ENVIRONMENTAL PROTECTION
LAND USE MANAGEMENT
WATER SUPPLY ADMINISTRATION

SAFE DRINKING WATER PROGRAM
Safe Drinking Water Act Rules

Proposed Readoption with Amendments: N.J.A.C. 7:10
Proposed Repeal: N.J.A.C. 7:10-6

Authorized by:	Bradley M. Campbell, Commissioner, Department of Environmental Protection.
Authority:	N.J.S.A. 13:1D-1 et seq., 58:12A-1 et seq., 58:11-64 et seq., 58:11-23 et seq., 58:11-9.1 et seq., and 58:10A-1 et seq.
Calendar reference:	See Summary below for explanation of exception to calendar requirement.
DEP Docket Number:	31-03-12/354
Proposal Number:	PRN 2004-35

Public hearings concerning this proposal will be held on the following dates and times, at the following locations:

Tuesday, March 2, 2004
9:00 A.M. until 12:00 P.M.
Gloucester County Offices of Government Services
1200 North Delsea Drive
Clayton, N.J. 08312

Thursday, March 4, 2004
6:30 P.M. - 9:30 P.M.
Lawrenceville Branch of Mercer County Library System
2751 Brunswick Pike
Lawrenceville, N.J. 08648

Tuesday, March 9, 2004
1:00 P.M. - 4:00 P.M.
Environmental Education Center at Lord Stirling Park
Somerset County Park Commission

This is a courtesy copy of this rule proposal. The official version will be published in the January 20, 2004 New Jersey Register. Should there be any discrepancies between this text and the official version of the proposal, the official version will govern.

190 Lord Stirling Road
Basking Ridge, N.J. 07920

Submit written comments concerning this proposal by March 20, 2004 to:

Beth Smollon Margeson, Esq.
Attn: DEP Docket Number: 31-03-12/354
Office of Legal Affairs
Department of Environmental Protection
P.O. Box 402
Trenton, New Jersey, 08625-0402

The Department recommends, but does not require, that comments be submitted on diskette as well as on paper. Please note that the Department can accept or use comments submitted in Macintosh format only if submitted in MS-WORD format readable by Windows systems.

The agency proposal follows:

Summary

The Safe Drinking Water Act rules, N.J.A.C. 7:10, establish the State primary and secondary drinking water regulations for public and nonpublic water systems, construction standards, fees, physical connections between an approved and an unapproved water supply, variance and exemption procedures, and provisions regarding civil administrative penalties and adjudicatory hearings under the New Jersey Safe Drinking Water Act (NJSDWA), N.J.S.A. 58:12A-1 et seq. The Department of Environmental Protection (Department) is proposing to readopt all existing subchapters in the Safe Drinking Water Act rules, N.J.A.C. 7:10, with amendments. The amendments include an arsenic maximum contaminant level (MCL) of five micrograms per liter (μg/l) that would be applied to all public and nonpublic water systems and would become effective on January 23, 2006. Other amendments include the details of the monitoring requirements for the new Federal Radionuclide Rule that takes effect December 8, 2003 as well as a requirement that all analyses by public community water systems for gross alpha particle activity be conducted according to the 48-Hour Gross Alpha Test in N.J.A.C. 7:18; a clarification of the requirement that water suppliers must remediate MCL violations for all primary contaminants within one year of the violation; monitoring and reporting requirements for treatment devices or processes used to remove contaminants from drinking water; a requirement that all treatment devices or processes installed be properly maintained; adoption of the Federal variance and exemption regulations that allow systems more time for compliance with the MCLs or treatment techniques; a requirement that new nonpublic wells be sampled for the same chemical and radiological (specifically using the 48-Hour Gross Alpha Test methodology)

parameters as those required under the Private Well Testing Act (PWTA) in that same geographical location; and revisions to the definitions of peak daily demand and firm capacity.

As the Department has provided a 60-day comment period for this notice, this proposal is excepted from the rulemaking calendar requirement under N.J.A.C. 1:30-3.3(a)5. In accordance with the "sunset" provisions of the Administrative Procedure Act, N.J.S.A. 52:14B-1 et seq., the Safe Drinking Water Act rules, N.J.A.C. 7:10, were scheduled to expire on July 31, 2005. Pursuant to N.J.S.A. 52:14B-5.1c, this notice of proposal extends that expiration date to January 27, 2006. As required by the Administrative Procedure Act, the Department has evaluated these rules, and has determined that they are necessary, reasonable, and proper for the purpose for which they were originally promulgated, as proposed herein and discussed below.

A description of the rules proposed for readoption and repeal, and the proposed amendments follows:

Subchapter 1. General Provisions

N.J.A.C. 7:10-1 sets forth the authority for and scope and applicability of the rules, defines terms used throughout the rules, and establishes procedures for inspections and sanitary surveys of water systems.

N.J.A.C. 7:10-1.3 is proposed to be amended to include a definition of the term "air gap," to revise the definition of the term "detectable disinfectant residual" to correct a technical error, and to clarify the definition of the term "nonpublic water system" so that the definition does not incorrectly include some public water systems.

Subchapter 2. General Requirements

N.J.A.C. 7:10-2 sets forth the general requirements pursuant to which the Department's Bureau of Safe Drinking Water implements the Safe Drinking Water Program. The Department is proposing to delete pinpoint citations to the National Primary Drinking Water Regulations Implementation at 40 CFR 142 so as not to exclude reporting requirements located throughout that section (part) of the Federal rules.

Subchapter 3. Civil Administrative Penalties and Requests for Adjudicatory Hearings

N.J.A.C. 7:10-3 governs the imposition of civil administrative penalties and requests for adjudicatory hearings for violations related to the NJSDWA. The Department is proposing to readopt Subchapter 3 without amendment.

Subchapter 4. Disinfection

N.J.A.C. 7:10-4 establishes disinfection requirements for public community water systems in order to ensure delivered water is of microbiologically safe quality. The Department is proposing to readopt Subchapter 4 without change.

Subchapter 5. State Primary Drinking Water Regulations

N.J.A.C. 7:10-5 adopts and incorporates by reference the National Primary Drinking Water Regulations as New Jersey's Primary Drinking Water Regulations and establishes discretionary changes to the Federal rules. The discretionary changes include more stringent monitoring and MCLs for certain contaminants, the establishment of MCLs for State-regulated contaminants, and the application of MCLs to all public and nonpublic water systems. The Department is proposing to include the specific citation of the National Primary Drinking Water Regulations, 40 CFR 141, and to incorporate by reference the Federal variance and exemption requirements of the National Primary Drinking Water Regulations Implementation, 40 CFR 142, described below in the Subchapter 6 portion of this Summary.

With the discretionary changes to the National Regulations that the Department has adopted under the authority of the NJSDWA, all public water systems are subject to all of the MCLs and action levels under existing N.J.A.C. 7:10-5. However, the phrasing of the second sentence of N.J.A.C. 7:10-5 has caused some confusion on this point. Accordingly, N.J.A.C. 7:10-5.1 is proposed to be amended to clarify that all MCLs and action levels in the subchapter apply to both public water systems and nonpublic water systems.

Inorganic chemicals; new arsenic MCL

Proposed amendments at N.J.A.C. 7:10-5.2(a)3 clarify that the MCLs for inorganic chemicals (IOCs) and monitoring requirements established under the National Regulations are those that apply in New Jersey, with the exception of the proposed State MCL for arsenic. The National Regulations state that the effective date for the Federal arsenic MCL of 0.010 milligrams per liter (mg/l) or 10 μg/l is January 23, 2006. As explained below, the Department is proposing to establish an MCL for arsenic of five μg/l for New Jersey, effective January 23, 2006.

The NJSDWA, N.J.S.A. 58:12A-1 et seq., authorizes the Commissioner of the Department to adopt regulations governing contaminants in drinking water. The U.S. Environmental Protection Agency (EPA) establishes the National Primary Drinking Water Regulations under its authority. Since 1989, the Department has adopted MCLs for 13 volatile organic and synthetic organic compounds that are more stringent than the MCLs established by EPA and has set MCLs for five additional chemicals that are currently not regulated by EPA.

The current National Primary Drinking Water Regulation for arsenic of 50 μg/l was adopted by reference into these rules in 1979. The Federal Arsenic Rule adopted on February 22, 2002

establishes a more stringent MCL of 10 µg/l effective January 23, 2006. On January 22, 2002, the Department proposed an MCL of 10 µg/l for arsenic in drinking water (see 34 N.J.R. 402(a)) and conducted two public hearings on the proposal. The proposal also included a compliance schedule for water systems such that compliance would be required 14 months after adoption of the rule. During the public hearings, technical information on analytical methodologies and method detection limits (MDLs) was brought to the attention of the Department. In addition, over 700 comments were received from the public expressing disapproval of the proposal and asking the Department to propose an arsenic standard more protective of the health of the citizens of New Jersey. The Department, therefore, determined not to adopt the 10 ug/l MCL for arsenic at that time. Instead, the Commissioner requested that the New Jersey Drinking Water Quality Institute (Institute) provide a recommendation to the Department for an arsenic drinking water standard.

The Institute, a 15-member advisory body to the Department, is established under the NJSDWA. The role of the Institute is to provide the Department with recommendations regarding the drinking water program. New Jersey specific standards are developed by the Institute and recommended to the Department. The standards are developed in conformance with the NJSDWA at N.J.S.A. 58:12A-13(b), which provides that MCLs are to be established, within the limits of medical, scientific and technological feasibility, for carcinogens, based upon the goal of an excess cancer risk of no greater than one in one million over a lifetime exposure period. For chemicals causing effects other than cancer (noncarcinogens), the goal is the elimination of all adverse health effects resulting from ingestion within the limits of practicability and feasibility.

The Department requested that the Institute reevaluate and update the information used by the Department to develop the 10 µg/l MCL proposal in 2002. The Institute met several times throughout 2002 and 2003 to discuss the three main factors for establishing a drinking water standard in New Jersey as stated in the NJSDWA: health effects, analytical capability, and treatment capability. The Institute adopted a recommendation which was submitted to the Commissioner (Maximum Contaminant Level Recommendations for Arsenic in Drinking Water, Basis and Background, March 10, 2003). A summary of the findings of the Institute is provided below.

Arsenic is one of a relatively small number of chemicals which has been classified by EPA as a known human carcinogen, based on human epidemiological studies (Guidelines for Carcinogenic Risk Assessment. EPA, 1986). Exposure to high concentrations of arsenic through drinking water has been linked to several types of cancer, including skin, lung, and bladder cancer. The National Academy of Sciences (NAS) issued a report on the health effects of arsenic in drinking water in 1999, and an update of this report was released in 2001 (Arsenic in Drinking Water: 2001 Update, NAS Press, 2001). The Health Effects Subcommittee of the Institute reviewed the NAS risk assessment information and determined that, based on the current NAS analysis, the drinking water concentration resulting in a one in one million excess

lifetime risk of lung and bladder cancer for United States populations is estimated to be 0.003 µg/l (or three nanograms per liter or three parts per trillion).

The Testing Subcommittee of the Institute evaluated the limits of testing methodology in achieving the health-based goal of the arsenic standard setting process. For carcinogenic compounds that are currently regulated, most of the health-based levels are at or below the respective MDL of the test procedures. EPA defines the MDL as the minimum concentration of a substance that can be measured and reported with 99 percent confidence that the analyte concentration is greater than zero (40 CFR 136 Appendix B). The EPA and the Department do not regulate drinking water contamination at MDL levels because of analytical uncertainties. Factors that contribute to this uncertainty at low concentrations include variation among instrumentation and variation among analysts. In order to account for this uncertainty, both the Department and EPA have established practical quantitation levels (PQLs). A PQL is defined as the level above the MDL at which quantitation can be achieved by most laboratories within defined levels of certainty.

The Testing Subcommittee reviewed the data submitted by certified laboratories for compliance with the arsenic standard between January 1, 2001 and September 11, 2002. The Institute used these data to determine which of the eight approved methods were being used by New Jersey certified laboratories to analyze arsenic in drinking water. For this period of time, there were 1731 valid data submissions. Of the eight methods available for the analysis, EPA regulations will prohibit the use of EPA 200.7 and Standard Method (SM) 3120B for arsenic in drinking water compliance determinations after January 23, 2006 because of their high MDLs (40 CFR 141.23(k)(1)). Consequently, the Testing Subcommittee did not consider these two methods when determining a PQL for arsenic. Both EPA Method 200.8 and EPA Method 200.9 have allowable modifications that result in a lower MDL. Specifically, in 1994 (59 FR 62456), EPA approved the use of the updated "Methods for the Determination of Metals in Environmental Samples - Supplement I." This allows for the use of selective ion monitoring (SIM) with inductively coupled plasma with mass spectroscopy (ICP-MS), EPA Method 200.8. The MDL listed in the method (Supplement I) for the SIM analysis of arsenic in aqueous samples is 0.1 µg/l. In addition, Supplement I also allows the use of multiple depositions monitoring with stabilized temperature platform-graphite furnace atomic absorption (STP-GFAA) (EPA Method 200.9). The published MDL for arsenic using multiple deposition with STP-GFAA is 0.1 µg/l. The Institute contacted the certified laboratories that perform the majority of data submissions for New Jersey public water systems using EPA Methods 200.8 and 200.9. All of the laboratories contacted reported that they do not run EPA Method 200.8 or 200.9 with the modifications. As a result of this, the Testing Subcommittee did not consider these two method modifications when determining the PQL for arsenic.

Table 1 below shows the methods finally considered by the Testing Subcommittee to determine the PQL for arsenic:

Table 1. Method Detection Limits for Arsenic Methods Considered by the Testing Subcommittee in Determination of a Practical Quantitation Level (PQL)

Methodology	Reference Method	Published MDL (µg/l)	MDL Range Reported by NJ Labs (µg/l) *
Inductively Coupled Plasma-Mass Spectroscopy (ICP-MS)	EPA 200.8	1.4	0.15-0.5
Stabilized Temperature Platform Graphite Furnace Atomic Absorption (STP-GFAA)	EPA 200.9	0.5	0.48-10
Graphite Furnace Atomic Absorption (GFAA)	SM 3113B	1	0.2-8
Gaseous Hydride Atomic Absorption (GHAA)	SM 3114B	0.5	--
Gaseous Hydride Atomic Absorption (GHAA)	ASTM D2972-93B	1	--

* New Jersey MDLs collected by phone inquiries in the summer of 2001.

The Testing Subcommittee discussed the various multiplication factors applied to MDLs to derive a PQL. Historically, the Department has applied a factor of five to an analytical MDL to calculate a PQL. This approach has been used by the Testing Subcommittee to develop PQLs for contaminants in drinking water (Maximum Contaminant Recommendations for Hazardous Contaminants in Drinking Water, September 26, 1994) and is codified in the Department's Ground Water Quality Standards (N.J.A.C. 7:9-6). This procedure for establishing PQLs was based on an evaluation of approaches used by other agencies such as the EPA drinking water program and the American Chemical Society. These other programs use factors ranging from 3.3 to five for PQL calculation.

The MDLs for arsenic reported by New Jersey laboratories are generally higher than the MDLs listed in the published methods, with the exception of those laboratories that use EPA method 200.8. This is because the MCL of 50 µg/l for arsenic is so much higher than the published MDLs that not all laboratories have been careful about reporting to the lowest possible detection limit. The ranges of MDLs for New Jersey laboratories, collected in 2001, are reported in Table 1. The Institute contacted the five New Jersey certified laboratories that submit data using EPA Method 200.8, which has the highest published detection limit of 1.4 µg/l. Some of these five laboratories reported that their MDL for this method is an order of magnitude lower than the published MDL.

The Testing Subcommittee chose to review the published MDLs in their analysis because the MDL data obtained from the Department's database were inconsistent at concentrations less than

10 µg/l. It was the opinion of the Testing Subcommittee that the test results submitted by water systems (for compliance purposes) were not reported to the lowest MDL possible. The published MDLs in Table 1 range from 0.5 µg/l to 1.4 µg/l. In a PQL determination using a factor of five, a practical quantitation range of 2.5 µg/l to 7.0 µg/l would result. This is generally consistent with the MDLs being reported by New Jersey certified laboratories.

The Testing Subcommittee concluded that accurate detection and quantitation of arsenic in drinking water could be achieved at the lower end of a range of the calculated PQL values using the published methods. The PQL value that the Institute recommended is three µg/l. A study ("Analytical Methods Support Document for Arsenic in Drinking Water," December 1999, EPA-814-R-00-010) by EPA that derived a PQL based upon a statistical analysis of laboratory proficiency test data also supports this level of three µg/l.

The limits of water treatment removal technology in achieving the health-based goal of one in one million were also evaluated. The Department contracted with the New Jersey Corporation for Advanced Technology (NJCAT) to determine the effectiveness of arsenic removal technologies using New Jersey ground water characteristics. NJCAT hired Malcolm Pirnie to perform the literature search. Malcolm Pirnie has extensive national arsenic treatment expertise. The Treatment Subcommittee of the Institute reviewed and commented on the Malcolm Pirnie report on treatment options for New Jersey entitled "Evaluation and Assessment of Arsenic Removal Technologies for New Jersey Drinking Water, November 2002." Representatives from Malcolm Pirnie presented the results of their work to the Institute on January 24, 2003.

The study found that the most feasible and cost-effective treatment technologies currently available for New Jersey are likely to be: 1) activated alumina adsorption, 2) coagulation/ filtration, 3) granular ferric adsorption, and 4) ion exchange. Each of these four technologies has demonstrated reliable performance for reducing arsenic levels although most of the studies that were evaluated as part of the report were designed to investigate arsenic removal to below 10 µg/l, the Federal MCL. The Treatment Subcommittee concluded from the research that the technologies are capable of reaching well below 10 µg/l, and even to three µg/l or lower under certain conditions. The quality of the source water as well as available means of disposal of treatment residuals will have an impact on the type of removal technology that a given water supply system would select, which, in turn, will affect the efficiency of arsenic removal. The Malcolm Pirnie report provides detail on these issues ("Evaluation and Assessment of Arsenic Removal Technologies for New Jersey Drinking Water, November 2002") and is available from the Department upon request.

The Treatment Subcommittee concluded that reliable arsenic removal can be achieved to a level of three µg/l and that future improvements in the treatment technologies are likely to improve the ability to reliably remove arsenic to even lower levels. Based on the Institute's findings regarding arsenic health effects, analytical capability, and treatment capability, its recommendation to the Department for an arsenic MCL was three µg/l.

The Department reviewed the arsenic MCL recommendation from the Institute. Although the Department concurs with the health effects information and analytical capability analysis for the development of the arsenic MCL, there are uncertainties surrounding the treatment technology analysis. There is a lack of historical performance data for the removal of arsenic from ground water from full-scale water treatment facilities in New Jersey to demonstrate removal to three µg/l. Currently only one arsenic removal technology has been verified by NJCAT and certified by the Department for arsenic removal to the five µg/l proposed MCL. This technology is a direct co-precipitation process, which is a type of coagulation/filtration technology.

Research currently underway by the Department is demonstrating consistent removal of arsenic by domestic well arsenic water treatment systems to levels below three µg/l (NJGS Information Circular: Arsenic Water Treatment for Residential Wells in New Jersey, In Press). However, there is very little data explicitly documenting arsenic removal to three µg/l at full scale treatment systems on public wells, and no such data for public wells in New Jersey.

Based on these concerns as to the availability of reliable removal technology, the Department determined to propose the MCL of five µg/l.

Public community and nontransient noncommunity water systems are required to routinely monitor for inorganics, including arsenic, according to Federal rules and must be in compliance with the new arsenic MCL by December 31, 2009 (with the exception of those systems that request an extension of their compliance date). A detailed discussion of the implementation of the proposed arsenic MCL under the existing standardized monitoring framework for inorganics is described below (see "Monitoring requirements").

Volatile organic compounds

The Department is proposing to amend N.J.A.C. 7:10-5.2(a)4 to clarify that the Federal MCLs and monitoring requirements for volatile organic compounds (VOCs) apply to all the regulated VOCs in New Jersey. However, the Department has established more stringent MCLs for 12 VOCs and additional MCLs for five VOCs not currently regulated by EPA (see Table 1 in N.J.A.C. 7:10-5.2(a)4). The monitoring requirements for VOCs apply to all Department and EPA regulated VOCs.

Monitoring requirements

The Federal Safe Drinking Water Act (SDWA) regulations at 40 CFR 141 include monitoring requirements for all regulated parameters. Monitoring schedules for IOCs, VOCs, and synthetic organic compounds (SOCs) are determined based on the requirements of 40 CFR 141.23. According to 40 CFR 141.23, public community and public nontransient noncommunity

water systems are required to monitor for the regulated IOC, VOC and SOC parameters at a frequency of quarterly, annually, or once every three years, at each point-of-entry to the water distribution system. The Federal standardized monitoring framework defines a compliance cycle of nine years, which is composed of three compliance periods, each three years long.

The Department can alter the monitoring requirements by issuing a monitoring waiver to public community and public nontransient noncommunity water systems, those systems that are required to monitor for IOCs, VOCs, and SOCs, according to 40 CFR 141.23. A monitoring waiver either reduces the monitoring frequency or eliminates the monitoring requirement altogether at a point-of-entry to the water distribution system. These waivers are issued based on the criteria in 40 CFR 141.23, which include such factors as a history of monitoring with no detection of the contaminant, no use of the contaminant in the vicinity of the water source, and the likelihood that the contaminant would reach the water source based on geologic conditions. Based on the factors described above, the Department may reduce the quarterly monitoring requirements for VOCs to once every three years, but the Federal regulations do not allow less frequent monitoring for VOCs. For SOCs, however, monitoring waivers can eliminate the monitoring requirements for some points-of-entry if the point-of-entry is not considered to be vulnerable to contamination. Since monitoring for IOCs is established at once every three years for water systems delivering ground water, and annually for water systems serving surface water, monitoring waivers to reduce the monitoring frequency for IOCs are rarely issued by the Department.

N.J.A.C. 7:10-5.2(a)7 contains a monitoring plan for IOCs, VOCs, and SOCs; beginning January 1, 2005, this monitoring plan will also apply to radionuclides. Each point-of-entry that is monitored once every three years is required to sample in the year specified in the monitoring plan. According to 40 CFR 142.16(e)(2), National Primary Drinking Water Regulations Implementation, the Department is required to develop a monitoring plan to demonstrate that the analytical workload for certified laboratories for each of the three years in a three-year compliance period has been taken into account to ensure monitoring compliance and that the monitoring plan is enforceable under State law. The specific years of the three-year Federal compliance periods are proposed to be updated at N.J.A.C. 7:10-5.2(a)7 to cover the next three cycles.

The monitoring schedule set forth at N.J.A.C. 7:10-5.2(a)7 specifies that public nontransient noncommunity water systems are required to sample for IOCs, including arsenic, in 2004; public community water systems that primarily use surface water (those that may have been issued a monitoring waiver and are on a once every three-years monitoring schedule) and public community water systems serving a population greater than 10,000 people are required to sample for IOCs, including arsenic, in 2005; and the remainder of the public community water systems are required to sample for IOCs, including arsenic, in 2006. The Federal Arsenic Rule becomes effective on January 23, 2006. Table 2 below outlines the arsenic monitoring and compliance requirements for public community water systems and public nontransient noncommunity water

systems using ground water. The schedule in Table 2 incorporates the compliance date of January 23, 2006 for the federal arsenic MCL into the standardized monitoring framework. The table substitutes the proposed arsenic MCL of 5 ug/l in place of the federal MCL of 10 ug/l. Those systems using surface water are not included in the table because these systems would be required to comply at the same time or sooner than those using ground water.

If a system that is monitoring annually, or less frequently, has a sample result exceeding the MCL, the system must conduct quarterly sampling the next calendar quarter. Such a system will not be considered in violation of the MCL until it has completed one year of quarterly sampling and the average of the four consecutive samples exceeds the MCL. However, if any single sample result would cause the annual average to exceed the MCL at any sampling point, the system will be considered out of compliance with the MCL immediately. For example, if a system samples in the first quarter of 2004 and the initial sample is greater than the MCL, the system would be required to monitor quarterly in 2004 as a result of a high initial result; the complete set of quarterly results will be completed in late 2004. If the system is determined to be in violation of the MCL in 2004, the system has one year, until 2005, to correct the violation. Therefore, for the purposes of complying with the proposed lower arsenic MCL, all public community and public nontransient noncommunity water systems have two years from the date of initial monitoring to come into compliance if a violation of the new MCL occurs. All these water systems must comply with the new arsenic MCL no later than 2009. Table 2 provides a summary of Federal and State arsenic routine monitoring requirements for 2002 through 2009. The schedule in Table 2 incorporates the compliance date of January 23, 2006 for the federal arsenic MCL into the standardized monitoring framework. The table substitutes the proposed arsenic MCL of 5 μg/l in place of the Federal MCL of 10 μg/l. The table also shows when additional monitoring is required for the three categories of public water systems and when compliance with the MCL is required using an example of a system using ground water with a concentration of arsenic between five μg/l and 50 μg/l. (According to N.J.A.C. 7:10-5.7(c), the period of compliance may be extended.)

Table 2. Monitoring and Compliance Requirements for Arsenic Based on the Federal Arsenic Rule and Proposed NJ Regulations* (assume results greater than 5 μg/l but less than 50 μg/l):

Type of Water System / Year	2002 MCL=50 μg/l	2003 MCL=50 μg/l	2004 MCL=50 μg/l	2005 MCL=50 μg/l	2006 MCL=5 μg/l **	2007 MCL=5 μg/l	2008 MCL=5 μg/l	2009 MCL=5 μg/l	2010 MCL=5 μg/l
Community water systems serving more than 10,000	Routine sample. If results >MCL of 50 μg/l =quarterly monitoring			Routine sample. If results >MCL of 50 μg/l =quarterly monitoring	GF*** data or additional sample before 12/31/07. Assume results in 2006>5 μg/l. 3 additional quarterly samples in 2006/2007, if MCL violation, one-yr clock begins.	MCL compliance one year after MCL violation (2007/2008) or request for extension.	Routine sample. >MCL of 5 μg/l =quarterly monitoring.		
All other community water systems		Routine sample. If results >MCL of 50 μg/l =quarterly monitoring.			Routine sample. Assume GF or results in 2006>5 μg/l. 3 additional quarterly samples in 2006/2007, if MCL violation, one-yr clock begins.		MCL compliance by the end of 2008 or request for extension.	Routine sample. >MCL of 5 μg/l =quarterly monitoring.	
Nontransient noncommunity water systems			Routine sample. If results >MCL of 50 μg/l =quarterly monitoring			Routine sample. Assume GF or results in 2007>new MCL. 3 additional quarterly samples in 2007/2008, if MCL violation, one-yr clock begins		MCL compliance by the end of 2009 or request for extension	

* This table outlines the arsenic monitoring and compliance requirements of public community and nontransient noncommunity water systems serving groundwater. The public water systems serving surface water are required to monitor and comply with the arsenic regulations sooner than the ground water systems.
** Effective date of proposed NJ MCL will be January 23, 2006. ***GF = States may allow grandfathered data collected between January 1, 2005 and January 22, 2006.

This is a courtesy copy of this rule proposal. The official version will be published in the January 20, 2004 New Jersey Register. Should there be any discrepancies between this text and the official version of the proposal, the official version will govern.

N.J.A.C. 7:10-5.2(a)7 is proposed to be amended to include radionuclides in the standardized monitoring framework, and to specify that the affected public community water systems must begin to sample for radionuclides on January 1, 2005. This amendment clarifies implementation of the sampling requirements of the Federal Radionuclide Rule, effective December 8, 2003, which only requires that public community water systems monitor. The new EPA requirements replace the former sampling location (distribution system sampling) with point-of-entry sampling requirements. It should also be noted that any gross alpha activity analyses conducted for compliance with the Federal Radionuclide Rule in New Jersey must be performed in accordance with N.J.A.C. 7:18-6, the subchapter of the Regulations Governing the Certification of Laboratories and Environmental Measurements that describes the requirements of the 48-Hour Rapid Gross Alpha Test. Since December 8, 2003 falls at the end of year two of a three-year compliance period, the EPA has extended the first monitoring period for the new Radionuclide Rule from December 8, 2003 to December 31, 2007. The Department is amending its rules so that water systems must conduct sampling between January 1, 2005 and December 31, 2007, a three-year compliance period.

Proposed N.J.A.C. 7:10-5.2(a)13 is a new paragraph that describes the monitoring that a supplier of water shall perform if a treatment device or process is installed in order to achieve compliance with an applicable MCL. A supplier of water may install a treatment device or process to comply with the requirements of N.J.A.C. 7:10-5.7(a), which requires a supplier of water to take any action necessary to bring the water quality into compliance with the applicable MCL within one year. Alternatively, a supplier of water may choose not to treat the water, but instead abandon the water source contributing to the MCL violation, and the water source may be subject to N.J.A.C. 7:9D-3, Requirements and Procedures for the Decommissioning of Wells.

Analytical requirements

N.J.A.C. 7:10-5.3, references the Federal requirements for testing for the primary contaminants. N.J.A.C. 7:10-5.3(a) is proposed to be amended to clarify that the gross alpha particle analysis required for compliance with the Federal Radiological Rule will be the 48-Hour Rapid Gross Alpha Test methodology in N.J.A.C. 7:18. This methodology was developed to account for alpha emitting radionuclides with short half-lives, such as radium-224. Radium-224, a radionuclide with a half-life of 3.64 days, is known to be present in certain geological areas of New Jersey. When radium-224 is present in groundwater and the sample is analyzed within 48 hours of sample collection, the gross alpha particle activity measured is much higher than using the EPA approved method for screening for gross alpha particle activity. The 48-Hour Rapid Gross Alpha Test was adopted in N.J.A.C. 7:18 in 2002 to ensure tests capture the presence of short-lived and long-lived radionuclides. The Department monitored all the public community water systems between 1996 and 2000 to determine the extent of gross alpha particle activity in drinking water. This amendment will require that public community water systems monitor their water using the 48-Hour Rapid Gross Alpha Test.

Proposed new subsection (e) enables the Department to apply the criteria in 40 CFR 141.24(f)11 to increase monitoring for the State-regulated VOCs listed at N.J.A.C 7:10-5.2(a), Table 1 when a State-regulated VOC is detected at a level exceeding 0.5 µg/l in any sample. This proposed amendment clarifies that those suppliers of water which detect a State-regulated VOC at a concentration greater than 0.5 µg/l must increase the frequency of monitoring at that sampling point. The additional quarterly samples that are collected will be used by the Department to determine if the concentrations of the contaminant are increasing or decreasing at that sampling point and to determine the future sampling requirements for the water system.

Reporting requirements

A proposed amendment at N.J.A.C. 7:10-5.4(b) requires that the monthly report of daily records required under N.J.A.C. 7:10-5.4(e) to be sent to the Department electronically, after notification by the Department. The Department is also deleting a reference to exempting small water systems from submitting sampling reports electronically. The Department believes that compliance with the monitoring requirements will improve if the monitoring results are sent to the Department electronically. The Department anticipates that fewer test results will be sent to the Department late or will become lost in the mail if the results are sent electronically. The electronic reporting procedure is currently under development by the Department.

In addition, new N.J.A.C. 7:10-5.4(f) is proposed, requiring the quarterly reporting of monitoring conducted as a result of treatment devices or processes that have been installed for the removal of contaminants to the applicable MCL. This reporting requirement will ensure that the Department is aware of the operational status of the treatment devices or processes installed to remove primary contaminants.

Remediation requirements

N.J.A.C. 7:10-5.7(a) is proposed to be amended to require that a supplier of water must bring the water into compliance within one year after receipt of analytical results showing that a promulgated MCL has been exceeded for any contaminant regulated under N.J.A.C 7:10-5. The reference to "newly" promulgated MCLs is deleted. The obligation to come into compliance within one year is required by the NJSDWA for all MCLs (see N.J.S.A. 58:12A-15). Proposed new N.J.A.C. 7:10-5.7(f) requires that treatment devices or processes installed by suppliers of water to remediate an MCL violation must be maintained so that the supplier can ensure that the drinking water continues to meet the MCLs.

Subchapter 6. Variances and Exemptions

When the Department promulgated the Safe Drinking Water Act rules in 1985, the National Primary Drinking Water Regulations at 40 CFR Part 141 were incorporated by reference. The Federal variances and exemptions rules were located in 40 CFR Part 142 of the Federal rules.

The Department adopted its variances and exemptions rules at N.J.A.C. 7:10-6, in a form nearly identical to the Federal rules. EPA promulgated "Revisions of Existing Variance and Exemption Regulations To Comply With Requirements of the Safe Drinking Water Act; Final Rule" on August 14, 1998 (Fed. Reg., Vol.63, No. 157, pp. 43833-43851), and as a result, the Department's existing rules at N.J.A.C. 7:10-6 do not reflect the Federal variances and exemptions rules. After discussions with EPA, the Department, as noted previously, determined to incorporate the Federal variances and exemptions rules by reference at N.J.A.C. 7:10-5.1, and repeal Subchapter 6.

The 1996 amendments to the Federal Safe Drinking Water Act (SDWA) (42 USC §1415) changed the conditions for issuing variances from National Primary Drinking Water Regulations. The Federal SDWA was amended at 42 USC §1415(a)(1)(A) so that a variance could be granted on the condition that a water system install the best available technology or treatment technique available. This changed the previous requirement that mandated that a system install treatment technology before a variance could be issued. The Federal SDWA amendments also included a new requirement that the states conduct an evaluation of alternative sources of drinking water before a variance can be issued, and added a new section that describes the procedures for issuing variances to small water systems.

The 1996 amendments to the Federal SDWA also changed the conditions for the states to use to exempt any public water system within a state's jurisdiction from any MCL requirement or any treatment technique requirement, or from both, of an applicable National Primary Drinking Water Regulation (42 USC §1416). The requirement that a compliance schedule be established such that the water system must achieve compliance with the MCL or treatment technique as soon as is practicable has been amended to include a new requirement that compliance must be achieved no later than three years after the otherwise applicable compliance date (42 USC 1412(b)(10)). The requirement that small systems may be issued exemptions every two years, in addition to the first three-year time extension, if specific criteria are met, has been modified such that the exemption cannot exceed a total of six additional years. The definition of the small system to which this exemption criteria applies has been modified from a system that serves no more than 500 service connections to a system that serves no more than 3300 people.

The criteria for granting an exemption from any requirement respecting an MCL or any treatment technique have been expanded from the former requirements. According to the former requirements, if the public water system is unable to comply with a contaminant level or treatment technique requirement, due to compelling factors, including economic factors, then the State may issue an exemption. Exemption criteria in the Federal SDWA were expanded to include serving water to a disadvantaged community, as defined in 42 USC §1452(d)(3), as a compelling factor for a water system's inability to comply with a contaminant level or treatment technique. The section now requires the states to determine whether management or restructuring changes can be made that will result in compliance, or if compliance cannot be achieved, would improve the quality of the drinking water. 42 USC §1416(a)(4) also requires a

state to consider measures to develop an alternate source of water supply. A section has also been added that clarifies that a small system that receives a variance under 42 USC §1415(e) cannot receive an exemption under 42 USC §1416.

The Federal regulations were amended at 40 CFR 142.20 and 40 CFR 142.42 to include the new Federal variance requirements and at 40 CFR 142.50, 142.53, 142.55, and 142.56 to reflect the new Federal exemption requirements (Fed. Reg., Vol.63, No. 157, pp. 43847-43848), The procedures and criteria for issuing small system variances are codified in 40 CFR 142.301 through 313. The sections of the Federal regulations that are proposed to be incorporated in the Department's rules are 40 CFR 142 Subpart E-Variances Issued by the Administrator Under Section 1415(a) of the Act, 40 CFR 142 Subpart F-Exemptions Issued by the Administrator, Subpart G-Identification of Best Technology, Treatment Techniques or Other Means Generally Available, and 40 CFR 142 Subpart K-Variances for Small System.

Subchapter 7. State Secondary Drinking Water Regulations

N.J.A.C. 7:10-7 establishes the upper limit or optimum range for those drinking water contaminants that may adversely affect the taste, odor, or appearance of the water. The Department is proposing to readopt Subchapter 7 without amendment.

Subchapter 8. Drinking Water Additives

N.J.A.C. 7:10-8, which establishes standards for the use or occurrence of direct and indirect additives in public water systems in order to protect against the adverse health effects of such additives, is proposed to be readopted without amendment.

Subchapter 9. Surface Water Treatment Requirements

N.J.A.C. 7:10-9 establishes minimum treatment requirements for public water systems that use surface water, and establishes discretionary changes to the National Regulations at 40 CFR 141, Subpart H - Filtration and Disinfection.

N.J.A.C. 7:10-9.5 is proposed to be amended to reflect the citation for the Department's rules for the Licensing of Water Supply and Wastewater Treatment System Operators at N.J.A.C. 7:10A.

Subchapter 10. Physical Connections and Cross-Connection Control by Containment

N.J.A.C. 7:10-10 establishes the permit, design, and testing requirements for physical connections between public community water systems and facilities which have sources of water which may be contaminated or of questionable or unknown quality. The Department is

proposing to amend N.J.A.C. 7:10-10.5(b)4 to provide that, upon notification by the Department, the Physical Connection permit holder must submit the completed Physical Connection Permit Renewal application form to the Department along with the completed Quarterly Physical Connection and Maintenance Report forms electronically.

Subchapter 11. Standards for the Construction of Public Community Water Systems

N.J.A.C. 7:10-11 establishes the permit requirements and standards for the design and construction of new or modified public community water systems.

N.J.A.C. 7:10-11.4 is proposed to be amended to include revisions and clarifications to two definitions related to the construction of public community water systems. The definition of "firm capacity" is proposed to be amended to clarify that firm capacity is the capacity which shall meet peak daily demand when the largest pump station or treatment unit is out of service. The definition of "peak daily demand" is proposed to be amended to cross-reference proposed new N.J.A.C. 7:10-11.5(f), which, as explained below, provides more specific direction for the estimation of anticipated peak daily demand.

N.J.A.C. 7:10-11.5 discusses both permit and application requirements. N.J.A.C. 7:10-11.5(a) is proposed to be amended to clarify the cross-reference to the technical, managerial and financial analyses required as part of the application for a new public community water system. N.J.A.C. 7:10-11.5(b) is proposed to be amended for clarity and to update certain cross-references as they are proposed to be amended. A proposed amendment to this subsection also requires the engineer's report under N.J.A.C. 7:10-11.5(d) to be signed by a qualified New Jersey licensed professional engineer. New N.J.A.C. 7:10-11.5(c)1ii is proposed to provide the address and web site where the standard application form and supporting documents, including the administrative and technical checklists and application form instructions, can be found. N.J.A.C. 7:10-11.5(c)4 (current (c)2) is proposed to be amended to include a reference to the firm capacity and water allocation analysis required under proposed new subchapter (e). Proposed new N.J.A.C. 7:10-11.5(c)6 adds to the list of required application materials a map identifying the existing and proposed water systems as well as applicable sources, treatment, distribution and storage facilities and the existing and intended water service area. The proposed amendment defines "water service area" as used in this section and specifies the mapping requirements for accurately depicting the water service area. The Department expects to use this information in the formulation of water budgets for designated watersheds at the Hydrologic Unit Code-11 (HUC-11) basis. The amendment further specifies that the map shall be submitted in Geographical Information System (GIS) format, with specific reference to the "New Jersey Department of Environmental Protection Mapping the Present to Protect New Jersey's Future: Mapping and Digital Data Standards," as provided at N.J.A.C. 7:1D, Appendix A.

Amendments to N.J.A.C. 7:10-11.5(d) are proposed to clarify and expand the type of information required in the engineer's report; this information is critical to ensure that a proposed

water system can meet its anticipated water demand and routinely deliver a safe, potable water supply. A proposed amendment at N.J.A.C. 7:10-11.5(d)1 clarifies that the requirement in the engineer's report for a description of the existing and proposed water system includes all infrastructure components, including water main extensions and service connections, to be put into service upon completion of any proposed improvements to the existing water system. The proposed amendment at N.J.A.C. 7:10-11.5(d)2 clarifies that it is information related to present and anticipated water demand that is required to be submitted. This amendment is consistent with newly proposed N.J.A.C. 7:10-11.5(e), which requires the applicant to calculate anticipated water demand when conducting a firm capacity and water allocation analysis.

N.J.A.C. 7:10-11.5(d)3 is proposed to be amended to clarify the specific type of application information associated with a water system's source(s) of supply. The proposed amendment at N.J.A.C. 7:10-11.5(d)3i aims to better correlate the permitting requirements for constructing water systems under this chapter and the water allocation requirements established under N.J.A.C. 7:19. This is specifically accomplished by requiring a listing of water allocation permits related to the proposed water system as well as the applicable safe or dependable yield of all water sources associated with that system. References to the citations for the respective definitions of safe or dependable yield within the Water Allocation rules are also being added at N.J.A.C. 7:10-11.5(d)3ii and iii. This information will enable the Department to evaluate the adequacy of a water system to ensure that a sufficient amount of water approved under a water allocation permit is available to satisfy the demands associated with all modifications to an existing water system.

Proposed new N.J.A.C. 7:10-11.5(e) requires that the firm capacity and water allocation analysis be submitted to the Department on a form available from the Department or at its web site. N.J.A.C. 7:10-11.5(e)1 establishes the standard for how the applicant must demonstrate adequacy of firm capacity to meet peak daily demands. N.J.A.C. 7:10-11.5(e)2 establishes the standard for how the applicant must demonstrate adequacy in water allocation and/or bulk purchase agreements to meet anticipated monthly and annual water demands. N.J.A.C. 7:10-11.5(e)3 would allow approval of a proposed water system if the applicant can demonstrate a compelling need due to an adverse impact to the environment or a threat to public health or safety in lieu of meeting the requirements of paragraphs (e)1 and 2. This includes situations where the existing water supply, provided by a public noncommunity and 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.

Proposed N.J.A.C. 7:10-11.5(f) establishes the method for calculating anticipated peak daily demand using the Department of Community Affairs Residential Site Improvement Standards at N.J.A.C. 5:21-5.2(d) for residential development and using the Department's standards at N.J.A.C. 7:10-12.6(b)2 Table 1, Average Daily Water Demand, for nonresidential development. The sum of the residential and nonresidential average daily water demand is multiplied by a factor of three to determine the peak daily demand. The Department uses such a peaking factor

to account for significant fluctuations in water usage, such as those associated with seasonal irrigation and recreation purposes, which, based upon the Department's experience, can inflate average daily demand by roughly three times during periods of peak use.

Proposed new N.J.A.C. 7:10-11.5(g) establishes the standards for determining the anticipated average water demand for proposed extensions or connections to a water system in order to demonstrate compliance with applicable water allocation permit limits and bulk water purchase agreements, as required at N.J.A.C. 7:19-11.5(e)2. The subsection specifies how to calculate average monthly and annual water demand, and directs that the applicant account for both projected water demand calculated according to N.J.A.C. 7:19-11.5(f)1 and 2 as well as water demand previously approved but not yet connected (as of the date of application for a permit under Subchapter 11) to the existing water system. Overall, this subsection requires the applicant to demonstrate that existing and projected water demand will not exceed the monthly or annual diversion limits in an applicable water allocation permit issued by the Department under N.J.A.C. 7:19 and as may be supplemented by bulk water purchases.

N.J.A.C. 7:10-11.5(e) through (g) are recodified as (h) through (j) with minor clarifying amendments. At recodified N.J.A.C. 7:10-11.5(k) (current (h)), the Department is proposing to clarify the procedures for determining the technical completeness of the information submitted with an application. The proposed amendments to this subsection also clarify the transition between the administrative and technical review stages of the application review process. N.J.A.C. 7:10-11.5(j) is recodified as (l) and amended to clarify that the application must meet all applicable requirements of the chapter.

N.J.A.C. 7:10-11.10 establishes the permit requirements and standards for the construction of distribution systems, including master permits and water main extension permits. The Department proposes at N.J.A.C. 7:10-11.10(a) to clarify the rules as they apply to the duration of the master permit. The proposed amendment addresses an inconsistency in the current rules in which a master permit is issued for three years but is required to be renewed annually. As proposed for revision, the one-year permit duration would be consistent with the one-year renewal cycle at N.J.A.C. 7:10-11.10(a)1. Annual renewal of master permits is essential to fostering consistent oversight to assure the adequacy of a water system in terms of firm capacity and water allocation requirements. In N.J.A.C. 7:10-11.10(a)2, the Department proposes to make a master permit available to any public community water system. The current rules limit the issuance of a master permit to suppliers of water in municipalities with an approved utility development plan, a restriction that has proven to be burdensome for older, established communities that typically are less likely to have a utility development plan. Water suppliers in older communities would also benefit from the issuance of a master permit, which is designed to bundle certain smaller permitted activities into one permit, because of the number of redevelopment activities that are undertaken in them.

A proposed amendment at N.J.A.C. 7:10-11.10(b)1 clarifies that the requirement to obtain a permit under this section applies to a proposed new connection to an existing water system as well as a water main extension. Existing N.J.A.C. 7:10-11.10(b)3 is recodified as (b)4 and is proposed to be amended as discussed below. Proposed new N.J.A.C. 7:10-11.10(b)3 provides that the requirement to obtain a permit for a water main extension or water service connection applies to the entire site to be served by the water system improvement. The proposed rule also prohibits a realty improvement or group thereof from being segmented to avoid the permitting requirement if it is intended to be served by the same water main extension or water service connection and, upon completion, the overall project would require a permit under N.J.A.C. 7:10-11.10(b)1 or 2. Proposed new N.J.A.C. 7:10-11.10(b)4i prohibits a water supplier from providing a connection to or expansion of its water system, where such connection or expansion would cause the water system to exceed its firm capacity or water allocation limits. New N.J.A.C. 7:10-11.10(b)4ii prohibits a water main extension or connection if the project or activity to be served by the connection or extension conflicts with the adopted Areawide Water Quality Management Plan pursuant to N.J.A.C. 7:15. N.J.A.C. 7:10-11.10(c) is proposed to be amended to reference the proposed new provisions for the calculation of firm capacity and water allocation permit limits and/or bulk purchase agreements at N.J.A.C. 7:10-11.5(e) through (g).

In N.J.A.C. 7:10-11.11, the Department is proposing to clarify the requirements for fire protection. At paragraph (a)2, the Department is proposing that gravity storage be required for those systems designed to provide fire protection and that hydropneumatic and pumping system combinations are not acceptable substitutes. This requirement is included because the use of hydropneumatic and pumping system combinations for fire fighting can be unreliable under severely stressed conditions.

Subchapter 12. Standards for the Construction of Public Noncommunity Water Systems and Nonpublic Water Systems

N.J.A.C. 7:10-12 establishes the certification requirements and standards for the construction of new, altered, or replacement nonpublic water systems and public noncommunity water systems.

N.J.A.C. 7:10-12.6(b)2 Table 1 contains the average daily demand used to determine water needs for various types of establishments. Table 1 is proposed to be amended to clarify the calculation of water demand associated with a restaurant. The proposed amendments involve the deletion of the "per patron" reference for restaurants in Table 1, and the addition of a footnote to Table 1 that contains a formula for calculating projected demand for this category of water use. The formula at footnote "**" establishes that projected restaurant water demand shall be calculated by multiplying the seating capacity of the establishment by the applicable per capita average daily water demand figure obtained from Table 1 at 9a, b or c, and then by a multiplication factor of 1, 2 or 3 relative to the respective hours of operation. A recodification of the footnotes to Table 1 is also proposed.

The Department is proposing amendments at N.J.A.C. 7:10-12.30(a) and (c) to clarify that sample collection and analysis for new construction of public noncommunity and nonpublic water systems are consistent with the microbiological, chemical and radiological requirements established by the Department under the PWTA and implementing rules at N.J.A.C. 7:9E. This section is being amended because not all new public noncommunity and nonpublic water systems are subject to the PWTA. However, the Department believes that all new well owners should be aware of the water quality prior to using private well water as their source of drinking water, not only the buyers and sellers of real property subject to the PWTA.

The additional requirements for new public noncommunity and nonpublic water systems include requirements regarding the microbiological analysis of water samples and specific parameters tested in the geographical location of concern. N.J.A.C. 7:10-12.30(a), emphasizes that the original total coliform sample be analyzed for fecal coliform or E. coli when the original sample is positive, as required by N.J.A.C. 7:18-4.6(m), the Regulations Governing the Certification of Laboratories and Environmental Measurements, for those systems that are not subject to the PWTA. This amendment is included for consistency with N.J.A.C. 7:18, and because of the importance of accurate microbiological sampling to public health. Also, N.J.A.C. 7:10-12.30(c) expands the list of required chemical parameters tested for a nonpublic water system to include lead and all VOCs for which MCLs have been established. The amendment further specifies the applicability of the sampling requirements for arsenic, mercury and gross alpha particle activity. This amendment does not affect the ability of the administrative authority to require additional monitoring in order to approve a new water supply.

N.J.A.C. 7:10-12.33(a)5iii is proposed to be amended to allow administrative authorities to require additional monitoring of water quality to monitor the efficiency of the treatment unit installed at a public noncommunity water system in addition to the quarterly requirements established under proposed new N.J.A.C 7:10-5.2(a)13 for primary contaminants.

Subchapter 13. Standards for the Technical, Managerial, and Financial Capacity for Public Community and Noncommunity Water Systems

N.J.A.C. 7:10-13 establishes minimum technical, managerial and financial capacity requirements for new public community and nontransient noncommunity water systems. The Department is proposing to readopt Subchapter 13 without amendment.

Subchapter 14. (Reserved)

Subchapter 15. Fees

N.J.A.C. 7:10-15 establishes fees for the Safe Drinking Water Program based upon the estimated costs of conducting, monitoring, administering, and enforcing the Program. The Department is proposing to readopt Subchapter 15 without amendment.

Social Impact

The Safe Drinking Water Act rules provide the regulatory framework necessary to assure the availability of high quality potable water. The Legislature declared this essential to safeguard the health and welfare of the citizens of, and visitors to, the State of New Jersey. The rules directly affect owners and operators of any water system and all persons served by public water systems and nonpublic water systems. A positive social impact is expected by ensuring the quality of the drinking water that is delivered to the user.

The most important improvement in drinking water quality is expected as a result of the proposed, more stringent maximum contaminant level (MCL) for arsenic. The new MCL will establish in New Jersey the strictest arsenic drinking water standard in the United States. The more stringent MCL of five micrograms per liter (µg/l) is proposed to take effect on January 23, 2006 for both public and nonpublic water systems. The mores stringent arsenic MCL will have a positive social impact because less arsenic will be consumed in drinking water.

The amendments clarify that public water systems must comply with any MCL within one year of the date of the violation. A notice of MCL violation is issued after a compliance sample is analyzed and determined to be above an MCL, and the average of the original sample plus three quarterly follow-up samples is greater than the MCL. The first notices of MCL violations, if any are determined necessary, based on compliance with the proposed arsenic MCL will be issued in 2006, and those systems will have one year to comply with the MCL by installing treatment, purchasing water from another source, or abandoning the source. It is expected that all public community and public nontransient noncommunity water systems will be in compliance with the proposed arsenic MCL by the end of 2009. With this implementation and monitoring schedule, the proposed amendments will provide greater public health protection than is provided under the current MCL beginning in 2006. As discussed in the Summary above, the new MCL for arsenic is expected to have a positive social impact by reducing the risk of lung, bladder, and skin cancer from exposure to arsenic in drinking water.

The analysis of gross alpha particle radioactivity in public community water systems in accordance with the 48-Hour Rapid Gross Alpha Particle Test in N.J.A.C. 7:18 will provide a positive social impact because this test detects higher levels of gross alpha particle activity compared to the methodologies in the Federal rules. If these higher levels detected exceed the MCL, the public community water system will be required to perform additional monitoring and, if an MCL violation is determined, remediation within one year.

The proposed amendments to N.J.A.C. 7:10-5.2(a)7 will help ensure compliance with the monitoring requirements for inorganics (IOCs), volatile organic compounds (VOCs), synthetic organic compounds (SOCs) and radiological contaminants by specifying the year within the three-year monitoring period that the different types of water systems must monitor. This is expected to have a positive social impact because water systems will likely continue or improve compliance with chemical and radiological monitoring and reporting requirements because of the availability of a clear, understandable monitoring schedule.

The proposed requirements for monitoring, reporting the results from monitoring to the Department, and maintaining the treatment devices or processes for the removal of primary contaminants in good operating order are anticipated to have a positive social impact because consistent and continual monitoring of the treatment systems will help ensure continued compliance with the drinking water quality standards.

The Department is proposing that the microbiological analytical methodology requirements for new noncommunity and new nonpublic water systems be the same as the methodology promulgated under the Private Well Testing Act (PWTA) and the chemical analyses for nonpublic water systems be modified to be consistent with the PWTA requirements. This requirement will result in the consistent analysis of the water from those new public noncommunity and nonpublic water systems that begin operation but that may not be subject to the PWTA because a property is not being sold. These amendments will provide the same degree of protection for new public noncommunity water systems and nonpublic water systems as is provided to wells subject to the PWTA and is expected to have a positive social impact.

The Department is proposing to incorporate by reference the Federal variances and exemptions rules, which were adopted in 1998. The Department has not, to date, issued a variance or exemption and does not anticipate issuing variances or exemptions to public water systems in the future since the Department strongly encourages water systems to comply with the MCL within the timeframes specified in the N.J.A.C. 7:10-5.7(a). However, these Federal regulations are being adopted to provide a program consistent with the Federal Safe Drinking Water Act (SDWA), and to provide a procedure for issuing a variance or exemption should this be appropriate.

The proposed amendments to the construction regulations for public community water systems will require that a water system applying for a Department permit perform a comprehensive analysis of the projected water demand and water system capacity. This analysis is necessary to ascertain compliance with source treatment requirements as well as water allocation permit and bulk purchase agreement limits. The amendments will maximize consistency and coordination between the SDWA and Water Allocation permitting requirements. The proposed requirement for mapping of the geographical area to be served by the proposed water system to be served will contribute to the Department's efforts to develop comprehensive water budgets by watershed. These proposed amendments are expected to have a positive social

impact because they will improve planning and oversight of expansions of or connections to water systems and the consequent impacts on water supply and quality.

Other proposed amendments clarify that even where a project or activity does not require a permit based upon the regulatory threshold established under the rules, a connection to or extension of a water system must not be undertaken if it would exceed the firm capacity of the water system or applicable water allocation permit limits. Similarly, any project or activity to be served by a water system improvement, expansion or connection must not be undertaken if it conflicts with the adopted Areawide Water Quality Management Plan for the region in which it is to be located. These proposed amendments augment protection of the integrity of water systems because they help ensure that such system construction and improvements are based upon reliable planning and sustainable water sources.

The Department is proposing that gravity storage be required for fire protection. This requirement will provide the public with a more reliable source of fire protection than is currently required in the regulations and therefore will have a positive social impact. This requirement will mainly affect new developments served by on-site small water systems.

Economic Impact

Costs incurred to comply with the Safe Drinking Water Act rules have become standard business expenses for public water systems. In the case of public community water systems that directly charge for water services, these costs are ultimately passed on to households through water service rate increases. However, any additional costs incurred by public water systems and nonpublic water systems over the years to comply with the rules must be balanced against the State's paramount policy to protect the purity of drinking water and public health.

The expenses incurred as a result of the rules fall into the following three categories: (1) testing expenses, which every water system will incur in order to routinely test the quality of the drinking water. The annual costs of such testing ranges from $10.00 to $20.00 per household depending upon the size of the water system; (2) compliance expenses incurred by those water systems whose water quality or facilities are in need of improvement in order to meet the standards. The annual cost of these improvements can vary widely among water systems, from $2.00 to $50.00 per household. The estimated total cost of compliance statewide is approximately $120 million; and (3) Water Tax, permit and operational fee expenses to support the administration of the Safe Drinking Water Program. The cost is approximately $3.5 million annually, which averages to approximately $1.00 per household.

Of the proposed amendments to the regulations, the new MCL proposed for arsenic is expected to have the greatest economic impact. In New Jersey, arsenic rarely occurs in drinking water above the existing MCL of 50 µg/l, but it does occur in public and private water systems above five µg/l.

The Department evaluated arsenic concentrations in drinking water monitoring data submitted for compliance purposes since 1993. Thirty-four of 606 public community water systems submitted at least one arsenic test result since 1993 that exceeded five µg/l. Of those public community water systems that detected arsenic above five µg/l, the majority of exceedences were experienced by water systems providing more than 0.5 million gallons per day (mgd). These 34 public community water systems may represent an overestimation of the number of public community water systems that might be expected to be issued an MCL violation for arsenic when the new MCL takes effect, since a single sample above an MCL does not always result in an MCL violation and remediation. On the other hand, the Department may be underestimating the number of public community water systems that will be issued an arsenic MCL violation. Many water systems in New Jersey currently use analytical method EPA 200.7, a method with an MDL greater than five µg/l. Because the MCL is currently 50 µg/l, method EPA 200.7 is capable of determining if the test results comply with the MCL of 50 µg/l, but does not provide information about arsenic near the proposed MCL of five µg/l. Beginning January 23, 2006, this method will no longer be acceptable according to the Federal regulation because EPA has determined that the published MDL for this method (eight µg/l) is too close to the adopted Federal (10 µg/l). Those water systems that begin using analytical methods other than EPA 200.7 may discover that they are delivering water to customers at concentrations greater than the proposed MCL of five µg/l, because their previous test results were considered to be nondetectable. However, the Department based its cost impact estimates on MCL violations issued to an estimated 34 public community systems because that is the data collected to date.

Of the approximately 877 public nontransient noncommunity water systems active in New Jersey during the fall of 2003, 101 systems have reported exceedences of five µg/l arsenic at least once. As noted above for public community water systems, this may represent an overestimation or an underestimation of the number of water systems that will actually receive an MCL violation, but the Department has based cost estimates on the estimated 101 public nontransient noncommunity water systems. The data for community and noncommunity water systems are summarized in Table 3.

Table 3

Public water systems that have detected arsenic at concentrations greater than five µg/l

Highest Arsenic Concentration (µg/l)	Number of public community water systems	Number of public nontransient noncommunity water systems
5.0-10.0	26	68
>10.0	8	33
TOTAL	34	101

Source: New Jersey Drinking Water Database.

The Department contracted with New Jersey Corporation for Advanced Technology (NJCAT) for assistance in determining treatment technologies for the removal of arsenic in New Jersey drinking water. Malcolm Pirnie, an environmental engineering consultant, conducted the investigation for NJCAT. Based on the water quality in New Jersey, Malcolm Pirnie recommended four treatment technologies for the removal of arsenic from drinking water: activated alumina adsorption, coagulation/filtration, granular ferric adsorption, and ion exchange. (Evaluation and Assessment of Arsenic Removal Technologies for New Jersey Drinking Water, February 21, 2003).

There are several factors that will influence the choice of arsenic removal treatment technology. The Department anticipates that adsorption technologies will be the preferred methods of arsenic removal in New Jersey because the disposal options for treatment process residuals will be a significant factor in limiting the selection of coagulation/filtration and ion exchange. The general characteristics of New Jersey receiving waters are not unique and thus the technical aspects of residuals handling will be no different than in other parts of the country. However, New Jersey's surface water criteria for arsenic, which is based on EPA's Recommended Criteria of 0.017 µg/l, is far below the current drinking water standard of 50 µg/l. Consequently, a wastewater treatment plant that accepts liquid residuals from an arsenic treatment system will almost certainly produce an effluent that exceeds the surface water requirement. To date, this has not been a critical issue because relatively few drinking water systems have targeted arsenic removal. The size and extent of new treatment facilities for arsenic removal that may need to be constructed may limit the treatment options available to the water system and may result in transport of raw water to an alternative location for treatment.

Malcolm Pirnie developed a computerized tool capable of generating cost estimates for various arsenic treatment technologies. These estimates include values for initial capital investment as well as long term operational and maintenance costs. Since cost estimates for treatment are dependent on the quality of the water that needs to be treated, Malcolm Pirnie determined costs using New Jersey water quality information provided by the Department. The cost estimates were determined for different capacities and water quality from four different types of community water systems and three different types of noncommunity water systems.

Because it is unlikely that the other technologies can be used in New Jersey, for the reasons indicated above, cost estimates for the adsorption technologies are presented in Table 4.

The cost estimates were developed for the Treatment Subcommittee of the New Jersey Drinking Water Quality Institute (Institute) with a treatment goal of three µg/l; however, these costs are applicable for the construction of a treatment plant designed to remove arsenic to the proposed MCL of five µg/l. The estimates presented for the operation and maintenance of a treatment facility would be expected to be the same or less than those presented based on the Malcolm Pirnie data because the arsenic removal media would be expected to last longer. The water quality data used for determining cost estimates and the results of the cost analysis are in the report prepared by Malcolm Pirnie (Evaluation and Assessment of Arsenic Removal Technologies for New Jersey Drinking Water, February 21, 2003).

Malcolm Pirnie concluded that activated alumina adsorption is the least expensive alternative for public noncommunity water systems while granular ferric adsorption is the least expensive alternative for public community water systems. The difference is likely to be the operational and maintenance (O&M) costs rather than capital expenses. Capital costs for these two treatments are similar, but the associated O&M costs vary considerably. The larger the water system, the more cost effective it is to treat for arsenic.

Table 4
Summary of Cost Evaluations for
Adsorption Treatment Technologies (Activated Alumina and Granular Ferric Adsorption)
Based on Typical System Size and Water Quality in New Jersey
(20-year amortization period, seven percent interest rate used in calculating total cost)

Treatment Plant (MGD)	Capital Cost ($)	Estimated Number of Households/ Population Served	Total Cost ($/1000 gal)	Estimated Cost per Household/Person
0.01	40,000-50,000	15 service connections 50 people	6.14-6.99	$750 – $850 per household $225 – $260 per person
0.1	50,000-1,000,000	125 households 500 people	0.87 – 3.51	$130 – $510 per household $30 – $130 per person
0.5	360,000-2,100,000	625 households 2,500 people	0.92 – 1.01	$80 – $350 per household $20 – $90 per person
2.5	570,000 – 4,800,000	3125 households 15,000 people	0.31– 0.93	$50 – $140 per household $10 –$30 per person

The removal of arsenic from public water systems to concentrations below five µg/l would require a statewide initial capital investment of approximately $14 million. This is based on treatment for 34 public community water systems at a cost of $ 0.4 million apiece. This capital cost is the average of the capital costs associated with the two adsorption technologies for a 0.5 mgd plant. The estimated cost per person, for a 0.5 million gallon per day (mgd) plant, is $20.00 to $90.00 per year, but this will vary from a cost of $10.00 (2.5 mgd) to $260.00 (0.01 mgd) per person based on the size of the plant.

The removal of arsenic from 101 public noncommunity water systems to concentrations below five µg/l would require a Statewide initial capital investment of approximately estimated $15 million (101 systems at a cost of $150,000 apiece). This capital cost is the median of the range of capital costs associated with the two adsorption technologies for a 0.1 million gallon per day plant. The estimated cost per person, for a 0.1 million gallon per day plant, is $30.00 to $130.00 per year. These costs can be passed on to customers of most public community water

systems, but the costs for noncommunity water systems are not as easily passed on because they serve a nonresidential population.

Between September 2002 and September 2003, the Department received 2418 analyses for arsenic as part of the requirements of the Private Well Testing Act (PWTA). Of these wells, 247 had detections of arsenic greater than five μg/l. Treatment costs for private wells are discussed below.

The initial cost of installing treatment for domestic wells, using granular ferric oxide point-of-entry treatment devices, ranges from $ 2,000 to $3,600 per household (NJDEP Domestic Well Arsenic Treatment Cost Survey, 2003). The cost of replacing the media before breakthrough currently ranges from $600.00 to $850.00 per household. The media will last from two to three years depending on concentration of arsenic in the raw (untreated) water. Point-of -use devices cost an estimated $235.00 to $450.00, with a yearly cartridge change cost of $60.00 to $165.00. By estimating that 250 wells per year subject to the PWTA will exceed the proposed arsenic MCL, the estimated Statewide costs for installing granular ferric oxide arsenic removal treatment for a whole house ranges from $0.5 million to $0.9 million per year, with a replacement cost for the media ranging from $0.15 to $0.21 million. The replacement media, however, is expected to last from two to three years.

The Department is proposing that public community water systems monitoring for gross alpha particle activity utilize a laboratory certified to analyze the sample in accordance with the 48-Hour Rapid Gross Alpha Test in N.J.A.C. 7:18. The sample analysis cost using the 48-Hour Rapid Gross Alpha Test is estimated to be approximately $150.00 per sample based on the responses from laboratories surveyed in 2002 for the purposes of developing cost estimates for the PWTA. This estimated sample cost takes into account the possibility that the laboratory may need to perform additional analyses if the first gross alpha particle count is greater than five picocuries per liter. However, since the sample must be analyzed within 48 hours of sample collection, there may be additional mailing costs or transportation costs associated with delivering the samples to the laboratory so that the initial counting of the sample can be initiated between 36 to 48 hours from the time of sample collection, as specified in the method.

The Department is proposing that all newly constructed public noncommunity and nonpublic water systems sample for the same parameters as required for those systems subject to the PWTA. This increase will not affect the cost of initial monitoring for most new public noncommunity and new nonpublic water systems because most new systems are also subject to the PWTA requirements. But some other new systems, not subject to the PWTA, will be required to monitor for more parameters than are required under the current regulations. The estimated costs for PWTA monitoring range from an estimated $450.00 to $650.00, depending on the number of parameters required to be tested in the specific area of the State.

The proposed amendments to the construction regulations at Subchapter 11 are expected to have little or no economic impact generally, and, for the relatively small population that does experience an impact, the social benefits in terms of added protections and safety are considered to outweigh such costs. This includes proposed revisions that clarify the analysis the Department requires in order to evaluate a proposed water system's capability to provide adequate water supply to its customers. The requirements for the analysis of firm capacity and adequacy of water supply, while more costly for a water system in the short-term, will ultimately save time and money in the permitting process because delays in the review of projects will be minimized. The requirement at N.J.A.C. 7:10-11.5(c)7 requiring the submission of mapping in specified GIS format will impose a financial cost on smaller water systems that are not currently equipped with their own GIS capability. In such cases, there will be costs associated with obtaining such equipment or, in the alternative, contracting with an engineering or consulting firm with such capability. The Department believes that the systems in this category typically hire a consultant to assist in the preparation of other related aspects of the application process. Consequently, the Department does not expect this provision to be disproportionately expensive for any one category of water system.

The Department is also modifying the master permit requirements such that older communities may also take advantage of the master permit process. The Department is removing the requirements for a "utilities" plan since many older communities do not have such a plan. Use of the master permit reduces individual application preparation and review costs by allowing an annual assessment of all aspects of a water system by the Department and a delegation of the review of individual water system extension and connection proposals to the water supplier. Such activities are nevertheless required to comply with all applicable master permit and water allocation permit limitations and standards.

The requirement that fire protection be provided by gravity will require some newly proposed water systems to install elevated storage facilities for water. The costs of this requirement most likely will be borne by the developer and possibly passed on to new homeowners as an added cost of a dwelling. Smaller water systems that propose expansions and propose to provide fire protection will most likely be affected by this requirement.

Environmental Impact

Since the public directly consumes drinking water, the environmental impact of the rules proposed for readoption with amendments is positive and essentially the same as the social impact discussed above. The proposed amendments will result in the treatment of public and nonpublic water systems for the removal of arsenic from drinking water. Therefore, the quality of the State's drinking water will improve.

Arsenic in drinking water sources occurs from either natural sources or man-made sources. Natural sources are considered to be the most prevalent source of arsenic in New Jersey water

supplies. Inorganic arsenic exists naturally at various levels in all geologic formations in the State. In some formations, the physical and chemical properties of the geologic material may enable the arsenic to dissolve in groundwater. Such conditions likely exist in the rocks formed from organic-rich, ancient lakebeds in a group of geologic formations in the Piedmont Physiographic Province of the State. These rocks are known to contain high concentrations of arsenic (NJGS Information Circular: Arsenic in New Jersey Groundwater, In Press). Man-made sources of arsenic include pesticides. Before synthetic organic pesticides were available, arsenic-based pesticides were widely used throughout the State on a variety of crops.

If the Department issues an MCL violation for arsenic, the water supplier, local health department or the Department may become involved in investigating the origin of the contaminant. Therefore, the Department will likely become aware of more areas of the State with arsenic in groundwater. This may result in more cases being referred to the Department's Site Remediation Program for site investigation, more responsible parties identified, and more clean-ups initiated as appropriate.

The four recommended arsenic treatment technologies will produce liquid and/or solid residuals. The use of adsorption technologies produces a smaller amount of liquid waste, which can be recycled through the treatment system. The adsorption media will usually pass toxicity testing (TCLP) and can therefore be disposed of at a non-hazardous waste landfill. Large quantities of liquid wastes, however, may need to be disposed of in a sanitary sewer or by direct discharge under a NJPDES permit. However, for the reasons noted in the Economic Impact statement, many wastewater facilities may be reluctant to accept the arsenic waste because of the stringent discharge criteria for arsenic in effect in New Jersey. The quantities of waste produced will be a determining factor in the selection of the treatment technology for the removal of arsenic from drinking water.

The proposed amendments in Subchapter 11 are expected to result in a beneficial environmental impact. Amendments to the requirements for permit applications will enhance the Department's ability to ensure that the sources associated with a water system have ample supplies and are not overstressed. Strengthening the coordination between the water allocation and safe drinking water programs, particularly in terms of water demand projections and the mapping of existing and future water service areas, will bolster Department efforts to prepare statewide and watershed water budgets. Comprehensive water budgets will help to identify water supply surpluses and deficits, and also will ensure the availability of water to meet a growing state population while protecting the integrity of the State's ecosystems.

Other proposed revisions are expected to have a positive environmental impact. This includes the amendment at N.J.A.C. 7:10-11.10(b) that prohibits a project from being segmented into smaller units in order to avoid obtaining a permit under these rules. Other proposed amendments prohibit a water system from undertaking an extension or connection, whether a permit is required or not, if it would cause the system to exceed its firm capacity or water

allocation and/or bulk water purchase limits. Finally, proposed new N.J.A.C. 7:10-11.10(b)4ii prohibits a water system extension or connection if the anticipated modification would conflict with the adopted Areawide Water Quality Management Plan.

The impacts of the 48-Hour Rapid Gross Alpha Test are described in the Social Impact and Economic Impact Statements. The Department does not believe that there will be environmental impacts resulting from the use of the 48-Hour Rapid Gross Alpha Test.

Federal Standards Analysis

Executive Order No. 27 (1994) and N.J.S.A. 52:14B-1 et seq., at 52:14B-23, require State agencies which adopt, readopt or amend State regulations that exceed any Federal standards or requirements to include in the rulemaking document a Federal Standards Analysis.

The Federal Safe Drinking Water Act (Federal SDWA) was enacted in 1974 (P.L. 93-523) and amended in 1986 and 1996. Regulations for 23 drinking water contaminants were promulgated, at 40 CFR 141, by the EPA in 1975. The Federal SDWA regulations were amended in the late 1980s and 1990s such that there are now more than 90 regulated microbiological, chemical and radiological parameters.

In response to the passage of the Federal SDWA, the State SDWA was passed in 1977 and the Department's Safe Drinking Water regulations were adopted in 1979. The Department adopts and incorporates by reference all 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, and recordkeeping requirements as the New Jersey primary drinking water regulations, applicable to all public water systems. In addition, the Department is proposing to repeal N.J.A.C. 7:10-6, Variances and Exemptions, and instead adopt by reference 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. Therefore, the Department's drinking water program is based on the Federal standards.

However, because there were no Federal standards for hazardous chemicals in drinking water in the early 1980s and a large number of Superfund sites were identified in the State and the prevalence of ground water contamination was increasing, the State Legislature amended the State SDWA in 1983, which directed the establishment of MCLs for a selected list of VOCs and SOCs. The level of protection established under the statute, for carcinogens, is a goal of a risk of no more than one in one million over a lifetime of exposure and for noncarcinogens, is a goal of no adverse physiological effects over a lifetime of exposure. The New Jersey Drinking Water Quality Institute (Institute), a 15-member advisory body to the Department established under the State SDWA, is authorized to review all health-related, analytical method and treatment

technology data on contaminants and to recommend standards to the Department. The Department is authorized to promulgate standards (termed MCLs) based on those recommendations. To date, the Department has adopted MCLs for 13 contaminants that are lower (more stringent) than the Federal standards and for five contaminants that have a State MCL but no Federal standard.

The State standard setting process is very similar to the Federal standard-setting process but there are some differences that are noted below. The Institute considered three factors in recommending MCLs within the statutory framework: health effects; technological ability to measure the contaminant level; and ability of existing treatment technologies to meet the MCL. The Federal standard setting process considers these factors and an additional economic factor. The State Act mandates a cancer risk level of one in one million (10^{-6}) additional cancer cases over a lifetime of exposure. The Federal SDWA does not specify a risk level, but sets an MCL goal of "zero" for carcinogens. The additional economic factor has resulted in the establishment by USEPA of higher MCLs for carcinogens than those established by the Department using the State SDWA process because the State SDWA does not allow economic factors to be used in the development of the MCLs for carcinogens. Consequently, the 18 synthetic organic contaminants regulated under the State Act have more stringent MCLs than those promulgated by the USEPA. Thirteen synthetic organic contaminants have a lower MCL (more stringent) than the Federal standards and five synthetic organic contaminants have a State MCL but no Federal standard, as set forth in Tables 5 and 6 below, respectively.

The Institute evaluated the most current information regarding arsenic in drinking water. The Institute considers three factors in recommending MCLs within the statutory framework: health effects; technological ability to measure the contaminant level; and ability of existing treatment technologies to meet the MCL. The Federal standard setting process considers these factors and an additional economic factor. The Institute recommended a proposed MCL of 3 ug/l to the Department, but for the reasons discussed in the Summary above, the Department is proposing an MCL of 5 ug/l. This proposed MCL for arsenic in drinking water of 5 ug/l is lower than the EPA MCL of 10 ug/l for arsenic that is scheduled to take effect on January 23, 2006.

Between 1996 and 2000, the Department surveyed treated and untreated drinking water in New Jersey using a short-term gross alpha testing method and the public water supplies showed elevated gross alpha particle levels that were significantly higher than historical values. These elevated gross alpha-particle levels were found to be due to the presence of radium-224, a short-lived radioisotope with a half-life of 3.64 days. The Department is proposing that the gross alpha radiological samples collected from public community water systems for compliance with the Federal Radiological Rule be analyzed using the 48-Hour Rapid Gross Alpha Test. This test captures short-lived radioisotopes, such as radium-224, that are not measured if the sample is not analyzed within 48 hours of sample collection. The Department is proposing that this method be used for drinking water samples because the Federal Radionuclide Rule does not directly address radium-224. EPA published a Notice of Data Availability in April 2000 which included a

recommendation to analyze the gross alpha within 48 hours to capture the contributions from radium-224, however, there is no such requirement or recommendation in the final rule, as the EPA considers radium-224 to be a regional problem. The Department adopted the 48-Hour Rapid Gross Alpha Test on September 16, 2002 to provide a method that reflected the requirement in the Private Well Testing Act (PWTA) that stated that a short-term 48-hour gross alpha test should be conducted to screen for the presence of radium. By requiring this methodology for routine testing of public community water systems, the Department is ensuring that sampling by public community water systems is consistent with the sampling required of nonpublic water systems.

The Department's experience over the last 25 years with drinking water contamination incidents has been that the public wants its drinking water treated to the lowest possible level of contamination, regardless of the applicable MCLs. Therefore, more stringent State MCLs have not resulted in expenditures that were not also supported by the communities where the contamination was occurring. The State's policy of setting standards designed to protect public health has been appreciated by the public, environmental groups, and the water industry which generally strives to provide the best quality of water possible to customers.

It is anticipated that 34 community water systems and 101 noncommunity water systems will be required to treat their water to an arsenic MCL of 5 ug/l. It is also anticipated that 250 private wells per year may have arsenic test results greater than 5 ug/l as a result of testing conducted as part of the PWTA. Cost estimates for arsenic removal for public water systems and private wells are presented in the Economic Impact Statement. The estimate of private wells with arsenic above the MCL, however, is likely an underestimation of the total number of private wells that may have concentrations of arsenic above the MCL because the number of private wells with arsenic above the MCL is unknown at this time. Those private wells in the Piedmont Physiographic Region are considered to be the most likely to exceed the proposed MCL of 5 ug/l. The benefit of reducing the concentration of arsenic in drinking water is a reduced risk of excess cancer incidence in the State.

Jobs Impact

Readoption of these rules will enable New Jersey to receive Federal grant money to implement and enforce the rules. The Safe Drinking Water program in the Department is fully developed and has been in operation for decades. Not readopting these rules would likely eliminate jobs in the Department because the State would lose primacy for the safe drinking water program.

In the water industry, both public and nonpublic water systems will be affected by the readoption with amendments of these rules. Since the water industry has been complying with the rules for decades, the revision of the arsenic MCL is not anticipated to have an impact on jobs. Certain new nonpublic wells, not subject to the Private Well Testing Act, will have to

sample for more chemical and radiological parameters than were previously required, but the sampling of these additional systems is not anticipated to have an impact on jobs either. The lower MCL for arsenic, as well as the requirement for public community water systems to perform the 48-Hour Rapid Gross Alpha Test, will result in additional sampling because more water systems will exceed the MCLs for both arsenic (lower MCL) and gross alpha particle activity (more sensitive analytical method). Additional treatment may be required and potentially, therefore, an increase in jobs in related industries. The requirement that water systems send their results in electronically may result in an increase in the need for computer-related services. Related industries that might be affected by this rule proposal include certified testing laboratories, especially those certified for gross alpha particle analysis; engineering consulting firms; well drilling firms; and construction contractors.

It is not anticipated that the proposed changes to the construction standards for public community water systems will result in an impact on jobs.

Agricultural Industry Impact

The proposed readoption with amendments is not expected to have any impact upon the agricultural industry. The water quality of agricultural (i.e., irrigation) wells is not subject to the MCLs set forth in the Safe Drinking Water Act regulations.

In general, public water systems are not used as a water source for agricultural purposes (i.e., irrigation). Currently, there are 18 public transient noncommunity water systems in New Jersey that serve migrant farm camps. The new MCL for arsenic will apply to those systems, as do all the MCLs. To the extent that a farm may use water from a public water system, the farm will incur any system costs that may be passed on to the consumer.

It is not anticipated that the proposed changes to the construction standards for public community water systems will result in an impact to the agricultural industry.

Regulatory Flexibility Statement

Small businesses as defined under the Regulatory Flexibility Act, N.J.S.A. 52:14B-16 et seq., which make up a large number of public water systems, must provide safe drinking water and, therefore, must meet the same basic water quality and testing standards as large water systems in order to protect public health.

There are approximately 200 water systems that can be classified as small businesses. These small businesses are usually small water companies, mobile home parks or homeowners associations. The Board of Public Utilities controls the water rates for the small water companies and the costs associated with complying with new Department requirements can be recovered by the small water companies from their customers through rate increases. The other

types of small businesses that provide water, such as mobile home parks, usually cannot recover the costs of complying with new Department requirements as easily because they are they may be paid by customers who rent their property, and may be prohibited from recovering costs by local rental ordinances. Compliance costs per household served for complying with the arsenic MCL are discussed in the Economic Impact statement above. Water systems may have to employ outside services to perform the required tests, and if facility improvements are needed to meet the standards, professionals such as engineers and construction contractors would likely be needed. The costs of any of these services would vary significantly based upon the type and extent of services required. These rules are designed to minimize impacts on small water systems through lower fees, reduced design criteria, reduced testing frequency requirements and reduced penalties.

The Department is proposing to require that all public community water systems sample using the 48-Hour Rapid Gross Alpha Test in accordance with N.J.A.C 7:18. Since the Department of Health and Senior Services performed the water sample analyses for all public community water systems between 1996 and 2000, and appropriate actions have been taken by the Department in response to the findings of this sampling, the Department does not anticipate additional major impacts associated with these new sampling requirements. There will, however, be an increase in the number of samples that community water systems will submit to the six laboratories that are certified to perform the 48-Hour Rapid Gross Alpha Test.

The Department is proposing to eliminate the exemption for small water systems, those serving fewer than 3,300 people, from sending compliance reports to the Department electronically. Small water systems account for most of the monitoring and reporting violations issued by the Department, and the Department believes that requiring small water systems to send in results electronically will improve compliance.

The proposed mapping requirements at N.J.A.C. 7:10-11.5(c)7 will impact smaller water systems that are not currently equipped with their own GIS capability. In such cases, there would be substantial costs associated with obtaining such equipment for the sole purpose of satisfying the proposed new requirement. However, the Department anticipates that this additional mapping requirement will be addressed by an engineering or consulting firm hired to assist in the preparation of all related aspects of the application process. Consequently, the Department does not expect this provision to place an undue burden on smaller water systems.

New small water systems and existing small water systems undergoing a significant increase in the number of service connections may be affected by the proposed fire protection amendments. The Department is requiring gravity storage for fire protection because there is a possibility that the hydropneumatic and pumping station technology may fail if the electrical power supply is interrupted, which may occur during a fire.

Minimum requirements must be met by all water systems to ensure the provision of safe drinking water to the citizens of and visitors to the State of New Jersey. Neither the Federal nor the State law speaks to the provision of a lesser standard for water systems which are small businesses. In light of this and in light of the importance of an adequate supply of safe drinking water generally, the Department is not proposing to provide lesser standards and requirements for small businesses.

Smart Growth Impact

Executive Order No. 4 (2002) requires State agencies which adopt, amend or repeal any rule adopted pursuant to Section 4(a) of the Administrative Procedure Act (N.J.S.A. 52:14B-4(a)) to describe the impact of the proposed rule on the achievement of smart growth and implementation of the New Jersey State Development and Redevelopment Plan (State Plan). The Department has evaluated this rulemaking to determine the nature and extent of the rule's impact on smart growth and implementation of the State Plan. The purpose of the New Jersey Safe Drinking Water Act regulations is to ensure that the quantity and delivery pressure is sufficient for the safety and protection of public health. The State does not anticipate that the rules proposed for readoption with amendments, including the proposed new MCL for arsenic of five μg/l, the use of the 48-Hour Rapid Gross Alpha Test for public community water systems monitoring under the Federal Radiological Rule, the clarification of the monitoring and reporting requirements for regulated drinking water contaminants, and the referencing of a new procedure for issuing variances and exemptions relate to the State's official land use and development policies in a way that would either encourage or discourage any development or redevelopment in this State contrary to the guiding principles of the State Plan. As a result, the Department does not expect that the proposed changes to the State SDWA in this rulemaking will have an impact on the State's achievement of smart growth, except the amendments to the construction standards for public community water systems are expected to have a positive impact on smart growth as described below.

The Department believes the amendments to the construction standards will have a positive impact on smart growth in New Jersey due to the new mapping requirements in the at N.J.A.C. 7:10-11.5(c)6. This is specifically accomplished by requiring the mapping, in specified Geographic Information System (GIS) format, of water distribution systems and delineated water service areas. This information will contribute significantly to the Department's on-going efforts to develop comprehensive water budgets, data that will allow the quantification of total water use and water availability at the Hydrologic Unit Code-11 (HUC-11) basis. Completed water budgets are expected to serve as a fundamental underpinning of the next update to the New Jersey Statewide Water Supply Plan (to be completed by January 2007), which information will be instrumental in determining areas of water surplus and deficit and how this correlates with designated growth areas under the New Jersey State Development and Redevelopment Plan.

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The proposed new requirements at N.J.A.C. 7:10-11.5(e) through (g) regarding assurances of firm capacity and adequate water allocation as well as clarified provisions on how to calculate anticipated demand associated with a proposed public community water system will also contribute to the achievement of smart growth. This will be accomplished by requiring that the applicant demonstrate upfront that adequate water supplies are both available and allocated through a permit issued under N.J.A.C. 7:19, prior to approval by the Department of any water system improvements or expansions. This is further bolstered by the proposed amendment at N.J.A.C. 7:10-11.10(b)4, which provides additional smart growth benefits by prohibiting any water main extension or connection, regardless of whether a permit is required by the Department, if it would result in an exceedance of an applicable water allocation permit or would conflict with the applicable adopted Areawide Water Quality Management Plan.

Full text of the proposed readoption may be found in the New Jersey Administrative Code N.J.A.C. 7:10.

Full text of the proposed repeal may be found in the New Jersey Administrative Code at N.J.A.C. 7:10-6.

Full text of the proposed amendments follows (additions indicated in boldface **thus**; deletions indicated in brackets [thus]):

SUBCHAPTER 1. GENERAL PROVISIONS

7:10-1.3 Definitions

The following words and terms, when used in this chapter, shall have the following meanings unless the context clearly indicates otherwise. Additional definitions specifically applicable to N.J.A.C. 7:10-11, 12, and 13 are set forth at N.J.A.C. 7:10-11.4, 12.3, and 13.2, respectively.

...

"Air gap" means, in a water distribution system, the unobstructed vertical distance through the free atmosphere between the lowest opening from any pipe or faucet supplying water to a tank, plumbing fixture or any other device and the flood level rim of the receptor.

...

"Detectable disinfectant residual" means a chlorine residual of at least 0.05 mg/l ([total] **free** chlorine, combined chlorine or chlorine dioxide), or a heterotrophic plate count of 500/ml or less, at the point of collection.

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"Nonpublic water system" means a water system that is not a public water system. A nonpublic water system includes any water system providing potable water to individual dwellings, and any water system regularly serving fewer than 15 service connections [or] **and fewer than** 25 individuals.

SUBCHAPTER 2. GENERAL REQUIREMENTS

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[.14], and shall submit each report to the Administrator and make each report available to the public as required under 40 CFR 142[.15].

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**,** [and] 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. [The] **All** maximum contaminant levels and action levels in this subchapter shall[, in addition,] 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, P.O. Box 426, Trenton, New Jersey 08625-0426, (609) 292-5550.

7:10-5.2 Discretionary changes to National Regulations

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(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.-2. (No change.)

3. [Inorganics] **MCLs and monitoring requirements for inorganic chemicals** (IOCs) [monitoring requirements and MCLs] 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 mg/l shall apply.**

4. MCLs **and monitoring requirements** for volatile organic compounds (VOCs) shall be those established under the National Regulations and at [N.J.A.C. 7:10-5.2](a)7 **below** except as listed in Table 1, below, for State-regulated [contaminants] **VOCs**.

Table 1

MCLs FOR STATE-REGULATED [CONTAMINANTS] **VOCs***

State-regulated [contaminant] **VOC**	MCL (in µg/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)	1000
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. (No change.)

5. – 6. (No change.)

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 [and], synthetic organic compounds**, and radionuclides** shall be as follows [:] **. Monitoring for radionuclides shall begin on January 1, 2005.**

Monitoring Period	Water System Type
Year one of the three year Federal compliance period (that is, [1996, 1999,] 2002**, 2005, 2008, 2011**)	All public community water systems (PCWS) using a surface water source(s) or all PCWS serving a population greater than 10,000.
Year two of the three year Federal compliance period (that is, [1997, 2000,] 2003**, 2006, 2009, 2012**)	All public community water systems using a ground water source(s) serving a population equal to or less than 10,000.
Year three of the three year Federal compliance period (that is, [1998, 2001,] 2004**, 2007, 2010, 2013**)	Public nontransient noncommunity water systems.

8. – 12. (No change.)

13. If a supplier of water installs a treatment device or process to bring the water into compliance with any applicable MCL, the supplier of water shall monitor for that contaminant each calendar quarter (notwithstanding compliance with the applicable MCL for the contaminant).

(b) (No change.)

7:10-5.3 Analytical requirements

(a) The monitoring and analytical requirements for determining compliance with the maximum contaminant levels shall be those established under the National Regulations**, except that the analysis for gross alpha particle activity shall be determined using the 48-Hour Gross Rapid Gross Alpha Test, in accordance with N.J.A.C. 7:18**.

(b) – (d) (No change.)

(e) The monitoring and analytical requirements for determining compliance with the maximum contaminant levels for the State-regulated VOCs listed in N.J.A.C. 7:10-5.2(a)4 shall be those established under the National regulations at 40 CFR 141.24.

7:10-5.4 Reporting requirements

(a) (No change.)

(b) Within 180 days [of] **after** receipt of written notification from the Department, each supplier of water shall ensure that all compliance sampling reports **and the monthly report required under (e) below** are submitted to the Department electronically in a manner compatible with **the** Department's computer system [either by diskette or by direct electronic transmission. Public water systems serving fewer than 3,300 persons shall be exempt from the requirement to submit sampling reports electronically].

(c) – (e) (No change.)

(f) If a supplier of water installs a treatment device or process to bring the water into compliance with any applicable MCL, the supplier of water shall report the results of the monitoring required under N.J.A.C. 7:10-5.2(a)13 to the Department on a quarterly basis. (A noncommunity water system supplier of water shall also submit a copy of the results to the administrative authority.)

7:10-5.7 Remediation requirements and procedures

(a) Except as provided pursuant to (b) below, the supplier of water that analyzes and reports pursuant to this subchapter any violation of a [newly] promulgated MCL for any of the contaminants regulated pursuant to this subchapter shall, within one year [of] **after** receipt of the results of the tests conducted pursuant to the National Regulations and N.J.A.C. 7:10-5.2 that demonstrate such exceedance, take any action necessary to bring the water into compliance with the applicable MCL.

(b) - (d) (No change.)

(e) If a supplier of water installs a treatment device or process to bring the water into compliance with any applicable MCL, the supplier of water shall at all times maintain the treatment device or process in good working order and operate the treatment device or

process to ensure full compliance with the MCL. Failure to do so may result in penalties in accordance with N.J.A.C. 7:10-3.

SUBCHAPTER 6. **(RESERVED)**

SUBCHAPTER 9. SURFACE WATER TREATMENT REQUIREMENTS

7:10-9.5 Surface water treatment plant reporting requirements

(a) Each supplier of water that uses a surface water source shall submit the following documentation to the Department:

1. (No change.)

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. 7:10[-13]**A.**

3. (No change.)

SUBCHAPTER 10. PHYSICAL CONNECTIONS AND CROSS CONNECTION CONTROL BY CONTAINMENT

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

(a) (No change.)

(b) Permit renewal rules are as follows:

1. – 3. (No change.)

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. (No change.)

(c) - (d) (No change.)

SUBCHAPTER 11. STANDARDS FOR THE CONSTRUCTION OF PUBLIC COMMUNITY WATER SYSTEMS

7:10-11.4 Additional definitions and general provisions

(a) In addition to the words and terms defined at N.J.A.C. 7:10-1.3, the following terms are defined for the purposes of this subchapter:

1.-2. (No change.)

3. "Firm capacity" means adequate pumping equipment and/or treatment capacity (excluding coagulation, flocculation, and sedimentation) **to meet peak daily demand as defined at (a)7 below** when the largest pumping station or treatment unit is out of service.

4.-6. (No change.)

7. "Peak daily demand" means:

i. For existing water systems, the average daily demand as recorded in the peak month of the prior five years**,** plus **an estimation of the** anticipated **peak daily** water demand calculated in accordance with N.J.A.C. 7:10-[12.6(b)]**11.5(f)**.

ii. For proposed water systems, an estimation of the anticipated **peak daily** water demand in accordance with N.J.A.C. 7:10-[12.6(b)]**11.5(f)**.

8. – 11. (No change.)

(b) – (f) (No change.)

7:10-11.5 Permit **requirement;** application [requirements] **contents**

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(a) No person shall construct or modify a public community water system prior to obtaining a permit from the Department pursuant to this [section] **subchapter**.

1. All applications for a permit to construct or operate a new public community water system shall comply with the requirements **regarding technical capacity, and managerial and financial capacity,** set forth at N.J.A.C. 7:10-13.3 and 13.4.

(b) An application for a permit to construct [and/or] **or** modify a public community water system shall be submitted in accordance with this section and shall include [plans, specifications and an] **the information required under (e) through (i) below. The** engineer's report prepared pursuant to [(c)through (e)] **(d)** below **shall be signed** by a qualified New Jersey licensed professional engineer[. The] **and the** plans shall bear the engineer's seal as required by N.J.S.A. 45:8-45.

(c) A complete permit application shall include all of the following:

1. A completed Standard Application Form obtained from the Department as provided at (c)1ii below, which shall include the name and address of the applicant, the licensed professional engineer's description of the project with an estimate of the project cost, and signatures of the applicant and the licensed professional engineer. Machine copies are not acceptable.

i. (No change.)

ii. The Standard Application form, administrative and technical checklists, and instructions for completing the Standard Application form can be obtained from the Department at the Water Supply Administration, 401 East State Street, P.O. Box 426, Trenton, N.J. 08625-0426, or from the Department's web site at www.state.nj.us/dep/watersupply/permit.htm.

[(1)] **2.** A copy of a resolution issued by the municipality or municipal utilities authority which consents to the public community water system providing water service within a specified area or territory of concern (commonly known [the] as **the** "franchise area") pursuant to N.J.S.A. 48:2-14; [and]

[(2)] **3.** (No change in text.)

[2.] **4.** The plans, specifications**, firm capacity and water allocation analysis,** and engineer's report [specified] **described** at (d)[, (e) and (f)] **through (i)** below;

[3.] **5.** A copy of a Pinelands Certificate of Filing, Notice of Filing, Certificate of Completeness, Preliminary Zoning Permit, resolution of the Pinelands Commission approving the project or a letter from the Pinelands Commission indicating that the project is exempt from Pinelands Commission review; [and]

6. A map identifying the existing and proposed water system including sources, treatment, distribution and storage facilities, and the water service area. For the

purposes of this section, "water service area" means the geographical area within which a water system operates for the provision of water. The mapped water service area shall clearly delineate the boundary of the geographical area currently served by the existing water system, in addition to the area anticipated to be served upon completion of the proposed water system. Mapping shall be in the form of digital Geographic Information Systems (GIS) data, at a scale of 1:12,000. Digital mapping shall conform to the "New Jersey Department of Environmental Protection Mapping the Present to Protect New Jersey's Future: Mapping and Digital Data Standards," in N.J.A.C. 7:1D, Appendix A. Guidance related to the mapping and digital data standards is available at the Department's website at http://www.state.nj.us/dep/gis. The Department will provide its GIS theme coverages, associated metadata and digital data transfer standards, as established at N.J.A.C. 7:1D, Appendix A, at the request of the applicant; and

[4.] **7.** (No change in text.)

(d) The engineer's report shall [, when pertinent,] contain the following**, as applicable**:

1. A description of any existing water system as related to the proposed water system**, which shall include all sources, treatment, distribution and storage facilities, including any water main extension or service connection, expected to be in service upon completion of the proposed water system improvement(s)**;

2. Information on present and anticipated future population served by the public community water system together with present and anticipated water [requirements and the relationship of the proposed water system to these factors] **demand**. The design period should, in general, be 25 years unless a shorter design period can be justified;

3. Information on the source of water supply, as follows:

i. A listing of the water allocation permit(s) issued under N.J.A.C. 7:19 related to the subject application, including the permit number(s), monthly and annual diversion limits, and all approved bulk purchase agreements, as applicable;

[i.] **ii.** For a surface water source, the[dependable yield] **safe yield from surface sources as defined at N.J.A.C. 7:19-6.2**; characteristics of the quality of the water in relation to treatability; information from a sanitary survey on the major and minor pollutant sources; and existing or proposed measures to ensure adequate protection of the supply;

[ii.] **iii.** For a ground water source or a ground water source under the direct influence of a surface water, **the dependable yield of subsurface sources or the dependable yield of combined surface/groundwater sources, as applicable, as defined at N.J.A.C. 7:19-6.2;** a general description of proposed well construction; data on the geological strata expected to be penetrated and the effect that such strata may have on the quality of

the water; available information on the dependable yield and water quality; test well findings (if any); major and minor pollutant sources within a radial distance of 500 feet or the zone of capture of the well, whichever is greater, or, in the case of a creviced or fissured rock formation or unconfined aquifer, within a larger area as determined pursuant to N.J.A.C. 7:10-11.7; a general description of the construction features proposed to protect the well from major and minor pollutant sources; a copy of the proposed well formation log showing the types and thicknesses of formations penetrated by the well (if this log is not available at the time of application, it must be submitted to the Department when the well has been constructed); and a copy of the well pump test, pursuant to N.J.A.C. 7:10-11.7;

4. –11. (No change.)

(e) 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, P.O. 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, 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, as defined at N.J.A.C. 7:10-11.4(a)7i;

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(d);

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 average 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 1.5 and then by 31 to determine the estimated average monthly water demand;

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

4. To the estimated average monthly and average annual demand calculated in (g)2 and 3 above, add the anticipated 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 estimated average monthly and annual demand calculated under (g)4 above shall be 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.

[(e)] **(h)** The **application shall include** specifications [shall] **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.

[(f)] **(i)** The **engineering design** plans shall meet the following requirements:

1.-9. (No change.)

[(g)] **(j)** The Department shall make a [preliminary review of] **determination of administrative completeness for** each application as follows:

1. If the application does not contain all documents and information required pursuant to [(a) through (e) above] **this section**, the Department shall within 20 working days [of] **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 [(a) through (e) above] **this section** and is determined to **be** administratively complete, the Department, within 20 working days [of] **after** receipt of the application, shall so advise the applicant in writing.

[(h)] **(k)** The Department shall make a [technical review of] **determination of technical completeness for** each application within 60 working days after [it declares] **declaring** the application administratively complete as follows:

1. If the application does not contain sufficient technical information as required pursuant to [(c) through (e) above] **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.-ii. (No change.)

iii. Deny the application**.**

[(i)] **2.** [The]**Upon making a determination that an application is technically complete, the** Department will perform a detailed analysis [of the technically complete application] 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.

[(j)] **(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 [pursuant to the] **if the application meets all applicable** requirements of this chapter. [, or the Department shall deny the application in writing with an] **If the Department denies the application, the Department shall provide a written** explanation of the reasons for denial.

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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] **of one year**. 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 [suppliers of water in those municipalities that have approved utility development plans in conformance with municipal master plans and zoning ordinances.] **public community water supply 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(b), the Simplified Water Main Certification Form, available from the Bureau of Safe Drinking Water, P.O. 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. – iv. (No change.)

2. (No change.)

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.

[3.] **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) – (g) (No change.)

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. (No change.)

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. Hydropneumatic and pumping system combinations are not acceptable for the purposes of fire protection.**

3. – 7. (No change.)

(b) – (h) (No change.)

SUBCHAPTER 12. STANDARDS FOR THE CONSTRUCTION OF PUBLIC NONCOMMUNITY WATER SYSTEMS AND NONPUBLIC WATER SYSTEMS

7:10-12.6 Water volume requirements

(a) (No change).

(b) The total yield from all available water sources for a public noncommunity or nonpublic water system shall meet the following minimum requirements:

1. (No change).

2. For water systems that supply all persons other than residential consumers, the yield shall be at least three times the average daily demand as determined using Table 1 below.

TABLE 1

AVERAGE DAILY WATER DEMAND

Type of Establishment	Gallons per Person
1. – 4. (No change.)	
5. Boarding house [**]*****	75
a. For each nonresident boarder	15
6. Hotel [**]*****	50-75
7. – 8. (No change.)	
9. Restaurant ******	
a. Sanitary demand[, per patron]	5
b. Kitchen demand[, per patron]	5
c. Kitchen and sanitary demand	10
10. Camp[*] *******	
a. Barracks type	50
b. Cottage type	40
c. Day camp (no meals served)	15
11. (No change.)	
12. Boarding school[**]*****	100
13. – 17. (No change.)	
18. Club house[**]*****	
a. For each resident member	60
b. For each nonresident member	25
19. – 22. (No change.)	

[*When the establishment will serve more than one use, the multiple use shall be considered in determining water demand.]

[**] ***** Includes kitchen demand at 10 gallons per person per day. If laundry demand is anticipated, the estimated water demand shall be increased by 50 per cent.

**** Demand projections shall be calculated by multiplying the certified seating capacity of the establishment by the applicable water usage in gallons per person under 9a, b or c above, and by a factor of 1, 2, or 3 reflecting the hours of operation, as follows: one to six hours (1), seven to 12 hours (2), or more than 12 hours (3).**

***** When the establishment will serve more than one use, the multiple use shall be considered in determining water demand.**

7:10-12.30 Water quality analysis and treatment

(a) Upon completion of construction of a water system, the owner of a public noncommunity or nonpublic water system shall sample and analyze the microbiological quality of the raw water from the system and submit a copy of the results of the analysis to the administrative authority.

1. – 2. (No change.)

3. Microbiological quality shall be determined by analysis for total coliform. If the sample is total coliform positive, the total coliform positive culture medium must be analyzed to determine if fecal coliforms are present, except that E. coli may be tested for in lieu of fecal coliform. Analysis shall be conducted in accordance with N.J.A.C. 7:18.

(b) (No change.)

(c) The owner of a nonpublic water system shall sample and analyze the raw water from the system for [nitrates, iron, manganese, and pH] **the parameters listed at (e)1 through 9 below**. The administrative authority may require sampling and analysis for inorganic chemicals, volatile organic compounds and/or radionuclides as appropriate based on the region and the aquifer in which the water source is located.

1. Nitrates;

2. Iron;

3. Manganese;

4. pH;

5. Lead;

6. All volatile organic compounds with MCLs;

7. In addition to the parameters listed at (c)1 through 6 above, if the water system is located in Atlantic, Burlington, Camden, Cape May, Cumberland, Gloucester, Monmouth, Ocean, or Salem County, mercury;

8. In addition to the parameters listed at (c)1 through 6 above, if the water system is located in Bergen, Essex, Hudson, Hunterdon, Mercer, Middlesex, Morris, Passaic, Somerset, or Union County, arsenic; and

9. In addition to the parameters listed at (c)1 through 6 above, if the water system is located in Atlantic, Burlington, Camden, Cape May, Cumberland, Gloucester, Hunterdon, Mercer, Middlesex, Monmouth, Ocean or Salem County, gross alpha particle activity, determined using the 48-Hour Rapid Gross Alpha Test, in accordance with N.J.A.C. 7:18.

(d) – (i) (No change.)

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7:10-12.33 Chemical and physical treatment

(a) General requirements for chemical and physical treatment are as follows:

1. – 4. (No change.)

5. Point of entry treatment (POET) devices may be used to treat water in any public noncommunity or nonpublic water system. The Department recommends that such devices be certified to meet appropriate ANSI/NSF standards 42, 44, 53, 55, 58, and 62 as amended and supplemented, or the equivalent. POET devices shall also meet ANSI/NSF Standard 61 if used in public noncommunity water systems. In addition, POET devices shall meet the following requirements:

i. – ii. (No change.)

iii. The owner of the water system shall conduct an efficiency test of the device upon its installation. The administrative authority [shall] **may** require the owner of the public noncommunity water system to conduct periodic water quality testing [once every three months] **in addition to the quarterly monitoring required under N.J.A.C. 7:10-5.2(a) 13** if the POET device is installed to remove primary contaminants.

6. (No change.)

(b) – (f) (No change.)