**ENVIRONMENTAL PROTECTION**

**WATER RESOURCE MANAGEMENT**

**DIVISION OF WATER SUPPLY AND GEOSCIENCE**

# Private Well Testing Act Rules; Safe Drinking Water Act Rules; Regulations Governing the Certification of Laboratories and Environmental Measurements

# Maximum Contaminant Levels (MCLs) for Perfluorononanoic Acid and 1,2,3-Trichloropropane; Private Well Testing for Arsenic, Gross Alpha Particle Activity, and Certain Synthetic Organic Compounds

**Proposed Amendments: N.J.A.C. 7:9E-2.1; 7:10-5.2, 5.3, and 12.30; and 7:18-6.4**

Authorized By: Bob Martin, Commissioner, Department of Environmental Protection.

Authority: N.J.S.A. 13:1D-1 et seq., 58:11-9.1 et seq., 58:11-23 et seq., 58:11-64 et seq., 58:12A-1 et seq., and 58:12A-26 et seq.

Calendar Reference: See Summary below for explanation of exception to calendar requirement.

DEP Docket Number: 13-17-06.

Proposal Number: PRN 2017-140.

**A public hearing** concerning this proposal will be held on Tuesday, August 29, 2017, at 1:00 P.M. until the close of comments at:

NJ Department of Environmental Protection

Public Hearing Room

401 East State Street

Trenton, NJ 08625

Directions to the hearing room may be found at the Department's website, http://www.state.nj.us/dep/where.htm.

Written comments may also be submitted at the public hearing. It is requested (but not required) that anyone who testifies at the public hearing provide a copy of their comments to the stenographer at the hearing.

Submit comments by October 6, 2017, electronically at http://www.nj.gov/dep/rules/comments.

The Department of Environmental Protection (Department) encourages electronic submittal of comments. In the alternative, comments may be submitted on paper to:

Ryan H. Knapick, Esq.

Attn: DEP Docket Number: 13-17-06

Office of Legal Affairs

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This rule proposal may be viewed or downloaded from the Department's website at http://www.nj.gov/dep/rules.

The agency proposal follows:

## Summary

As the Department of Environmental Protection (Department) has provided a 60-day comment period on this notice of proposal, this notice is excepted from the rulemaking calendar requirement pursuant to N.J.A.C. 1:30-3.3(a)5.

The Department is proposing to amend the New Jersey Safe Drinking Water Act (SDWA) rules at N.J.A.C. 7:10 to establish, as recommended by the New Jersey Safe Drinking Water Quality Institute (Institute), a maximum contaminant level (MCL) for perfluorononanoic acid (PFNA) of 0.013 micrograms per liter (µg/l) and an MCL for 1,2,3-trichloropropane (1,2,3-TCP) of 0.030 µg/l. Monitoring requirements for these contaminants for public community and public nontransient noncommunity water systems are proposed. In addition, proposed amendments establish the information regarding these contaminants to be included in the consumer confidence report (CCR) that public community water systems issue each year regarding the quality of the water delivered to their customers. Currently, there are no Federal drinking water standards for these contaminants, which have been detected in drinking water

supplies in New Jersey and which, as explained further below, pose serious health threats to consumers.

The Department is also proposing to amend the SDWA rules to require public nontransient noncommunity water systems to begin monitoring for radionuclides in 2019, and to update the monitoring and analytical requirements applicable to public water systems for other contaminants.

Further, the Department is proposing to amend the Private Well Testing Act (PWTA) rules at N.J.A.C. 7:9E, and the SDWA rules, respectively, to require testing of private wells subject to sale or lease and of newly constructed wells for public noncommunity water systems and nonpublic water systems for 1,2,3-TCP, as well as ethylene dibromide (EDB) and 1,2 dibromo-3-chloropropane (DBCP). There are Federal MCLs, which are applicable in New Jersey, for the two latter synthetic organic compounds and, like 1,2,3-TCP, they are potent carcinogens. Other proposed amendments to the PWTA rules and the SDWA rules extend the required testing for gross alpha particle activity and arsenic Statewide, and establish a requirement to test for uranium in the northern counties of New Jersey.

Lastly, the Department is proposing to amend the Regulations Governing the Certification of Laboratories and Environmental Measurements at N.J.A.C. 7:18 to clarify the procedure to be used by the laboratories to test for gross alpha particle activity in drinking water samples.

**Proposed MCLs and monitoring requirements for PFNA and 1,2,3-TCP**

Role of New Jersey Drinking Water Quality Institute

The New Jersey Drinking Water Quality Institute (Institute) was established in 1983 pursuant to the New Jersey SDWA at N.J.S.A. 58:12A-20 as a 15-member advisory body whose role is to provide the Department with recommendations regarding the drinking water program, including the development of New Jersey specific standards. The standards are developed in conformance with the SDWA 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.

Three subcommittees were established within the Institute to assist in the development of MCLs. The Health Effects Subcommittee recommends health-based levels for the contaminants listed in the SDWA, and develops an additional list of drinking water contaminants based on occurrence in New Jersey drinking water. The Testing Subcommittee evaluates the limits of testing methodology in achieving the health-based levels established by the Health Effects Subcommittee. The Treatment Subcommittee evaluates best available treatment technologies for removal of the contaminants from drinking water to achieve the health based level while considering the limits of available testing methodologies.

MCL for PFNA

In 2014, the Department asked the Institute to investigate developing MCLs for several long-chain perfluorinated compounds (PFCs), including PFNA, in drinking water. PFNA has

been detected in higher concentrations in New Jersey drinking water than reported elsewhere, according to studies located through a literature search. PFNA is a man-made chemical historically used as a processing aid in the manufacturing of high-performance plastics that are resistant to harsh chemicals and high temperatures. PFNA is extremely persistent in the environment and highly soluble and highly mobile in water.

Sampling for PFNA in New Jersey public water systems was most recently undertaken as part of the requirements of the Unregulated Contaminant Monitoring Rule (UCMR), which is a component of the Federal Safe Drinking Water Act Regulations. Pursuant to the UCMR, every five years the United States Environmental Protection Agency (USEPA) issues a new list of up to 30 unregulated contaminants (meaning, no Federal MCL has been established for them) to be monitored by public water systems for purposes of collecting occurrence data. In 2012, USEPA issued the third list of unregulated contaminants, referred to as UCMR3 (77 FR 26072), which required sampling for PFNA at all public community water systems serving more than 10,000 people and certain public water systems serving 10,000 or fewer people (determined by the USEPA to be representative of small systems) during a particular 12-month period between January 2013 and December 2015.

Based on the UCMR3 data, seven detections of PFNA were reported by four of the 175 public water systems in New Jersey that sampled for the contaminant (see https://www.epa.gov/dwucmr/third-unregulated-contaminant-monitoring-rule). The systems are located in Camden and Gloucester counties. The PFNA levels ranged from 0.024 micrograms per liter (µg/l) to 0.056 µg/l. In addition, PFNA has been detected in eight other public community water systems based on data from a Department study conducted in 2009 and 2010

to gauge the occurrence of PFCs in the water sources of public water systems throughout New Jersey (see http://www.nj.gov/dep/watersupply/pdf/pfc-study.pdf) and the voluntary follow-up monitoring conducted by those water systems at which sampling for the study showed the presence of PFCs, as well as monitoring of raw water at public water systems in Gloucester and Salem counties as part of the remediation of PFNA-contaminated groundwater.

*Institute Recommendation for PFNA MCL*

In July 2015, after public comment and vote, the Institute recommended to the Department an MCL for PFNA of 13 nanograms/liter (ng/l), that is, 0.013 µg/l, which is the health-based MCL developed by the Health Effects Subcommittee. The Testing Subcommittee determined a practical quantitation level (PQL) for PFNA of five ng/l, that is, 0.005 µg/l, which is lower than the health-based MCL. The Treatment Subcommittee concluded that the availability of treatment to remove PFNA is not a limiting factor in achieving the health-based MCL. The Department has reviewed the Institute's recommendation and supporting data and reports and concurs with its recommendation. Consequently, based on the recommendation of the Institute, the Department is proposing an MCL for PFNA of 0.013 µg/l. The Institute recommendation and subcommittee reports, which are summarized below, are available at http://www.nj.gov/dep/watersupply/g_boards_dwqi.html.

*Health Effects Subcommittee*: The Health Effects Subcommittee conducted a literature search and solicited technical input from stakeholders and the public regarding the health effects of PFNA.

PFNA accumulates in the human body and exposure to low drinking water concentrations of PFNA (for example, 0.010 µg/l) increases concentrations in human blood serum that persist for many years after exposure ends. The toxicological effects of PFNA in mice include weight loss, toxicity to the liver, immune system, kidney, and testes; and effects on the developing fetus or offspring including early death, persistent decreased body weight, and delays in reaching developmental milestones. In human studies that evaluated associations of PFNA concentrations in blood serum with health endpoints, evidence of associations was strongest for increases in serum cholesterol and the liver enzyme alanine transaminase (ALT), an indicator of liver damage. PFNA is transferred to breast milk and infants drink more fluid (for example, breast milk or formula prepared with drinking water) on a body weight basis than older children and adults consuming the same contaminated drinking water source. These higher exposures are of concern because developmental effects from early life exposures to PFNA occur at lower exposures than other toxic effects of PFNA. The carcinogenic potential of PFNA has not been evaluated in humans or animals.

The health-based MCL is based on increased liver weight in pregnant mice exposed to PFNA for 16 days (Das, K.P., Grey, B.E., Rosen, M.B., Wood, C.R., Tatum-Gibbs, K.R., Zehr, R.D., Strynar, M.J., Lindstrom, A.B., Lau, C. (2015). Developmental toxicity of perfluorononanoic acid in mice. Reproductive Toxicology 51:133-144). Increased liver weight is a well-established effect of PFNA in experimental animals. The results of this study also showed developmental effects in offspring (persistent decreases in body weight, delays in reaching milestones, and death). This study was selected for the health-based MCL because, in addition to toxic effects, it provides PFNA serum data of the test animals, a more direct measure

of PFNA exposure than administered dose of PFNA.

Additional studies of PFNA show toxicity at similar or lower doses of PFNA, including liver damage and effects on metabolism, immune function, the male reproductive system, and serum lipid levels. Human epidemiology studies that found associations with health effects at levels of PFNA found in the blood serum of the general population provide support for the health-based MCL, but were not used as the basis for quantitative risk assessment because they were cross-sectional studies (one-time collection of data) and not longitudinal studies (data collected at multiple intervals over time).

Benchmark dose (BMD) modeling is an approach used in health risk assessment to estimate the dose below which a selected toxicological response is not expected to occur. BMD was performed on PFNA levels in blood serum that caused increased liver weight in pregnant mice in Das et al. (2015). The BMD serum PFNA level for a 10 percent increase in liver weight in mice was calculated, as well as a target human blood serum level. This target human blood serum level of 4.9 ng/ml is analogous to a reference dose, the estimated daily exposure not likely to cause harmful effects during a lifetime. Since the target human blood serum level is expressed as serum level rather than administered dose, a ratio of 200:1 was used to estimate the increase in PFNA in human blood serum from ongoing exposure to a given concentration of PFNA in drinking water.

To account for sources of exposure to PFNA other than drinking water, a chemical specific relative source contribution factor of 50 percent was developed based on the most recent 2011-2012 National Health and Nutrition Examination Survey data (see http://wwwn.cdc.gov/nchs/nhanes/search/nhanes11_12.aspx) for the PFNA serum level in the

U.S. general population.

Accordingly, the Health Effects Subcommittee recommended a health-based MCL of 0.013 µg/l.

*Testing Subcommittee*: The Testing Subcommittee identified acceptable methods for certified laboratories to analyze PFNA in drinking water samples and developed a practical quantitation level (PQL) for PFNA. The PQL is the minimum concentration to which the contaminant can be reliably quantified within acceptable limits of uncertainty.

In determining the availability of analytical methods with adequate sensitivity to reliably detect PFNA at the health-based MCL of 0.013 µg/l, the Testing Subcommittee reviewed the PFNA data submitted as part of the 2009-2010 study and follow-up monitoring described above. Because that data was analyzed by only three laboratories (two of which have subsequently merged), the Testing Subcommittee obtained information regarding method detection limits and reporting limits for PFNA from five other laboratories that performed PFC analyses pursuant to UCMR3.

A laboratory must perform an initial demonstration of capability, which includes showing that a reporting limit can be consistently met. A reporting limit is the minimum concentration that can be reported as a quantified value for an analyte. A reporting limit must be greater than the lowest calibration standard, which is the lowest concentration that is used to calibrate the instrument. The reporting limit includes a measure of precision (how well the method gives the same result when a sample is tested repeatedly) and accuracy (a measure of confidence that describes how close a measurement is to its true value). In general, a laboratory must also

statistically derive a method detection limit (MDL), that is, the minimum concentration that can be measured and reported with 99 percent confidence that the concentration is greater than zero. The MDL does not reliably quantify the exact concentration in a sample.

The Subcommittee evaluated four approaches for calculating the PQL, which are described in the Testing Subcommittee report. Two approaches used the MDL, which has historically been used by the Department to derive the PQLs for MCLs, and two approaches used the laboratory reporting limits. The derivation of the PQL using reporting limit data was preferable to using the MDL data because of the precision and accuracy associated with the reporting limit value. The Testing Subcommittee determined that the appropriate approach for determining the PQL was to use the mean of eight minimum reporting limits and recommended a PQL of five ng/l for PFNA.

*Treatment Subcommittee*: The Treatment Subcommittee researched treatment options for the long-chain PFCs, including PFNA, for which the Institute was investigating the development of MCLs, since the treatment options are expected to be the same because of the compounds' similar properties (for example, persistence in the environment, water solubility, similar structure, strong carbon-fluorine bonds, and high polarity). The Subcommittee reviewed the relevant literature as well as case studies of drinking water plants with full scale treatment for long-chain PFCs, including some New Jersey plants. Long-chain PFCs can be removed from water with varying success using a number of treatment options, which are described in detail in the Subcommittee report. The most common treatment for long-chain PFC removal both described in the literature and used at treatment plants is granular activated carbon (GAC).

The Treatment Subcommittee recommended that the use of GAC or an equally efficient technology, as identified in the Subcommittee report, should be considered for treatment of PFNA. The Subcommittee concluded that the ability of treatment options to remove these contaminants is not anticipated to be a limiting factor in the development of a recommended MCL for PFNA.

MCL for 1,2,3-TCP

In 2015, the Department asked the Institute to re-evaluate its 2009 recommendation of 0.03 µg/l for 1,2,3-TCP.

1,2,3-TCP is a man-made chlorinated hydrocarbon with high chemical stability. It has been found as a contaminant of nematocides and fumigants applied to soil, and also has been used as an industrial solvent and as a cleaning and degreasing agent. It is currently used as a chemical intermediate in the production of other chemicals (including polysulfone liquid polymers and dichloropropene), and in the synthesis of hexafluoropropylene. In addition, it is used as a crosslinking agent in the production of polysulfides (see https://www.epa.gov/sites/production/files/2014-03/documents/ffrrofactsheet_contaminant_tcp_january2014_final.pdf). It is classified as likely to be carcinogenic to humans by the USEPA. 1,2,3-TCP has been detected in public water systems, private wells, and in groundwater at contaminated sites in New Jersey.

The occurrence of 1,2,3-TCP in drinking water in New Jersey has been documented through the remediation of groundwater at contaminated sites as well as Department-conducted

testing for synthetic organic compounds in public water systems. Sampling for 1,2,3-TCP was conducted under UCMR3 in the same manner as PFNA sampling was conducted (see discussion of the UCMR3 in the summary regarding the MCL for PFNA above). Based on the UCMR3 data, four detections of 1,2,3 TCP were reported by two of the 174 public water systems in New Jersey that sampled for the contaminant (see https://www.epa.gov/dwucmr/third-unregulated-contaminant-monitoring-rule). The systems are located in Burlington County. The 1,2,3-TCP levels ranged from 0.03 µg/l to 0.051 µg/l.

*Institute Recommendation for 1,2,3-TCP MCL*

In October 2016, after public comment and vote, the Institute recommended to the Department an MCL for 1,2,3-TCP of 30 ng/l, that is, 0.030 µg/l, which is the PQL developed by the Testing Subcommittee. The Health Effects Subcommittee developed a health-based MCL 1,2,3-TCP of 0.5 ng/l, that is, 0.0005 µg/l. The Testing Subcommittee determined a practical quantitation level (PQL) for 1,2,3-TCP of 30 ng/l, that is, 0.030 µg/l, which, although higher than the health-based MCL, is the level to which the contaminant can be reliably measured at this time. The Treatment Subcommittee concluded that the availability of treatment to remove 1,2,3-TCP is not a limiting factor in achieving the recommended MCL. The Department has reviewed the Institute's recommendation and supporting data and reports and concurs with its recommendation. Consequently, based on the recommendation of the Institute, the Department is proposing an MCL1,2,3-TCP of 0.030 µg/l. The Institute recommendation and subcommittee reports, which are summarized below, are available at http://www.nj.gov/dep/watersupply/g_boards_dwqi.html.

*Health Effects Subcommittee*: The Health Effects Subcommittee conducted a literature search and solicited technical input from stakeholders and the public regarding the health effects of 1,2,3-TCP. According to the USEPA, 1,2,3-TCP is a potent carcinogen that causes tumors through a mutagenic and genotoxic mode of action (see https://cfpub.epa.gov/ncea/iris/iris_documents/documents/toxreviews/0200tr.pdf). The USEPA concluded that 1,2,3-TCP is likely to be carcinogenic to human and carcinogenic through a mutagenic mode of action.

As discussed in the 2009 Institute Health Effects Subcommittee report (see http://www.nj.gov/dep/watersupply/pdf/gp_healthappendix_final_6.15.09_correctTOC.pdf), information on health effects of 1,2,3-TCP comes from toxicology studies in laboratory animals. Non-carcinogenic effects of 1,2,3-TCP include toxicity to liver, kidney, heart, nasal tissue, lung, and other organs. In reproductive studies, it caused decreased fertility in females and decreased number of live offspring per litter. In chronic studies conducted by the National Toxicology Program in 1993 (see https://ntp.niehs.nih.gov/ntp/htdocs/lt_rpts/tr384.pdf), oral exposure to 1,2,3-TCP caused tumors in multiple organs in male and female mice and rats, including fatal tumors early in life. In this study, 1,2,3-TCP caused an increased incidence of tumors at all doses (greater than six mg/kg/day in mice, and three mg/kg/day rats). These tumors resulted in a shortened lifespan, necessitating early termination of the study in high-dose (60 mg/kg/day) mice and mid- and high-dose (10 and 30 mg/kg/day) rats. The National Toxicology Program studies concluded that there was clear evidence for carcinogenicity in male and female mice and rats. The Subcommittee found no information suggesting that the cancer potency factor (meaning,

estimate of the increased cancer risk from oral exposure to a dose of one mg/kg-day for a lifetime) of 26 $(mg/kg/day)^{-1}$ used for purposes of determining the health-based MCL recommended by the Institute in 2009) should be revised.

Comparison of studies in which exposures began during the perinatal (prenatal or early in life) period with studies in which exposure started in adulthood suggest susceptibility to mutagenic carcinogens is believed to be higher early in life than in adulthood. Accordingly, the USEPA risk assessment guidance (see https://www.epa.gov/sites/production/files/2013-09/documents/cancer_guidelines_final_3-25-05.pdf) recommends the application of age-dependent adjustment factors (ADAFs) for carcinogens that act by causing mutations, when the exposure period includes early life. The recommended ADAFs and their corresponding age groupings are 10-fold for less than two years of age, and three-fold for age two to less than 16 years. The ADAFs are combined with age specific drinking water consumption factors from the USEPA Exposure Factors Handbook (see https://www.epa.gov/sites/production/files/2015-09/documents/efh-frontmatter.pdf) when estimating cancer risks from early life (less than16 years of age) exposure.

Based on a cancer potency factor of 26 $(mg/kg/day)^{-1}$, incorporation of ADAFs and age-specific drinking water consumption rates, and one in one million ($10^{-6}$) lifetime cancer risk, the Subcommittee recommended a health-based MCL of 0.0005 µg/L.

*Testing Subcommittee*: The Testing Subcommittee identified acceptable methods for certified laboratories to analyze 1,2,3-TCP in drinking water samples and developed a practical quantitation level (PQL) for 1,2,3-TCP. In determining the availability of analytical methods

with adequate sensitivity to reliably detect 1,2,3-TCP as close as possible to the recommended health-based MCL of 0.0005 µg/l, the Testing Subcommittee reviewed the MDLs and reporting limits from 15 laboratories certified by New Jersey for the EPA Method 504.1 and six laboratories that used the USEPA-approved methods for 1,2,3-TCP analysis pursuant to UCMR3.

The Subcommittee evaluated five approaches for calculating the PQL, which are described in the Testing Subcommittee report. Two approaches used the MDL, which has historically been used by the Department to derive PQLs for MCLs, and three approaches used the laboratory reporting limits. The derivation of the PQL using reporting limit data was preferable to using the MDL data because of the precision and accuracy associated with the reporting limit value.

The Testing Subcommittee determined that the appropriate approach for determining the PQL was to use the bootstrap analysis of minimum reporting limits and recommended a PQL of 30 ng/l for 1,2,3-TCP. Bootstrap analysis is a technique that has been used by the USEPA to derive a single national method reporting limit for 1,2,3-TCP under the UCMR3 based on four laboratory-specific reporting limits. The technique uses the samples at hand to generate additional statistically derived sample results that provide a normal distribution (also known as a bell curve) of the sample data, in this case reporting limits. The Testing Committee's bootstrap analysis of the reporting limits it reviewed indicated that 19 of the 21 New Jersey-certified laboratories can meet the PQL 95 percent of the time using one of the methods reviewed.

*Treatment Subcommittee*: The Subcommittee found that, while methods for 1,2,3-TCP removal other than granular activated carbon (GAC) are being researched (see https://www.epa.gov/sites/production/files/2014-03/documents/ffrrofactsheet_contaminant_tcp_january2014_final.pdf), GAC is the most commonly used treatment process for the removal of 1,2,3-TCP. The Treatment Subcommittee reviewed the relevant literature, and identified full-scale GAC installations to assess the ability to remove 1,2,3-TCP to levels below the recommended MCL of 0.030 µg/l. Full-scale installations were identified in California, Hawaii, and New York. The Subcommittee communicated with a member of the California-Nevada section of the American Water Works Association about 10 treatment plants in California and Hawaii employing GAC to successfully remove 1,2,3-TCP, and subsequently confirmed with representatives of two of those plants that GAC was removed to concentrations less than the proposed MCL. After a pilot study, a plant in New York instituted full-scale GAC treatment for contaminants including 1,2,3-TCP. In New Jersey, the Subcommittee identified two existing drinking water plants for which full-scale GAC treatment is in the design phase. For one of these, bench-scale studies indicate the ability to achieve a 1,2,3-TCP concentration of less than the recommended MCL.

The Subcommittee concluded that it has been demonstrated that 1,2,3-TCP can be reliably and feasibly removed to a concentration below the recommended MCL of 0.030 µg/l by the use of carefully designed GAC treatment. The Subcommittee concluded that the ability of treatment options to remove 1,2,3-TCP was not a limiting factor in determining a recommended MCL.

Monitoring framework for PFNA and 1,2,3-TCP (N.J.A.C. 7:10-5.2(a)5 and 6)

The Department is proposing monitoring for PFNA that follows the schedule set forth in the Federal rule at 40 CFR 141.24(f) for VOCs and monitoring for 1,2,3-TCP that follows the schedule set forth for SOCs (pesticides and polychlorinated biphenyls (PCBs)) at 40 CFR 141.24(h). Consistent with Federal monitoring requirements for all other organic contaminants, the monitoring requirements for PFNA and 1,2,3-TCP will apply to both public community and public nontransient noncommunity water systems.

In 1991, the USEPA established the monitoring frameworks for organic contaminants (56 Fed. Reg. 3526). In the 1989 proposed rule (54 Fed. Reg. 22,062), the USEPA explained the basis for the monitoring frameworks. Organic contaminants were divided into two groups, 10 volatile organic chemicals and 18 PCBs, for three reasons. First, the sources and mechanisms of contamination of drinking water are different for volatiles as opposed to pesticides and PCBs. VOCs are most likely to occur in areas with considerable industrial activity, while pesticides are most likely to occur in areas with considerable agricultural activity. Second, the occurrence data indicated that VOCs are more widespread throughout the United States than are pesticides. Therefore, the framework for pesticides incorporates more flexibility in frequency of monitoring that reflects the vulnerability of water sources to contamination based on knowledge of pesticide use and crop type and location. Third, the same analytical methods are used to monitor all 10 of the VOCs, while various methods are needed to monitor the various pesticides and PCBs.

The Department has determined that the VOC monitoring framework is appropriate for PFNA because it is more likely to be found in source water in areas of industrial activity. In contrast, the Department has determined that the SOC monitoring framework is appropriate for

1,2,3-TCP because, as a contaminant of pesticides, it is more likely to be found in areas of agricultural activity.

The Federal SOC monitoring framework establishes a threshold for each SOC below which a water system may request that it conduct monitoring at a frequency less than quarterly. If a system is already monitoring at a reduced frequency and it detects the particular SOC at or above the threshold, the system is required to increase monitoring to quarterly. Because the Federal rules do not establish an MCL for 1,2,3-TCP, the monitoring framework does not include a threshold for quarterly monitoring for 1,2,3-TCP. The Department is proposing that the threshold for quarterly monitoring for 1,2,3-TCP be established at 0.010 µg/l, the concentration that is the median of the method detection limits for 18 of the 21 laboratories whose performance data were analyzed by the Institute for the determination of the PQL for 1,2,3-TCP.

Any laboratory whose MDL for 1,2,3-TCP is above this threshold concentration will need to demonstrate that it can achieve this threshold value through an MDL study before the Department will accept sample results from this laboratory for purposes of this rule.

The Federal VOC monitoring framework establishes a threshold of 0.0005 mg/l (which is equivalent to 0.5 µg/l) for all VOCs at or below which a water system may request that it conduct monitoring at a frequency less than quarterly. If a system is already monitoring at a reduced frequency and it detects a VOC above the threshold, the system is required to increase monitoring to quarterly. The Federal rules do not establish an MCL for PFNA, and the VOC quarterly monitoring threshold for VOCs in the Federal rule is too high because it is above the Department's proposed MCL for PFNA, which is 0.013 µg/l. Therefore, the Department is

proposing that the threshold for quarterly monitoring for PFNA be established at 0.002 µg/l, the concentration that is median of the lowest calibration standard for the nine laboratories whose performance data were analyzed by the Institute for the determination of the PQL for PFNA.

The Department is proposing to phase in the monitoring for 1,2,3-TCP and PFNA. All public community water systems using a groundwater source(s) serving a population 10,000 or less and public nontransient noncommunity water systems will begin monitoring within the first quarter of 2019. All public community water systems using a surface water source(s) and all public community water systems serving a population greater than 10,000 will begin monitoring within the first quarter of 2020. The Department is proposing to begin implementation of monitoring in 2020 for the public community water systems serving a population greater than 10,000 because the Department has recent 1,2,3-TCP and PFNA testing information for these systems collected pursuant to UCMR3. Since the smaller systems were not conducting testing pursuant to UCMR3, the Department is proposing to begin implementation of monitoring for these systems sooner, in 2019. This phasing in of monitoring also will allow laboratories time to purchase equipment, train staff, and obtain certification in New Jersey, as necessary.

Consumer Confidence Report requirements (N.J.A.C. 7:10-5.2(b))

The Federal rules require public community water systems to deliver to their customers a Consumer Confidence Report (CCR) each year, providing information on the quality of the water delivered by the system. The CCR summarizes information regarding sources used for drinking water, any detected contaminants, and any violations of the safe drinking water rules,

including MCLs, as well as health effects information. Because the Federal rules do not establish MCLs for 1,2,3-TCP and PFNA, the Federal CCR rule does not specify the health effects language that must be included in the CCR if there is a detection of either compound. Therefore, the Department is proposing amendments at N.J.A.C. 7:10-5.2(b)4 to update the number of State-regulated contaminants for which there is no Federal MCL and for which the Department provides the health effects information for systems to include in the CCR. The proposed amendments include specific health effects language for PFNA and 1,2,3-TCP, and in addition, express New Jersey MCLs in the units (µg/l) and conform the units for the MCL in the CCR to the requirement of the Federal rule that the MCL be expressed as a whole number.

**Updates of monitoring and analytical requirements; radionuclide monitoring by public nontransient noncommunity water systems (N.J.A.C. 7:10-5.2(a)3, 4, 7, 10, and 12, and 5.3(a), (d), and (e))**

Updates of monitoring and analytical requirements (N.J.A.C. 7:10-5.2(a)3, 4, 7, 10, and 12, and 5.3(a), (d), and (e))

The Department is proposing to amend N.J.A.C. 7:10-5.2(a)3 to clearly state that the MCLs for inorganic chemicals are those established under the National Regulations, and that the monitoring requirements are those established under the National Regulations and N.J.A.C. 7:10-5.2(a)7, which sets a monitoring schedule for contaminants by water system type. The Department is proposing similar amendments at N.J.A.C. 7:10-5.2(a)4 with respect to VOCs. In Table 1 at N.J.A.C. 7:10-5.2(a)4, the Department identifies New Jersey-specific MCLs for 17

VOCs. For five of these, there is no Federal MCL, but there is a New Jersey MCL. For 12 of these, there are Federal MCLs, but the New Jersey-specific MCLs apply. The proposed amendments clarify that for all of the VOCs in Table 1, the monitoring requirements are those established under the National Regulations. The redundant requirement at N.J.A.C. 7:10-5.3(e), which states that the monitoring requirements for VOCs are those established under the National regulations, is proposed for deletion.

The Department is proposing amendments at N.J.A.C. 7:10-5.2(a)7 to update and clarify the monitoring schedules for systems that are monitoring at a frequency less than annually. The reference to the applicable Federal rules is updated, reference to the perfluorinated compound PFNA is added, and reference to radionuclides is deleted, since monitoring for radionuclides follows a different framework under the National Regulations.

The Department is proposing to delete N.J.A.C. 7:10-5.2(a)10i, which references an obsolete provision of the Federal rules governing the sampling locations for radionuclides.

N.J.A.C. 7:10-5.2(a)12 is proposed for amendment to provide that suppliers of water from a bulk purchase system are subject to the disinfectant by-product monitoring requirements set forth in N.J.A.C. 7:10-5.2, namely, 5.2(a)8, which states that the MCLs and monitoring requirements for disinfection by-products are those established under the National Regulations. The Department is proposing to delete N.J.A.C. 7:10-5.2(a)12i because it refers to an obsolete provision of the Federal rules regarding disinfection by-product monitoring.

The Department is proposing to delete reference to monitoring at N.J.A.C. 7:10-5.3(a) since N.J.A.C. 7:10-5.3 governs analytical requirements. Monitoring requirements are addressed at N.J.A.C. 7:10-5.2. At N.J.A.C. 7:10-5.3(d), the Department is proposing to clarify that the

requirements for submitting sample analyses apply to all public water systems that are monitoring in accordance with N.J.A.C. 7:10-5.2. The Department is also proposing to delete the requirement that the submittal of a sample analysis must include a description of the quality control procedures, since quality control measures are an inherent part of each method for which a laboratory is certified pursuant to the Regulations Governing the Certification of Laboratories and Environmental Measurements (N.J.A.C. 7:18).

Radionuclide monitoring by public nontransient noncommunity water systems (N.J.A.C. 7:10-5.2(a)10

At N.J.A.C. 7:10-5.2(a)10, the Department is proposing to require public nontransient noncommunity water systems to, beginning in the first quarter of 2019, comply with the Federal MCLs for radionuclides (gross alpha, uranium, and radium) and with the monitoring requirements for radionuclides established under the National Regulations, which already apply to public community water systems. When adopting its final rule regarding radionuclides in 2000, 65 FR 76708, the USEPA specifically noted that states could at any time choose to regulate nontransient noncommunity water systems for radionuclides.

Radionuclides are classified as Class A (human) carcinogens by the USEPA (see https://www.epa.gov/sites/production/files/2015-09/documents/dwstandards2012.pdf). Epidemiological studies include data from employees exposed to radium, which was used to paint watch components (Cothern, C.R. and Rebers, P.A., eds. 1990. Radon, Radium and Uranium in Drinking Water, Lewis Publishers Inc., MI) and patients injected with radium for the treatment of ankylosing spondylitis (Mays, C.W. and Rowland, R.E. 1985. Cancer Risk from the

Lifetime Intake of Ra and U Isotopes. Health Physics. Vol. 48: No.5: 635-647). Documented health effects include bone sarcomas and head carcinomas.

The Department and the U.S. Geological Survey collaborated to determine the relative contributions of naturally occurring radionuclides (uranium and radium isotopes) to overall gross alpha particle activity in groundwater by sampling public and private drinking water wells in the Highlands and Piedmont physiographic provinces of the State between 2007 and 2011 (see http://www.nj.gov/dep/dsr/research/UNNJ-final-report.pdf). The Highlands and Piedmont physiographic provinces are two of the four physiographic provinces that are delineated based on geology and are located in the northern half of New Jersey. They include part or all of Sussex, Passaic, Bergen, Warren, Morris, Essex, Hudson, Hunterdon, Somerset, Union, Middlesex, and Mercer counties (see http://www.state.nj.us/dep/njgs/enviroed/infocirc/provinces.pdf). The results showed that in the Highlands physiographic province, 35 percent of the wells sampled exceeded the MCL for gross alpha, which is 15 pCi/l, and 20 percent of the wells sampled exceeded the MCL for uranium, which is 30 µg/l. In the Piedmont physiographic province, the results showed that 33 percent of wells sampled exceeded the gross alpha MCL and 7.5 percent exceeded the MCL for uranium. The highest gross alpha result observed in this study was 232 pCi/l.

In a 2016 New Jersey Department of Health study (unpublished), conducted with the Department and funded from a cooperative agreement with the Centers for Disease Control and Prevention, 30 percent of the private wells sampled in Sussex County had gross alpha concentrations exceeding the MCL, with the highest concentration of gross alpha being 2,210 pCi/l. Further, 14 public water systems in northern New Jersey have reported, as part of their

required monitoring, exceedances of the gross alpha MCL, with the highest concentration of gross alpha observed being 330 pCi/l.

Information reported under the PWTA from September 2002 to April 2014, also showed that 10 percent of the wells tested exceeded the MCL for gross alpha (see http://njdep.maps.arcgis.com/apps/MapSeries/index.html?appid=826ec9fae77543caa582a787d5f088e7). The PWTA rules require gross alpha sampling in 12 counties (Hunterdon, Mercer, Middlesex, Monmouth, Burlington, Ocean, Camden, Gloucester, Salem, Cumberland, Cape May, and Atlantic). Wells in Camden County, Cumberland County, and Salem County have higher rates of exceedance of the MCL, of 34 percent, 28 percent, and 15 percent, respectively (see http://njdep.maps.arcgis.com/apps/MapSeries/index.html?appid=826ec9fae77543caa582a787d5f088e7).

As noted, the National Regulations require only public community water systems to monitor for radionuclides. Consequently, in New Jersey, public nontransient noncommunity water systems are currently not required to monitor for radionuclides under the SDWA rules at N.J.A.C. 7:10. However, pursuant to the rules of the Department of Children and Families at N.J.A.C. 3A:52-5.3, every licensed childcare facility in New Jersey must certify that it has a potable water supply provided by a public community water system, or if the water is not provided by a public community water system, the facility must provide potable water sampling results demonstrating compliance with the MCLs in the Department's SDWA rules at N.J.A.C. 7:10-5, including radionuclides. The latter group of childcare facilities are served by their own wells and 106 of them are public nontransient noncommunity systems.

In addition, under the SDWA rules, one-time sampling for radionuclides is required after construction of a new well for public nontransient noncommunity systems, and for nonpublic water systems in certain areas of the State. As described below, the Department is proposing to amend N.J.A.C. 7:10-12.30 to require radionuclide sampling of new wells for nonpublic water systems Statewide.

Pursuant to the PWTA rules, private wells and nonpublic water system wells are tested for radionuclides at the time of sale and periodically at rental properties in southern counties. As described below, the Department is proposing to require testing for radionuclides Statewide pursuant to the PWTA rules.

The Department has concluded, based on the studies described above, that it is likely that radionuclides are found in groundwater in all counties in New Jersey. Accordingly, the Department has determined, in accordance with its authority under the SDWA, N.J.S.A. 58:12A-1 et seq., it is important to the protection of public health to extend radionuclide monitoring to public nontransient noncommunity water systems, which serve at least 25 of the same persons over six months per year (and, thus, could expose those who consume the water to these contaminants over long periods) and the majority of which are schools and office parks.

Testing of newly constructed wells for public noncommunity water systems and nonpublic water systems, N.J.A.C. 7:10-12.30

N.J.A.C. 7:10-12.30 sets forth construction standards for public noncommunity water systems and nonpublic water systems, and one-time testing requirements for newly constructed

systems to ensure that the owners are aware of the quality of the untreated drinking water in the new source prior to use.

By definition, nonpublic water systems include systems providing potable water to individual dwellings, N.J.A.C. 7:10-1.3, which in most cases are private wells. Therefore, the water quality testing requirements at N.J.A.C. 7:10-12.30(c) for nonpublic water systems are the same as those applicable under the PWTA rules, N.J.A.C. 7:9E, for private wells subject to sale or lease. As described in more detail below with respect to the proposed amendments to the PWTA rules, the Department is proposing corresponding amendments at N.J.A.C. 7:10-12.30 to ensure the testing requirements in the two sets of rules are aligned.

The Department is proposing to amend N.J.A.C. 7:10-12.30(b), which requires the testing of public noncommunity water systems for inorganics, VOCs, and radionuclides upon completion of construction, to include testing for the SOCs, 1,2,3-TCP, ethylene dibromide (EDB), and 1,2-dibromo-3-chloropropane (DBCP). With these amendments, newly constructed public noncommunity water systems will be tested for the same contaminants as newly constructed nonpublic water systems and private wells subject to sale or lease.

**Testing of private wells subject to sale or lease and of newly constructed wells for public noncommunity water systems and nonpublic water systems**

Testing of private wells subject to sale or lease, N.J.A.C. 7:9E-2.1

The Private Well Testing Act (PWTA), N.J.S.A. 58:12A-26 et seq., requires the testing of individual private wells as a condition of sale or lease of properties served by private potable

wells to ensure that prospective purchasers and lessees are made aware of the quality of the drinking water source. The Act authorizes the Department to exclude or limit testing by geographic area and to develop a list of additional parameters that the Department deems significant in each county or in any specific area within a county that shall be tested for as part of any water test to be conducted in accordance with the Act.

The Department is proposing amendments to the PWTA rules at N.J.A.C. 7:9E-2.1 to require testing for 1,2,3-TCP, ethylene dibromide (EDB), and 1,2-dibromo-3-chloropropane (DBCP) Statewide starting 180 days after the amended rules are effective (to allow laboratories time to purchase equipment, train staff, and obtain certification in New Jersey, as necessary); expand testing for arsenic from the current list of 12 primarily northern counties to Statewide; expand gross alpha particle activity testing from the current list of 12 primarily southern counties to Statewide; and require uranium testing in 12 primarily northern counties (Bergen, Essex, Hudson, Hunterdon, Mercer, Middlesex, Morris, Passaic, Somerset, Sussex, Union, and Warren).

As mentioned above in the discussion of the proposed MCL for 1,2,3-TCP, the occurrence of 1,2,3-TCP in drinking water in New Jersey has been documented through the remediation of groundwater at contaminated sites, including testing conducted to verify claims for reimbursement from the Spill Fund in accordance with the New Jersey Spill Compensation and Control Act, N.J.S.A. 58:10-23.11 et seq., for the cleanup and removal costs incurred in remediating 1,2,3-TCP contamination. If treatment for the contaminant is installed, the water is required to be sampled to ensure the treatment is effective in removing the contamination. Based on the Spill Fund claims data, between 2001 through 2015, 1,2,3-TCP was detected at a concentration at or above the proposed MCL for 1,2,3-TCP of 0.03 µg/l in 641 samples from 131

out of 136 private wells located in Atlantic, Burlington, Camden, Cumberland, Gloucester, Ocean, Salem, and Somerset counties.

All public community and public nontransient noncommunity water systems will be required to monitor for 1,2,3-TCP and ensure the water provided to consumers meets the MCL. Since, as found by the Institute, 1,2,3-TCP is a potent carcinogen, the Department is proposing to require testing for 1,2,3-TCP under the PWTA rules Statewide.

The analytical method commonly used to test for 1,2,3-TCP also detects EDB and DBCP, two SOCs for which there are Federal MCLs (applicable in New Jersey) of 0.05 µg/l and 0.2 µg/l, respectively. Similar to 1,2,3-TCP, both contaminants are potent carcinogens (see https://www.epa.gov/sites/production/files/2015-09/documents/dwstandards2012.pdf). Therefore, the Department is also proposing to require testing for EDB and DBCP under the PWTA rules Statewide.

The health effects of ingesting elevated levels of arsenic in drinking water include increased risk of cancer, gastrointestinal problems, and increased risk of diabetes (see http://www.state.nj.us/dep/dsr/arsenic/guide.htm#3). Currently, arsenic testing under the PWTA rules is required in Bergen, Essex, Hudson, Hunterdon, Mercer, Middlesex, Morris, Passaic, Somerset, Sussex, Union, and Warren counties because all or some portion of these counties are located in the Piedmont and Highlands physiographic provinces of the State, where arsenic was initially identified as a concern in groundwater. A review of sampling results submitted under the PWTA rules for the portion of Mercer and Middlesex counties located in the Coastal Plain physiographic province identified areas where up to 10 percent of the wells exceeded the arsenic MCL of 5 µg/l. Arsenic has also been found in stream, sediment, shallow groundwater, and at

waste sites throughout the Coastal Plain physiographic province (see https://pubs.usgs.gov/sir/2013/5107/pdf/sir2013-5107.pdf). Therefore, the Department is proposing to require testing for arsenic under the PWTA rules Statewide.

Currently, testing for gross alpha particle activity under the PWTA rules is required in Atlantic, Burlington, Camden, Cape May, Cumberland, Gloucester, Hunterdon, Mercer, Middlesex, Monmouth, Ocean, and Salem counties. However, as discussed above with respect to radionuclide monitoring by public nontransient noncommunity water systems, the Department has concluded that it is likely that radionuclides are found in groundwater in all counties in New Jersey. Therefore, the Department is proposing to require testing for gross alpha particle activity under the PWTA rules Statewide.

While the Department has determined that gross alpha particle activity is a concern throughout the State, the corresponding contributions of naturally occurring radionuclides (uranium and radium isotopes) to overall gross alpha particle activity varies across the State. In the southern portion of the State, gross alpha particle activity is attributed solely to radium. In the northern portion of the State, gross alpha particle activity is attributed to both uranium and radium. This variation is important because the water treatment for high gross alpha particle activity due to uranium (anion exchange) is different from the treatment for high gross alpha particle activity due to radium (cation exchange). Therefore, the Department is proposing to require testing for uranium under the PWTA rules in Bergen, Essex, Hudson, Hunterdon, Mercer, Middlesex, Morris, Passaic, Somerset, Sussex, Union, and Warren counties to establish if the gross alpha particle activity is attributable to uranium or radium. The gross alpha particle activity is attributable to radium if the contribution from uranium is minimal to none, in which

case any treatment installed would need to address radium.

**Procedure for testing for gross alpha particle activity in drinking water samples, N.J.A.C. 7:18-6.4**

The Department is proposing to amend the Regulations Governing the Certification of Laboratories and Environmental Measurements at N.J.A.C. 7:18-6.4 to clarify the procedure, including timeframes, required to test for gross alpha particle activity.

## Social Impact

The Department anticipates that the proposed amendments will have an overall positive social impact.

The proposed amendments in the Safe Drinking Water Act rules at N.J.A.C. 7:10 establish a maximum contaminant level (MCL) for perfluorononanoic acid (PFNA) of 0.013 µg/l and an MCL for 1,2,3-trichloropropane (1,2,3-TCP) of 0.030 µg/l. The Department's policy of setting standards designed to protect public health will result in a positive social impact not only to the public but also to the water supply industry, which strives to provide the best quality of water possible to customers. The proposed requirements set forth monitoring requirements to ensure public community water systems and public nontransient noncommunity water systems

consistently monitor the water to ensure compliance with the MCLs. This will reduce human exposure to these contaminants in drinking water and have a positive social impact by protecting consumers from the associated health effects of PFNA and 1,2,3-TCP. Further, the proposed amendments establishing the information regarding these contaminants to be included in the consumer confidence reports (CCR) will ensure that customers of public community water systems are informed on the quality of their water.

The proposed amendments also require all wells subject to the Private Well Testing Act rules at N.J.A.C. 7:9E, which are sampled as part of a real estate transaction, and all wells sampled in order to comply with the lessor requirements of the PWTA to be analyzed for 1,2,3-TCP, ethylene dibromide (EDB) and 1,2-dibromo-3-chloropropane (DBCP). All three organic contaminants are potent carcinogens that are mutagenic and genotoxic. In addition, amendments to the PWTA are proposed to require gross alpha and arsenic testing Statewide and to require new testing for uranium in northern New Jersey. These contaminants, which have established MCLs, are also associated with serious health effects.

The proposed testing requirements described above will have a positive social impact by ensuring that all buyers and sellers of real property are provided with information regarding the quality of onsite potable well water in order to protect themselves from exposure to these contaminants, if detected. Similarly, landlords of property where the source of potable water is a well subject to the PWTA will also be required to test for these contaminants and to advise tenants accordingly. As described in the Summary above, the proposed amendments requiring uranium testing in northern New Jersey will also provide buyers with essential information regarding the appropriate treatment specific to the type radionuclide contamination in the source

water, if detected.

The proposed amendments to the PWTA will also have a positive social impact resulting from the collection of more data on the quality of water Statewide. The Department will utilize the data to ascertain groundwater quality throughout the State and to provide this information to counties, municipalities, or other government entities. This will assist the Department and local health authorities in identifying areas of health concerns and directing resources to reduce or eliminate human exposure to drinking water contaminants in those areas.

The additional sampling requirements proposed for all new public nontransient noncommunity and new nonpublic water systems will have a positive social impact because elevated results will require removal of contaminants, thereby reducing exposure to those being served by these systems.

Finally, the proposed amendments to the SDWA rules requiring monitoring and treatment for radiological contaminants at all public nontransient noncommunity water systems, such as schools and office parks, will ensure that consumers who are at risk for long-term exposure are protected.

## Economic Impact

Costs incurred to comply with the Safe Drinking Water Act (SDWA) rules have become standard business expenses for public water systems. The costs incurred as a result of the proposed amendments will be ultimately passed on to consumers, and are necessitated by the statutory mandate at N.J.S.A. 58:12A-2 to ensure the provision of safe drinking water and to

protect public health.

The proposed maximum contaminant level (MCLs) for perfluorononanoic acid (PFNA) and 1,2,3-trichloropropane (1,2,3-TCP) are expected to have an economic impact because currently there are no Federal or State drinking water quality standards or routine monitoring requirements for these contaminants. The costs to public community and public nontransient noncommunity water systems as a result of the proposed amendments fall into two categories: monitoring expenses, which the water systems will incur in order to routinely test the quality of the drinking water for PFNA and 1,2,3-TCP; and expenses related to the installation and maintenance of adequate treatment to meet the new MCLs.

As of 2016, the cost for PFNA analysis is approximately $400.00 per sample, and for 1,2,3-TCP, approximately $100.00 per sample. The Department expects the cost for sample analysis to diminish with time after an MCL is adopted, as more laboratories are certified by the Department for analysis of these contaminants and as market competition increases.

As a result of this rulemaking, approximately 582 public community water systems and 738 public nontransient noncommunity water systems will be required to monitor for PFNA and 1,2,3-TCP. Under the SDWA rules, monitoring is required to be conducted at the point of entry to the distribution system. Monitoring includes initial monitoring, which is the minimum monitoring required for all public community and public nontransient noncommunity water systems, regardless of whether there is a detection, and monitoring associated with installed treatment. Water systems with sample results that comply with the proposed MCLs are permitted to reduce monitoring frequency to as low as once every three years, thereby reducing monitoring costs. The number of points of entry is dependent on the size and nature of the water

system. A small water system may have one point of entry, while a large water system could have 25 or more points. As of 2017, there are approximately 1,200 active entry points for public community water systems and 755 active entry points for public nontransient noncommunity water systems. Based on the costs associated with sampling discussed above, the Department estimates that a public water system will spend approximately $2,000 in the first year for quarterly sampling for the new MCLs at each point of entry. The Department further estimates that a public water system that monitors at a reduced monitoring frequency will spend as little as $500.00 every three years.

Based on the results of Federally required sampling conducted between 2013 and 2015, approximately one percent, or two of 174 public community water systems and public nontransient noncommunity systems sampled had detections of 1,2,3-TCP above the recommended MCL. If this rate of contamination is consistent throughout the State, the Department estimates that 15 systems (1.15 percent of 1320 public community and nontransient noncommunity systems) may have detections of 1,2,3-TCP over the recommended MCL. Occurrence of PFNA in New Jersey is localized near responsible parties. The Department does not anticipate that more than the 11 systems already identified with levels above the recommended MCL will be required to treat for PFNA.

For public community or public nontransient noncommunity water systems with detections above an MCL, either a change in water source or treatment is required. The cost of treatment (construction, operation, and maintenance) varies based on the type of treatment selected, site conditions, initial concentration of the contaminant, the presence of other contaminants and organic materials in the raw water, the need for pre-treatment, and the size of

the water system. A water system is required to conduct quarterly compliance monitoring at the point of entry where treatment is installed and, as a condition of a treatment permit, to conduct sampling to ensure that the treatment is removing the target contaminant.

Granular activated carbon (GAC) was identified by the Drinking Water Quality Institute (Institute) in its 2015 report as the best available technology for the removal of PFNA and 1,2,3-TCP. According to the Institute's report, the estimated cost of installing a GAC treatment system ranged between $500,000 and $1 million for large systems that process one million gallons per day. Costs associated with the operation and maintenance of a GAC system, which include periodic regeneration or replacement of the carbon, vary depending on such factors as the background quality of the source water, the size of the installation and the concentration of the target contaminant in the source water.

Under the proposed amendments, public nontransient noncommunity water systems will be required to monitor for radionuclides. As of 2016, laboratory analysis of radionuclides costs $100.00 per sample. These systems will be required to test quarterly, which will result in an estimated cost of $400.00 in the initial year. Depending on a system's testing results, monitoring frequency can be reduced to as little as once every nine years. Quarterly monitoring is required for systems that install treatment while treatment remains active. This monitoring frequency cannot be reduced. The Department estimates that the construction of a permitted radiological treatment for a public nontransient noncommunity system costs $20,000. There are additional costs for routine maintenance and monitoring operations. Public nontransient noncommunity systems will also require a New Jersey Pollutant Discharge Elimination System (NJPDES) permit, which costs $450.00 annually, and a radiation license, which costs $205.00 to $501.00

annually.

For private well owners, sampling occurs when a property changes hands, or every five years for landlords. New testing costs for nonpublic water systems Statewide will be incurred upon completion of well construction. As stated above, the Department is proposing to require owners of private wells and nonpublic water systems to test for arsenic Statewide, additional testing costs for those in 12 northern counties where uranium sampling will be required. With regard to the proposed amendment requiring owners of private wells and new nonpublic water systems to test for 1,2,3-TCP, ethylene dibromide (EDB), and 1,2-dibromo-chloropropane (DBCP), the laboratory analysis for 1,2,3-TCP also detects EDB and DBCP. As mentioned above, this test costs approximately $100.00 per sample. Gross alpha particle activity testing costs approximately $100.00 per sample. Testing for uranium and arsenic cost about $40.00 each. Private and nonpublic well owners in the north may see total testing costs increase by up to $240.00 (for 1,2,3-TCP, EDB, DBCP, gross alpha, and uranium). In the southern portions of the State, costs will increase up to $140.00 (for 1,2,3-TCP, EDB, DBCP, and arsenic).

Treatment is required for nonpublic water systems but is not required by the State for private well owners. As of 2016, a small GAC point-of-entry treatment (POET) system that removes 1,2,3-trichloropropane, costs approximately $2,000. A small scale arsenic adsorption (POET) for arsenic can cost from $2,200 to $3,500. Arsenic point-of-use (POU) treatment systems for drinking and cooking water can cost $700.00 to $1,100 for each location installed with a median cost of about $835.00. A water softener (cation exchange) is considered a POET system for radium and costs approximately $1,500 and anion exchange POET systems for uranium costs approximately $1,700. Some nonpublic water systems in northern counties may

have elevated radium and uranium and require both cation and anion exchange systems to treat their water. Depending on the size of the systems, a POU reverse osmosis system may be installed to remove both radium and uranium, at a cost of approximately $900.00 for each installation. There are no disposal costs associated with reverse osmosis. Radium and uranium are disposed in the onsite septic system, which recharges the groundwater into aquifer from where it originated.

The Department and local health agencies are likely to incur costs associated with the increase of water systems that will be required to monitor and sample as described above. These include costs associated with permitting, inspection, and enforcement. However, the Department has integrated electronic processes to facilitate its responsibilities and, therefore, costs are expected to minimal.

**Environmental Impact**

The Department anticipates a positive impact on the environment as a result of the proposed rules which set forth new MCLs for PFNA and 1,2,3-TCP. The proposed MCLs will have a positive environmental impact by creating an incentive for public water systems to remove contamination from water sources.

PFNA is a long chain perfluorinated compound historically used as a processing aid in the emulsion process used to make fluoropolymers, which are high-performance plastics that are resistant to harsh chemicals and high temperatures. PFNA is extremely persistent in the environment and highly soluble and highly mobile in water. Therefore, if PFNA is detected as a result of monitoring by public community or public nontransient noncommunity water systems,

the Department and/or the water supplier may investigate the origin of the contamination. This will have a positive impact on the environment as additional areas of PFNA contamination are identified, more remedial activities are initiated, and responsible parties may be identified.

The proposed amendments will have a positive environmental impact based on the new MCL for 1,2,3-TCP and associated monitoring requirements in the SDWA rules, as well as the testing requirements for 1,2,3-TCP under the PWTA rules. In addition, the resulting installation of treatment units at some public water systems and some private wells will have a positive environmental impact by removing a man-made contaminant from the environment.

The proposed amendments to expand testing for arsenic in private wells Statewide are expected to have a positive environmental impact. Arsenic in drinking water occurs from either natural or man-made sources. While the most prevalent sources of arsenic are naturally occurring, man-made arsenic-based pesticides were historically manufactured in New Jersey and used throughout the State on a variety of crops. The Department will likely become aware of more areas of the State with arsenic in the drinking water source. This may result in the identification of other responsible parties identified and initiation of more site clean-ups, as appropriate. The proposed amendments will likely result in the treatment of private wells and nonpublic water systems for the removal of arsenic from drinking water. Therefore, the quality of the State's drinking water will improve.

The proposed amendments to require testing of radionuclides at public nontransient noncommunity water systems and expand testing of gross alpha and arsenic Statewide in private wells is not expected to have an environmental impact. Radionuclides and arsenic are both naturally occurring contaminants and any benefit realized will be to public health.

There will be no environmental impact from the proposed changes to the Regulations Governing the Certification of Laboratories and Environmental Measurements at N.J.A.C. 7:18.

## Federal Standards Statement

Executive Order No. 27 (1994) and N.J.S.A. 52:14B-1 et seq. (P.L. 1995, c. 65), require State agencies that adopt, readopt, or amend State rules that exceed any Federal standards or requirements to include in the rulemaking document a Federal Standards Statement.

The Department's Safe Drinking Water Act (SDWA) rules at N.J.A.C. 7:10 incorporate by reference the National Regulations 40 CFR 141, as amended and supplemented, promulgated by the U.S. Environmental Protection Agency (USEPA) pursuant to the Federal Safe Drinking Water Act (Federal Act), 42 U.S.C. §§ 300f et seq., 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 rules, applicable to all public water systems. The Department's safe drinking water rules are, therefore, the Federal standards, except with respect to those areas for which the Department has determined, as authorized by the SDWA and allowed by the National Regulations, to establish New Jersey-specific requirements.

As described in the Summary above, the Drinking Water Quality Institute (Institute) has recommended maximum contaminant level (MCLs) for PFNA and 1,2,3-TCP of 0.013 µg/L and 0.03 µg/L, respectively. Pursuant to the SDWA, N.J.S.A. 58:12A-13, the Department is authorized to promulgate MCLs based on those recommendations. Under the existing rules, the

Department has MCLs for 14 contaminants that are more stringent than the Federal standards and for five contaminants for which no Federal standard has been established. With the addition of PFNA and 1,2,3-TCP, New Jersey will have seven State-established MCLs where no Federal standard exists.

The Institute's process for recommending MCLs is similar to the Federal process, with the differences noted below. The Institute considers three factors when recommending MCLs: health effects, technological ability to measure the contaminant level, and ability of existing treatment technologies to meet the MCL. For chemicals causing effects other than cancer (noncarcinogens), such as PFNA, the goal is the elimination of all adverse health effects resulting from ingestion, within the limits of practicability and feasibility. With respect to carcinogens, such as 1,2,3-TCP, the goal of the recommended MCL is to permit cancer in no more than one in one million persons ingesting that chemical for a lifetime. The Federal standard-setting process consider these factors, and in the case of PFNA (a noncarcinogen), an additional economic factor. The SDWA does not permit economic factors to be used in development of MCLs for carcinogens. The Institute evaluated the most current information available regarding PFNA and 1,2,3-TCP in drinking water before recommending MCLs to the Department.

The development of New Jersey-specific MCLs for PFNA and 1,2,3-TCP is necessary to protect public health. As established in the Institute's Health Effects Subcommittee reports both contaminants are associated with serious health effects. According to the Health Effects Subcommittee, PFNA is persistent in humans with a half-life for elimination of several years, exposure to relatively low drinking water concentrations is expected to substantially increase

human body burden and the toxicological effects are relevant to humans. With respect to 1,2,3-TCP, the Health Effects Subcommittee indicated this contaminant is a potent carcinogen and that the non-carcinogenic effects include toxicity to liver, kidney, heart, nasal tissue, lung, and other organs.

Both contaminants were detected in public water systems in New Jersey as part of the third round of sampling pursuant to the Federal Unregulated Contaminant Monitoring Rule (UCMR3). While the Department has encouraged systems with elevated levels to continue to monitor and where necessary, install treatment to remove these contaminants, systems are under no obligation to comply with this request because MCLs have not yet been established. Therefore, without adopted State-MCLs the Department cannot reduce exposure and ensure public health. Through the Department's stakeholder process some water systems expressed support for the adoption of MCLs for unregulated contaminants because adopted rules provide predictability. Design of treatment systems in the absence of a removal target can be both challenging and risky as the target is susceptible to change. Thus, systems are hesitant to invest in treatment without an MCL.

The Federal standards do not require public nontransient noncommunity water systems to monitor for radionuclides. However, the Department is proposing to require these water systems to monitor for radionuclides because these water systems, which include schools and office parks, serve populations that could be potentially exposed to radionuclides on a long-term basis. The negative health effects resulting from exposure to these carcinogens are well established.

The Private Well Testing Act (PWTA) rules, N.J.A.C. 7:9E, are not promulgated under the authority of, or in order to implement, comply with, or participate in any program established

under Federal law or under a State statute that incorporates or refers to Federal law, Federal standards, or Federal requirements. Therefore, the Department has determined that a Federal standards analysis is not required.

The Regulations Governing the Certification of Laboratories and Environmental Measurements, N.J.A.C. 7:18, establish a certification program for laboratories seeking to become certified environmental laboratories. This chapter also establishes administrative procedures to be followed by certified environmental laboratories when performing environmental analyses conducted in conformance with the SDWA and the PWTA. The Federal government does not administer a corresponding laboratory certification program, and has no law that corresponds to this aspect of either the current rules or the proposed amendments. Therefore, no Federal standards analysis is required.

**Jobs Impact**

The Department anticipates that the proposed amendments will have a positive impact on jobs for certified laboratories based on the additional testing requirements outlined in the Summary above. Public water systems and public nontransient noncommunity water systems will be required to sample for the two New Jersey MCLs and public nontransient noncommunity water systems will be required to begin testing of radionuclides beginning in 2019. New and expanded testing requirements for private wells and new nonpublic or public noncommunity wells is also expected to create additional work for certified laboratories in sampling and analyzing the water source for the required parameters.

There may also be a small growth of jobs in industries related to designing and installing

treatment for the regulated contaminants, such as engineering consulting firms and manufacturers of water treatment equipment such as granular activated carbon, which can be used to treat both PFNA and 1,2,3-TCP.

There will be some indirect, but positive, impact on entrepreneurial activity, interstate commerce, or international trade by ensuring the public of a safe and dependable water supply.

## Agricultural Industry Impact

Pursuant to N.J.S.A. 52:14B-4, the Department has evaluated this rulemaking to determine the nature and extent of the impact of the proposed amendments on the agricultural industry. The proposed amendments are not anticipated to have any impact on agriculture in New Jersey. Water for agricultural purposes is typically sourced from irrigation wells, which, because they are nonpotable water supply wells, are not subject to the Safe Drinking Water Act rules. A water system that meets the definition of a public water system under the Safe Drinking Water Act rules must comply with the applicable monitoring and other requirements of the proposed rules, even as they must do so under the existing rules, since the potential health risk of contamination must be addressed irrespective of whether the water from the public water system is used for irrigation or other agricultural purposes. The proposed changes to the Regulations Governing the Certification of Laboratories and Environmental Measurements at N.J.A.C. 7:18 will have no impact on agriculture.

## Regulatory Flexibility Analysis

In accordance with the New Jersey Regulatory Flexibility Act, N.J.S.A. 52:14B-16 et

seq., the Department has evaluated the reporting, recordkeeping, and other compliance requirements that the proposed amendments would impose on small businesses. As defined by the Regulatory Flexibility Act, a "small business" is one that is independently owned and operated and employs fewer than 100 full-time employees. The Department estimates that of the 3,723 public water systems in New Jersey, approximately 2,500 are small businesses. The proposed amendments require suppliers of water from public water systems to monitor and when applicable, treat to remove PFNA and 1,2,3-TCP, as discussed in the Summary and Economic Impact above. These requirements apply to water systems that may be considered a small business, but that also serve many customers potable water on a regular basis. A relaxation of these standards would not be protective of public health and would be inconsistent with the existing application of the requirements of the New Jersey Safe Drinking Water Program, which have been effective for decades.

The proposed changes to the Regulations Governing the Certification of Laboratories and Environmental Measurements at N.J.A.C. 7:18 are not expected to impact small business.

**Housing Affordability Impact Analysis**

In accordance with N.J.S.A. 52:14B-4, the Department has evaluated the proposed amendments to determine their impact, if any, on the affordability of housing.

Where contaminants are detected in a public water system, the costs of monitoring and treatment are passed on to the residential customer. However, these costs are associated with a public water system bill and are not expected to impact the cost of housing.

The amendments to the PWTA will increase testing for either the seller or buyer,

whomever assumes the cost of testing. The cost of testing incurred by landlords may be passed along to lessees but are expected to be minimal as testing is only required every five years. Testing costs are expected to increase by as much as $240.00 based on additional testing for gross alpha, arsenic, uranium, 1,2,3-TCP, EDB and DBCP. However, the Department expects to cost of the analysis to decrease following the promulgation of the MCL for 1,2,3-TCP as more laboratories become certified to perform analysis of the contaminant. In addition, the overall health effects associated with 1,2,3-TCP, EDB, DBCP are significant and the protection of public health outweighs any increase in cost.

The Department anticipates the proposed amendments will have minimal impact on the affordability of housing because it is extremely unlikely that the amendments will evoke a major change in the average costs associated with housing.

**Smart Growth Development Impact Analysis**

In accordance with N.J.S.A. 52:14B-4, the Department has evaluated the proposed amendments to determine their impact, if any, on housing production within Planning Areas 1 or 2, or within designated centers, under the State Development and Redevelopment Plan. The proposed amendments establish two new MCLs, require expanded and new testing for private and nonpublic wells and require monitoring and treatment for radionuclides for public nontransient noncommunity water systems. The Department anticipates the proposed amendments will have no smart growth development impact because it is extremely unlikely that the rules will evoke a change in housing production in Planning Areas 1 or 2, or within designated centers.

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

CHAPTER 9E

PRIVATE WELL TESTING ACT RULES

SUBCHAPTER 2. SAMPLING AND TESTING REQUIREMENTS

7:9E-2.1 Parameters for which testing is required

(a) Each water sample shall be analyzed for the following parameters:

1.-6. (No change.)

7. All volatile organic compounds for which maximum contaminant levels (MCLs) have been established under the Safe Drinking Water Act, N.J.S.A. 58:12A-1 et seq., and implementing rules, N.J.A.C. 7:10; [and]

8. Lead[.]**;**

**9. Arsenic;**

**10. Gross alpha particle activity, determined using the 48 Hour Rapid Gross Alpha Test, in accordance with N.J.A.C. 7:18; and**

**11. As of (180 days after the effective date of these amendments), the synthetic organic compounds 1,2,3-trichloropropane, ethylene dibromide, and 1,2-dibromo-3-chloropropane.**

(b) (No change.)

(c) In addition to the parameters listed at (a) above, water samples collected from Bergen, Essex, Hudson, Hunterdon, Mercer, Middlesex, Morris, Passaic, Somerset, Sussex, Union, and Warren County locations shall be analyzed for [arsenic] **uranium**.

[(d) In addition to the parameters listed at (a) above, water samples collected from Atlantic, Burlington, Camden, Cape May, Cumberland, Gloucester, Hunterdon, Mercer, Middlesex, Monmouth, Ocean, and Salem County locations shall be tested for gross alpha particle activity.

1. For Cumberland and Gloucester counties, testing for this parameter shall be required as of (a date that is 180 days after the effective date of the rule establishing a 48-hour rapid gross alpha test at N.J.A.C. 7:18).

2. For Atlantic, Burlington, Camden, and Salem counties, testing for this parameter shall be required as of (a date that is one year after the effective date of the rule establishing a 48-hour rapid gross alpha test, N.J.A.C. 7:18).

3. For Cape May, Hunterdon, Mercer, Middlesex, Monmouth, and Ocean counties, testing for this parameter shall be required as of (a date that is 18 months after the effective date of the rule establishing a 48-hour rapid gross alpha test, N.J.A.C. 7:18).]

CHAPTER 10

SAFE DRINKING WATER ACT

SUBCHAPTER 5. STATE PRIMARY DRINKING WATER REGULATIONS

7:10-5.2 Discretionary changes to National Regulations

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

1.-2. (No change.)

3. MCLs [and monitoring requirements] for inorganic chemicals (IOCs) shall be those established under the National Regulations [and at (a)7 below], except for the State-regulated contaminant arsenic, for which an MCL of five µg/l shall apply. **Monitoring requirements for IOCs shall be those established under the National Regulations and at (a)7 below.**

4. MCLs [and monitoring requirements] for volatile organic compounds (VOCs) shall be those established under the National Regulations [and at (a)7 below] except [as] **for the State-regulated VOCs for which the MCLs are** listed in Table 1, below[, for State-regulated VOCs]. **Monitoring requirements for VOCs, including the VOCs, 1,3-dichlorobenzene; 1,1-dichloroethane; 1,1,2,2-tetrachloroethane; naphthalene; and methyl tertiary butyl ether, shall be those established under the National Regulations and at (a)7 below.**

TABLE 1

(No change.)

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

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

**5. The MCL for the State-regulated perfluorinated compound perfluorononanoic acid (PFNA) shall be 0.013 µg/l. Monitoring requirements for PFNA shall be those established under the National Regulations at 40 CFR 141.24(f) and at (a)7 below, beginning as set forth at (a)5i below and subject to the condition at (a)5ii below.**

**i. All public community water systems using a groundwater source(s) serving a population of 10,000 or less and public nontransient noncommunity water systems shall begin monitoring within the first quarter of 2019. All public community water systems using a surface water source(s) and all public community water systems serving a population greater than 10,000 shall begin monitoring within the first quarter of 2020.**

**ii. Notwithstanding the threshold set forth at 40 CFR 141.24(f)(11), the requirement for quarterly monitoring at 40 CFR 141.24(f)(11)(i) shall apply if PFNA is detected at a level exceeding 0.002 µg/l.**

6. MCLs for synthetic organic compounds (SOCs) and pesticides shall be those established under the National Regulations except for the State-regulated [contaminant chlordane, for which an MCL of 0.5 µg/l shall apply] **SOCs at (a)6i and ii below**. **Monitoring requirements for SOCs shall be those established under the National Regulations and at (a)7 below. For 1,2,3-trichloropropane, the conditions at (a)6ii below apply.**

**i. Chlordane, for which an MCL of 0.5 µg/l shall apply; and**

**ii. 1,2,3-Trichloropropane, for which an MCL of 0.030 µg/l shall apply. Monitoring requirements shall be those established for SOCs under the National Regulations, beginning as set forth at (a)6ii(1) below and subject to the condition at (a)6ii(2) below.**

**(1) All public community water systems using a groundwater source(s) serving a population 10,000 or less and public nontransient noncommunity water systems shall begin monitoring within the first quarter of 2019. All public community water systems using a surface water source(s) and all public community water systems serving a population greater than 10,000 shall begin monitoring within the first quarter of 2020.**

**(2) Notwithstanding the threshold set forth at 40 CFR 141.24(h)(7), the requirement for quarterly monitoring at 40 CFR 141.24(h)(7)(i) shall apply if 1,2,3-trichloropropane is detected at a level equal to or exceeding 0.010 µg/l.**

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

**7. Water systems that, as provided at 40 CFR 141.23 and 141.24, are monitoring for inorganics (except asbestos, nitrate, and nitrite), volatile organic compounds, and**

**synthetic organic compounds or for PFNA at a frequency less than annually shall monitor once in each Federal three-year compliance period in accordance with the schedule in the table below.**

| Monitoring [Period] **Schedule** | Water System Type |
|---|---|
| Year one of the **applicable** [three year] **three-year** Federal compliance period ([that is, 2002, 2005, 2008, 2011] **for example, 2017, 2020, 2023, 2026**) | [All] **Any** public community water system[s (PCWS)] using a surface water source(s) [or all PCWS] **and any public community water system** serving a population greater than 10,000. |
| Year two of the **applicable** [three year] **three-year** Federal compliance period ([that is, 2003, 2006, 2009, 2012] **for example, 2018, 2021, 2024, 2027**) | [All] **Any** public community water system[s] using a groundwater source(s) serving a population equal to or less than 10,000. |
| Year three of the **applicable** [three year] **three-year** Federal compliance period ([that is, 2004, 2007, 2010, 2013] **for example,** | [Public] **Any public** nontransient noncommunity water system[s]. |

**2019, 2022, 2025, 2028**)

8.-9. (No change.)

10. [Subject to (a)10i below,] **For public community and public nontransient noncommunity water systems,** MCLs and monitoring requirements for radionuclides shall be those established under the National Regulations. **Public nontransient noncommunity water systems shall begin monitoring within the first quarter of 2019.**

    [i. Compliance with the MCL shall be individually determined at each sampling location including points of entry to the water distribution system, when individually directed by the Department, based on a running annual average of all quarterly sampling results from each of the sampling location.]

11. (No change.)

12. [Subject to (a)12i below, suppliers] **Suppliers** of water from a bulk purchase system are subject only to the microbiological monitoring**, disinfectant by-product monitoring,** and lead and copper monitoring requirements of this section.

    [i. Effective January 1, 2004, a supplier of water from a bulk purchase system that regularly derives its water from another water system using a surface water source(s) and provides water to more than 100 service connections shall at a minimum collect a quarterly disinfection by-products sample from a point within the water distribution system with maximum residence time to be tested for Total Trihalomethanes (THM4) and Total Trihaloacetic Acids (HAA5) disinfection by-products.]

13. (No change.)

(b) The National Regulations, at 40 [C.F.R.] **CFR** 141.151, require each community water system to annually develop and deliver to its customers a Consumer Confidence Report (CCR) which provides information on the quality of the water delivered by the system and characterizes the risks (if any) from exposure to contaminants detected in the drinking water in an accurate and understandable manner. In addition to the standards and requirements in the National Regulations for the development and distribution of the CCR, the following requirements shall apply:

1.-3. (No change.)

4. [In addition to the contaminants regulated by the National Regulations, for which the Department has either adopted by reference the Federal MCL or has adopted a lower MCL, there are five additional contaminants regulated by the Department, at N.J.A.C. 7:10-5, but not regulated by the National Regulations. The] **For the seven State-regulated contaminants for which there is no Federal MCL, the** Consumer Confidence Report shall include **the** information [concerning the five additional contaminants regulated in New Jersey as] set forth below:

| Contaminant | New Jersey MCL[1] ([ppb] **µg/l)** | MCL in [CCR] units **for CCR** | Major Sources in Drinking Water | Health Effects Language |
|---|---|---|---|---|
| [*meta*] **1,3-** Dichlorobenzene* | 600 | [$]600 **ppb** | Discharge from industrial | Some people who drink water containing [*meta*] |

| | | | | |
|---|---|---|---|---|
| | | | chemical factories | **1,3**-Dichlorobenzene in excess of the MCL over many years could experience problems with their liver, kidneys**,** or circulatory system. |
| 1,1-Dichloroethane | 50 | 50 **ppb** | Discharge from metal degreasing sites and other factories | Some people who drink water containing 1,1-Dichloroethane in excess of the MCL over many years could experience problems with their kidneys. |
| Methyl *tertiary* butyl ether (MTBE) | 70 | 70 **ppb** | Leaking underground gasoline [&] **and** fuel oil tanks, gasoline and fuel oil spills | Some people who drink water containing MTBE in excess of the MCL over many years could experience problems with their kidneys. |
| Naphthalene | 300 | 300 **ppb** | Discharge from industrial chemical | Some people who drink water containing Naphthalene in excess |

| | | | | |
|---|---|---|---|---|
| | | | factories, exposure to mothballs | of the MCL over many years could experience problems with cataracts and hemolytic anemia. |
| 1,1,2,2-Tetrachloroethane | 1 | 1 **ppb** | Discharge from industrial chemical factories | Some people who drink water containing 1,1,2,2-Tetrachloroethane in excess of the MCL over many years could experience problems with their liver, kidneys**,** and central nervous system. |
| **Perfluorononanoic acid (PFNA)** | **0.013** | **13 ppt** | **Discharge from industrial chemical factories** | **Some people who drink water containing PFNA in excess of the MCL over many years could experience problems with their liver, kidney, immune system, or, in males, reproductive** |

| | | | | |
|---|---|---|---|---|
| | | | | **system. For females, drinking water containing PFNA in excess of the MCL over many years may cause developmental delays in a fetus and/or an infant.** |
| **1,2,3-Trichloropropane** | **0.030** | **30 ppt** | **Application of pesticides to agricultural land; discharge from metal degreasing sites, chemical manufacturing plants, and other industrial sites** | **Some people who drink water containing 1,2,3-trichloropropane in excess of the MCL over many years may have an increased risk of getting cancer.** |

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 Rapid Gross Alpha Test, in accordance with N.J.A.C. 7:18.

(b) –(c) (No change.)

(d) A supplier of water from a public [community] water system, when submitting any sample analysis to the Department, shall provide the following:

1. The test result for all contaminants tested for as part of the analytical method; **and**

2. Any test result that exceeds a specified MDL[; and]**.**

[3. A description of the quality control procedures followed applicable to the analysis submitted.]

[(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.]

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

7:10-12.30 Water quality analysis and treatment

(a) (No change.)

(b) [The] **Upon completion of construction of a water system, the** owner of a public noncommunity water system shall sample and analyze the raw water from the system for inorganics, volatile organic compounds (VOCs), **the SOCs 1,2,3-trichloropropane, ethylene dibromide, and 1,2-dibromo-3-chloropropane,** and radionuclides in accordance with N.J.A.C. 7:10-5 and for secondary contaminants in accordance with N.J.A.C. 7:10-7. If the system uses a surface water source, the administrative authority shall require the system owner to sample and analyze the water for disinfection by-products and pesticides regulated pursuant to N.J.A.C. 7:10-5.

(c) [The] **Upon completion of construction of a water system, the** owner of a nonpublic water system shall sample and analyze the raw water from the system for the parameters listed at (c)1 through [9] **11** 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.-5. (No change.)

6. All volatile organic compounds [with] **for which** MCLs **have been established under the State primary drinking water rules, N.J.A.C. 7:10-5**;

**7. Arsenic;**

**8. Gross alpha particle activity, determined using the 48 Hour Rapid Gross Alpha Test, in accordance with N.J.A.C. 7:18;**

**9. As of (180 days after the effective date of these amendments), the synthetic organic compounds 1,2,3-trichloropropane, ethylene dibromide, and 1,2-dibromo-3-chloropropane;**

[7.] **10.** In addition to the parameters listed at (c)1 through [6] **9** above, if the water system is located in Atlantic, Burlington, Camden, Cape May, Cumberland, Gloucester, Monmouth, Ocean, or Salem County, mercury; **and**

[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.]

**11. In addition to the parameters listed at (c)1 through 9 above, if the water system is located in Bergen, Essex, Hudson, Hunterdon, Mercer, Middlesex, Morris, Passaic, Somerset, Sussex, Union, or Warren County, uranium.**

(d) – (i) (No change.)

CHAPTER 18

REGULATIONS GOVERNING THE CERTIFICATION OF LABORATORIES AND ENVIRONMENTAL MEASUREMENTS

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

7:18-6.4 Required use of DSAMs

(a) In performing radiochemical analysis of a regulatory sample (including, without limitation,

analysis of a PT sample by a laboratory that is applying to become certified), a laboratory shall use only:

1.-2. (No change.)

3. USEPA Method 900, Gross Alpha and Beta Radioactivity in Drinking water, for gross alpha testing in screening for the presence of all regulated alpha emitting radionuclides modified as follows:

i. (No change.)

ii. The initial counting of the plancheted sample shall be initiated [between] **no sooner than** 36 [to] **hours from sample collection and shall be completed within** 48 hours from the time of sample collection;

iii. (No change.)

iv. If the gross alpha value from the [36 to 48 hour] **initial** count exceeds five pCi/L, [then the same plancheted sample shall be re-counted between 20 to 28 hours after the initial count;] **a second counting of the same prepared sample is required. The same plancheted sample shall be recounted between 20 to 28 hours after the midpoint of the initial counting timeframe;** and this calculated value shall be reported as the final gross alpha result.

(b) (No change.)