire departments shall be provided a map indicating the storm drainage system that flows toward the intake.

(c) Regulations for surface water intake are as follows:

1. All surface water intakes shall be equipped with multiple surface water intake units in order to provide firm capacity (excluding the raw water intake line).

2. Intake structures shall be located and arranged to minimize the impact of surface drainage on water quality.

3. The maximum surface water intake velocity shall not exceed one-half foot per second.

4. Where practical, intake structures shall be constructed to permit the selective withdrawal of water from multiple levels of reservoirs.

5. Each intake structure shall be protected by removable or cleanable coarse screens or racks to prevent debris from entering the water system. Fine screens may be used for the purpose of excluding smaller fish and debris from the system.

6. Intake structures are prohibited within 100 feet of a septic system or sanitary sewer line.

7. All mechanical equipment shall be protected against the 100 year flood.

(d) Regulations for surface water and ground water under the direct influence of surface water treatment plants are as follows:

1. Pilot test data shall be submitted for the proposed treatment process.

2. Treatment shall, at a minimum, include coagulation, flocculation, filtration and disinfection.

3. Gravity filtration shall be provided.

4. The treatment plant shall be designed to accommodate powdered activated carbon (PAC) or granular activated carbon (GAC) treatment units.

5. The treatment plant shall have firm capacity to meet peak demand (excluding coagulation, flocculation and sedimentation).

6. Surface water shall be filtered and disinfected in accordance with N.J.A.C. 7:10-9.

7. Auxiliary power for surface water treatment plants shall be provided in accordance with N.J.A.C. 7:10-11.6(I).

(e) All filtration treatment plants, treating either surface water or ground water under the direct influence of surface water, shall be equipped as follows:

1. For the continuous monitoring and recording of the disinfectant residual entering the distribution system;

2. For the continuous monitoring and recording of effluent turbidity from each individual filter; and

3. Each filter must have the capability to filter to waste at the normal production rate.

7:10-11.9 Standards for the construction of pumping stations

(a) All pumping stations shall be located above-ground for ease of inspection and maintenance. Where an above-ground location is not feasible, the station shall meet the requirements for underground pumping stations at (g) below.

(b) Regulations for pumping station location and protection are as follows:

1. Pumping stations shall not be located within the 100 year flood hazard area. Where a location outside the 100 year flood hazard area is not feasible, the pumping station shall be protected against flooding. All treated water pumping stations shall have a floor elevation at least one foot above the highest recorded flood elevation.

2. Pumping stations shall be constructed in compliance with N.J.A.C. 7:10-11.6(g).

(c) Wet wells shall be watertight and protected against seepage and contamination. Wet wells shall be covered and provided with downfaced or mushroom type screened vents protected against entry of foreign matter.

(d) Regulations for pumping equipment are as follows:

1. Pumping equipment shall be designed to meet the demand requirements pursuant to N.J.A.C. 7:10-11.6(a).

2. Sufficient pumping units shall be supplied so as to have a firm capacity to achieve the maximum design output of the station.

3. Where low pressure may adversely affect customers, a booster pump station shall be designed and controlled to maintain a minimum pressure of 20 pounds per square inch (20 p.s.i.) in the water main from which it draws suction. If chronic low pressure problems exist, the Department shall require an automatic switch to deactivate pumps in low pressure situations.

4. Priming systems shall be constructed to prevent contamination of the water supply.

(e) Each pumping station shall be equipped with check valves, flow meters, isolation valves located before and after the pumping station, pressure gauges, and manual shutoff valves within the station.

(f) Each pumping station with a design capacity greater than or equal to 100,000 gallons per day shall be equipped with a flow totalizing meter.

(g) Each underground pumping station shall have sump and sump pump capacity adequate to handle leakage or a break within the station as follows:

1. A minimum of two sump pumps designed to be activated at different flood levels;

2. An alarm activated 24 hours a day that is triggered when water is six inches above the floor level or when the secondary sump pump activates. In addition, an automatic above-ground power shutoff shall be activated when the water reaches the base of the pumps; and

3. Isolation valves which automatically close either when there is a power failure or when the secondary sump pump is activated.

Amended by R.2000 d.354, effective August 21, 2000.

See: 31 N.J.R. 2717(a), 32 N.J.R. 3106(a).

Rewrote (d)2.

7:10-11.10 Permit requirements and standards for the construction of distribution systems; master permits

(a) A supplier of water may apply for a master permit, including all proposed routine water main extensions and/or replacements, transmission mains and interconnections, covering a set maximum number of service connections for a period not exceeding three years. At the time of application for such master permit, the supplier of water shall submit specifications and an engineer's report demonstrating that the water system can meet the requirements of this subchapter, as well as a system distribution map that differentiates between existing and proposed water mains. The following shall apply to master permits:

1. Each master permit shall be renewed annually; and
2. A master permit is available only to public community water systems.

(b) For any distribution system improvement such as water main extension and/or replacement, transmission main or interconnection not covered by a master permit issued pursuant to (a) above, the supplier of water shall comply with the following:

1. For any water main extension or connection to an existing water main which includes new residential service to more than 15 realty improvements but less than 50 new service connections, or generates a new non-residential average demand of more than 6,000 gallons per day determined pursuant to Table 1 at N.J.A.C. 7:10-12.6(b), submit a completed permit Standard Application Form pursuant to N.J.A.C. 7:10-11.5(c)1, the Simplified Water Main Certification Form, available from the Bureau of Safe Drinking Water, PO Box 426, Trenton, New Jersey 08625-0426, the permit application review fee specified at N.J.A.C. 7:10-15.3(d)2, and a plan showing the location of existing and proposed water mains. The Simplified Water Main Certification Form includes the following information:
 - i. The name and address of the supplier of water;
 - ii. The diameter and length of water mains;
 - iii. The anticipated water demand; and
 - iv. A certification by the supplier of water that the proposed water main extensions will be constructed in conformance with the requirements of this subchapter.

2. For any water main construction which includes 50 or more new service connections, or is 1,500 or more feet in length or includes an interconnection with another public community water system, submit a water distribution map depicting locations of existing mains and proposed extension(s) of water mains, a complete permit application pursuant to N.J.A.C. 7:10-11.5(b), including the permit application review fee specified at N.J.A.C. 7:10-15.3(d)3 or 4, as applicable.

3. The requirement to obtain a permit under (b)1 or 2 above applies to the entire site to be served by a water main extension or other water system connection. A realty improvement or group of realty improvements on a site shall not be segmented for the purposes of this section if, upon completion, the realty improvements to be served by the proposed water system would meet the permit requirements at (b)1 or 2 above.

4. A permit pursuant to this section is not required for water main extensions other than those specified at (b)1 and 2 above; however, a connection to or extension of a water system shall not be undertaken if:

- i. The anticipated demand associated with a project or activity to be served by the connection or extension would exceed the applicable firm capacity or water allocation limits; or
- ii. The project or activity to be served by the connection or extension conflicts with the applicable adopted Areawide Water Quality Management Plan pursuant to N.J.A.C. 7:15.

(c) The Department shall deny a permit application under this section for any proposed distribution main extension if the source, treatment, transmission or storage capacity does not meet the requirements of N.J.A.C. 7:19-6.7 and 7:10-11.6(a), or the public community water system is unable to meet its historical peak daily demand as well as the additional demand anticipated from the proposed expansion calculated in accordance with N.J.A.C. 7:10-11.5(e) through (g).

(d) Regulations for the capacity and size of water mains are as follows:

1. Design capacity of water mains shall be such as to maintain a minimum pressure of 20 pounds per square inch (psi) at street level under all flow conditions.
2. The minimum diameter of all distribution mains shall be six inches for systems with an average demand of less than one MGD and eight inches for larger systems. The Department shall approve deviations from this minimum requirement if justified by hydraulic analyses submitted by the applicant, taking into consideration future water usage. The Department shall not approve a water distribution main of less than six inches in diameter if it is intended to supply a fire hydrant(s) or if there is a reasonable possibility that it will be extended to serve additional properties or areas.

(e) General design requirements for water mains are as follows:

1. So far as is practicable, distribution mains shall be laid in a loop system to eliminate dead ends. The distribution system shall be equipped with hydrants or other flushing devices to permit water main flushing. Each dead end shall be provided with an adequately protected fire hydrant, flushing hydrant, or a valved outlet to which a temporary pipe may be affixed, to discharge flushed water above-ground. Flushing devices should be capable of providing a minimum pipe flushing velocity of 2.5 feet per second.

2. Water mains shall be designed to provide a maximum flow velocity (excluding fire service flow) of five feet per second for mains up to 16 inches in diameter and 10 feet per second for mains greater than 16 inches in diameter.

3. All distribution mains shall be covered with a minimum of 3.5 feet of earth or other suitable cover to prevent freezing.

4. Each newly constructed water main shall be disinfected before being placed in service in accordance with American Water Works Association Standard AWWA C651-86, as amended and supplemented, incorporated herein by reference and available as provided at N.J.A.C. 7:10-11.6(d).

5. All water mains and sanitary or industrial sewer lines shall be separated by a horizontal distance of 10 feet. If such lateral separation is not possible, the water and sewer lines shall be in separate trenches (step trenches are prohibited) with the top of the sewer line at least 18 inches below the bottom of the water main or with such other separation expressly approved by the Department. At crossings of sewer lines and water mains, the top of the sewer lines shall be at least 18 inches below the bottom of the water main (sewer service laterals are not subject to this requirement). If such vertical separation is not possible, the sewer line shall be of watertight construction (that is, ductile iron or reinforced concrete pipe), with watertight joints that are a minimum of 10 feet from the water main.

6. Water distribution mains shall be equipped with sufficient numbers of valves to minimize service interruption and safety hazards during repairs. The appropriate number of valves at each water main intersection shall be determined using an n-1 formula (for example, at a four-way intersection, a minimum of three valves is required). Straight pipe runs such as transmission mains shall be equipped with valves at intervals of a minimum of 2500 feet. The Department shall approve deviations from the minimum valve interval for larger transmission lines if justification therefor is provided, but in no case shall the interval between valves exceed one mile.

7. Water services and plumbing shall conform to the requirements of the Plumbing Subcode of the New Jersey State Uniform Construction Code, N.J.A.C. 5:23-3.15.

(f) Where water mains must be constructed to cross surface waters, the supplier of water shall discuss the appropriate design with the Department at a preapplication conference before submitting an application for a permit under this section.

(g) Regulations for distribution system maintenance are as follows:

1. Chambers or pits containing gate valves, air-relief valves, blowoffs, meters, or similar appurtenances to a distribution system shall be drained to ensure access and their functioning and shall not be directly connected to a storm sewer or sanitary sewer. Drainage may be discharged above ground or to dry wells.

2. Blowoffs, air-relief valves, flushing devices, and hydrant drains shall not be directly connected to a storm sewer or sanitary sewer.

3. The open end of an automatic air-relief pipe shall be extended from the manhole or enclosing chamber to a point at least one foot above the surrounding ground, and shall be provided with a downfacing elbow or mushroom cap and an insect screen. Manual air-relief pipes shall extend only to the highest point in the enclosing chamber, unless a high water table necessitates that the air relief pipes extend above ground.

4. Except as provided at N.J.A.C. 7:10-10, physical connections between a public community water system distribution system and any unapproved water supply are prohibited.

Amended by R.2000 d.354, effective August 21, 2000.
See: 31 N.J.R. 2717(a), 32 N.J.R. 3106(a).

Rewrote (b); in (c), added reference to treatment; in (g)3, substituted "pipes" for "valves" in the last sentence.

Amended by R.2004 d.442, effective December 6, 2004.

See: 36 N.J.R. 295(a), 36 N.J.R. 5383(b).

Rewrote (a) and (b); in (c), inserted an N.J.A.C. reference at the end.

7:10-11.11 Distribution storage requirements

(a) Suppliers of water shall provide finished water storage as required pursuant to N.J.A.C. 7:19-6.7 and as follows:

1. Each public community water system shall provide storage for finished water as an integral part of its distribution system whether the water system has its own source(s) of water or buys water from another public community water system.

2. The location, size, type and elevation of the equalization reservoir, standpipe, or elevated storage tank shall be such as to ensure that the distribution system meets the pressure requirements established at N.J.A.C. 7:10-11.10(d). A system designed to provide for fire protection shall, in addition, provide gravity storage. Hy-

dropneumatic pumping system combinations are not acceptable for the purposes of fire protection.

3. Each clear well, whether designed separately or as part of a filter structure, shall meet the requirements for below-grade reservoirs set forth at (e) below.

4. Finished water shall not be stored in a compartment adjacent to an untreated water storage compartment if a single wall separates the two compartments.

5. Each storage reservoir and tank shall be equipped with an overflow and a low level warning alarm.

6. There shall be equipment to determine the water level in each distribution storage tank. Each storage tank with a capacity greater than 100,000 gallons shall be equipped with a level recorder.

7. Water storage facilities shall be designed so as to permit dewatering (for example, by a yard hydrant) for cleaning and maintenance without interrupting service. Direct connection to a storm sewer line or a sanitary sewer line is prohibited.

(b) Each equalization reservoir, standpipe and elevated storage tank shall have adequate safety devices and shall be protected from unauthorized access and vandalism as required pursuant to N.J.A.C. 7:10-11.6(g).

(c) Regulations for distribution storage roofs and covers are as follows:

1. Each reservoir, standpipe or elevated tank shall be provided with an impermeable and durable roof or cover.

2. The roof of the structure shall be well-drained but drainspout pipes shall not enter the reservoir. Parapets or similar structures that tend to hold water or snow on the roof are prohibited.

3. Each concrete reservoir with an earthen cover shall have a roof that is sloped to facilitate drainage. Such a reservoir should be equipped with an impermeable membrane roof cover.

4. Each access manhole and scuttle located in the roof of an elevated tank or in the roof of a ground-level reservoir shall be framed at least six inches above the surface of the roof. Each manhole located in a below ground-level reservoir shall be elevated at least 36 inches above the ground. Each access manhole and scuttle shall be equipped with a solid cover securely fastened against unauthorized entry.

5. Each vent shall be equipped with a downfacing elbow or mushroom cover and an insect screen. Each vent on a ground-level reservoir or a below ground-level reservoir shall terminate not less than 24 inches above the finished grade, whether roof or soil.

(d) Regulations for inside paint and protective coatings are as follows:

1. Any protective coating in contact with treated water shall be inert and nontoxic and shall meet the requirements of N.J.A.C. 7:10-8.

2. Interior paint shall be properly dried and cured so that, after curing, the coating does not transfer any volatile or toxic substance to the water. Prior to placing a storage facility in service, the water shall be tested for a volatile organic compounds to ensure compliance with MCLs at N.J.A.C. 7:10-5.

(e) Regulations for below-grade reservoirs are as follows:

1. Any reservoir constructed partly or entirely below grade shall be designed, located, and graded so as to be secure against uplift and entry of underground or surface contamination.

2. Where a below-grade reservoir is located within 100 feet of sanitary sewer line, the water supplier shall ensure that such sewer line is constructed of steel, reinforced concrete, cast or ductile iron or other suitable material and shall test such sewer line for water tightness upon installation of the below-grade reservoir.

3. Below-grade reservoirs are prohibited within 100 feet of a sanitary sewer manhole or lateral.

4. If a below-grade reservoir is located in an area with a high water table, the reservoir shall be equipped with a double containment system that includes leak detection equipment or a suitable alternative approved by the Department so as to prevent untreated ground water from entering the reservoir. A pre-application meeting with the Department is recommended if an alternative design is proposed.

(f) Regulations for the construction of above-grade reservoirs, standpipes, and elevated tanks are as follows:

1. Each above-grade reservoir, standpipe, and elevated tank shall be equipped with such inside or outside ladders as may be necessary to facilitate inspection.

2. Each riser pipe shall be protected from freezing.

3. Each overflow of an above-grade reservoir, elevated tank or standpipe shall consist of a downpipe that terminates no less than six inches nor more than (36) inches above the ground, and shall be located so as to prevent erosion of the foundation. A stub overflow is prohibited.

(g) Regulations for hydropneumatic tanks are as follows:

1. Hydropneumatic tanks shall be excluded in calculating the system storage capacity of a public community water system.

2. All hydropneumatic tanks shall be located above ground and completely enclosed within a building. The Department shall approve deviations from this requirement for larger installations if it is not feasible to enclose a larger tank in a building.

3. The total capacity of the wells and pumps shall be at least 10 times the average daily demand in water systems using only hydropneumatic tanks for storage. The gross volume of the hydropneumatic tank, in gallons, shall be at least 10 times the capacity of the largest well and/or pump, rated in gallons per minute.

4. Each hydropneumatic tank shall be equipped with a pressure relief valve and a vacuum relief valve.

(h) All storage reservoirs, tanks, and appurtenances shall be disinfected in accordance with N.J.A.C. 7:10-11.6(d).

Amended by R.2000 d.354, effective August 21, 2000.

See: 31 N.J.R. 2717(a), 32 N.J.R. 3106(a).

In (a)6, deleted "flow" preceding "level recorder" in the second sentence.

Amended by R.2004 d.442, effective December 6, 2004.

See: 36 N.J.R. 295(a), 36 N.J.R. 5383(b).

In (a), rewrote 2.

7:10-11.12 Chemical handling and chemical feed systems

(a) General requirements for chemical handling and chemical feed systems are as follows:

1. A minimum of two chemical feeders are required for a water treatment plant that treats more than one source of water supply or for a water treatment plant whose capacity exceeds 20 percent of the public community water system capacity. The feeders shall have sufficient capacity to provide all of the chemical required to treat the water through the treatment plant.

2. Variation in the feed rate shall not exceed five percent of the intended application rate.

3. Either flow pacing or residual pacing shall be provided to ensure accurate chemical application rate.

4. Each chemical feeder shall be equipped with a device that accurately measures the amount of chemical feed.

5. An antisiphon device shall be installed on the chemical solution feed line. The device shall include an antisiphon valve to provide a vacuum break on the chemical solution feed line. The chemical feed line shall be looped to a level higher than the highest elevation of chemical storage tank so as to prevent back siphonage or drainage into the treated water supply.

6. Each chemical feeder shall be electrically interconnected with the well or service pump.

7. Each treatment plant shall have a minimum of 30 day storage capacity for chemicals based upon the expected monthly use of chemicals by the treatment plant. If chemicals will be delivered to the treatment plant in bulk deliveries, the tank capacity shall be a minimum of 120 percent of the bulk delivery volume.

(b) Regulations for chemical solution tanks are as follows:

1. Each chemical solution tank shall be provided with adequate agitation to keep the strength of the solution uniform.

2. Makeup water shall be introduced into the chemical solution tank through an air break or other approved method, to prevent back siphonage.

3. The capacity of each chemical solution day tank shall be sufficient to provide at least eight hours worth of chemical solution storage at normal operating feed rates.

4. Direct connection between chemical solution tank drains and sanitary sewer lines are prohibited.

5. Waste liquids or sludge from chemical solution tanks shall be disposed of in accordance with applicable State and Federal law and regulations.

(c) Dry feeders shall be either of the volumetric or gravimetric type, and shall comply with the following requirements:

1. Each dry feeder shall be completely enclosed and equipped with adequate means of dust control.

2. Each solution pot shall be adequate to ensure effective solution or suspension of the chemical.

3. Makeup water shall be introduced into solution pots through an air break or other approved method, to prevent back siphonage.

(d) Chemical feed lines shall be equipped with clean-out connections, shall be easily accessible for repair or cleaning, shall be protected against damage and freezing, shall be corrosion resistant, shall be as short as possible, and shall be provided with adequate slope to permit draining.

(e) Safety regulations are as follows:

1. Equipment for the storage and handling of chemicals that are hazardous to the health of employees shall include the provision of rubber or neoprene gloves and hand washing facilities. Where dry powdered chemicals are handled, National Institute for Occupational Safety and Health (NIOSH) approved dust respirators shall be provided.

2. Safety shower(s) shall be provided for employees where hazardous chemicals are handled. Such showers shall be in close proximity to the handling location.

3. A manufacturer's material safety data sheet for each chemical used on site shall be posted in a conspicuous location.

4. When a hazardous or explosive chemical, such as sodium chlorite or powdered activated carbon, is used, it shall be safely stored and handled. For example, where powdered activated carbon is used, the public community water system shall provide adequate forced draft ventilation of the feed equipment, a fireproof building or com-

partment for storage, and explosion-proof electrical outlets, lights and motors in the feeder room.

7:10-11.13 Pretreatment requirements

(a) General regulations for pretreatment are as follows:

1. The number of pretreatment units shall be such that when any single unit is out of service the remaining pretreatment unit(s) comply with the detention time and surface loading rate requirements of this section for at least the average daily demand on the treatment plant. A minimum of two pretreatment units is required for surface water treatment.

2. Sufficient data shall be included in the engineer's report submitted pursuant to N.J.A.C. 7:10-11.5 to establish the type and application rate of the chemicals required for pretreatment.

3. Each pretreatment basin shall be equipped with a drain or drains to facilitate dewatering.

4. Adequate provision shall be made for the removal of sludge. Where sludge is expected to be voluminous, consideration should be given to mechanical methods of removal.

5. Water treatment sludge shall be disposed of in accordance with applicable State and Federal law and regulations.

(b) Pretreatment chemicals shall be applied to water where there is sufficient agitation to ensure rapid and uniform dispersion of each chemical throughout the water, such as at pump suctions, rapid mix basins or static mixers.

(c) Regulations for flocculation are as follows:

1. Flocculation is required for all surface waters.

2. Flow-through velocities shall not be less than 0.5 feet per minute or greater than 1.5 feet per minute, with a detention time for floc formation of not less than 30 minutes.

3. Flocculation shall be accomplished by agitation under mixing conditions. Agitators shall be driven by variable speed drives, with the peripheral speed of paddles ranging from 0.5 to 3.0 feet per second.

4. The flocculation unit shall have compartments and inlet and outlet facilities to minimize short-circuiting and to permit floc to pass from the flocculator to the subsequent treatment unit without impairment. The velocity of flocculated water through pipes or conduits to settling basins shall not be less than 0.5 or greater than 1.5 feet per second.

5. Flocculation (or reaction) time for solids contact units shall be calculated on the basis of the input flow and the volume occupied by the agitated mixture of slurry with the water being treated. For horizontal flow units, the calculation shall be based on the volume of the flocculation or reaction chamber.

(d) Regulations for sedimentation are as follows: