

Pursuant to the authority vested in the Public Health and Health Planning Council and the Commissioner of Health by section 225 of the Public Health Law, Subpart 5-1 of Title 10 (Health) of the Official Compilation of Codes, Rules and Regulations of the State of New York is amended, to be effective upon publication of a Notice of Adoption in the New York State Register, to read as follows:

Section 5-1.52, Table 3 is amended to read as follows:

**Table 3. Organic Chemicals Maximum Contaminant Level Determination**

Contaminants	MCL (mg/L)	Type of water system	Determination of MCL violation
General organic chemicals		Community, NTNC and Noncommunity	If the results of a monitoring sample analysis exceed the MCL, the supplier of water shall collect one to three more samples from the same sampling point, as soon as practical, but within 30 days. An MCL violation occurs when at least one of the confirming samples is positive <sup>1</sup> and the average of the initial sample and all confirming samples exceeds the MCL.
Principal organic contaminant (POC)	0.005		
Unspecified organic contaminant (UOC)	0.05		
Total POCs and UOCs	0.1		
Disinfection byproducts <sup>2,3</sup>		Community and NTNC	For systems required to monitor quarterly, the results of all analyses at each monitoring location per quarter shall be arithmetically averaged and shall be reported to the State within 30 days of the public water system's receipt of the analyses. A violation occurs if the average of the four most recent sets of quarterly samples at a particular monitoring location (12-month locational running annual average (LRAA)) exceeds the MCL. If a system collects more than one sample per quarter at a monitoring location, the system shall average all samples taken in the quarter at that location to determine a quarterly average to be used in the LRAA calculation. If a system fails to complete four consecutive quarters of monitoring, compliance with the MCL will be based on an average of the available data from the most recent four quarters. An MCL violation for systems on annual or less frequent monitoring that have been increased to quarterly monitoring as outlined in Table 9A, is determined after four quarterly samples are taken.
Total trihalomethanes	0.080		
Haloacetic acids	0.060		
		Transient noncommunity	Not applicable.

**Table 3. Organic Chemicals Maximum Contaminant Level Determination (continued)**

<b>Contaminants</b>	<b>MCL (mg/L)</b>	<b>Type of Water System</b>	<b>Determination of MCL violation</b>
Specific Organic Chemicals		Community, NTNC and Noncommunity	If the results of a monitoring sample analysis exceed the MCL, the supplier of water shall collect one to three more samples from the same sampling point, as soon as practical, but within 30 days. An MCL violation occurs when at least one of the confirming samples is positive <sup>1</sup> and the average of the initial sample and all confirming samples exceeds the MCL.
Alachlor	0.002		
Aldicarb	0.003		
Aldicarb sulfone	0.002		
Aldicarb sulfoxide	0.004		
Atrazine <sup>4</sup>	0.003		
Benzo(a)pyrene	0.0002		
Carbofuran	0.04		
Chlordane	0.002		
Di(2-ethylhexyl)phthalate	0.006		
Dibromochloropropane (DBCP)	0.0002		
2,4-D	0.05		
Dinoseb	0.007		
<u>1,4-Dioxane</u>	<u>0.0010</u>		
Diquat	0.02		
Endrin	0.002		
Ethylene dibromide (EDB)	0.00005		
Heptachlor	0.0004		
Heptachlor epoxide	0.0002		
Hexachlorobenzene	0.001		
Lindane	0.0002		
Methoxychlor	0.04		
Methyl-tertiary-butyl-ether (MTBE)	0.010		
Pentachlorophenol	0.001		
<u>Perfluorooctanesulfonic acid (PFOS)</u>	<u>0.0000100</u>		
<u>Perfluorooctanoic acid (PFOA)</u>	<u>0.0000100</u>		
Polychlorinated biphenyls (PCBs) <sup>5</sup>	0.0005		
Propylene glycol	1.0		
Simazine	0.004		
Toxaphene	0.003		
2,4,5-TP (Silvex)	0.01		

2,3,7,8-TCDD (Dioxin) Vinyl chloride	0.00000003 0.002		
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<sup>1</sup> A sample is considered positive when the quantity reported by the State approved laboratory is greater than or equal to the method detection limit.

<sup>2</sup> For systems monitoring yearly or less frequently, the sample results for each monitoring location is considered the LRAA for that monitoring location. Systems required to conduct monitoring at a frequency that is less than quarterly shall monitor in the calendar month identified in the monitoring plan developed under section 5- 1.51(c). Compliance calculations shall be made beginning with the first compliance sample taken after the compliance date.

<sup>3</sup> Systems that are demonstrating compliance with the avoidance criteria in section 5-1.30(c), shall comply with the TTHM and HAA5 LRAA MCLs; however the LRAA MCLs are not considered for avoidance purposes. For avoidance purposes, TTHMs and HAA5s are based on a running annual average of analyses from all monitoring locations.

<sup>4</sup> Syngenta Method AG-625, "Atrazine in Drinking Water by Immunoassay," February 2001, available from Syngenta Crop Protection, Inc., 410 Swing Road, P.O. Box 18300, Greensboro, NC 27419. Telephone: 336-632-6000, may not be used for the analysis of atrazine in any system where chlorine dioxide is used for drinking water treatment. In samples from all other systems, any result for atrazine generated by Method AG-625 that is greater than one-half the maximum contaminant level (MCL) (in other words, greater than 0.0015mg/L or 1.5 µg/L) must be confirmed using another approved method for this contaminant and should use additional volume of the original sample collected for compliance monitoring. In instances where a result from Method AG-625 triggers such confirmatory testing, the confirmatory result is to be used to determine compliance

<sup>5</sup> If PCBs (as one of seven Aroclors) are detected in any sample analyzed using EPA Method 505 or 508, the system shall reanalyze the sample using EPA Method 508A to quantitate PCBs (as decachlorobiphenyl). Compliance with the PCB MCL shall be determined based upon the quantitative results of analyses using Method 508A.

Section 5-1.52, Table 9C is repealed and replaced with the following:

**Table 9C. Additional Organic Chemicals - Minimum Monitoring Requirements**

Contaminant		Type of water system	Initial requirement <sup>1</sup>	Continuing requirement where detected <sup>1,2,3,4</sup>	Continuing requirement where not detected <sup>1</sup>
Alachlor Aldicarb Aldicarb sulfone Aldicarb sulfoxide Aldrin	Ethylene Dibromide Glyphosate Heptachlor Heptachlor epoxide Hexachlorobenzene	Community and Nontransient Noncommunity serving 3,300 or more persons <sup>3</sup>	Quarterly sample per source, for one year <sup>5</sup>	Quarterly	One sample every eighteen months per source <sup>6,7,8</sup>
Atrazine Benzo(a)pyrene Butachlor Carbaryl Carbofuran Chlordane Dalapon Di(2-ethylhexyl)adipate Di(2-ethylhexyl)phthalate Dibromochloropropane	Hexachlorocyclopentadiene 3-Hydroxycarbofuran Lindane Methomyl Methoxychlor Metolachlor Metribuzin Oxamyl (vydate) Pentachlorophenol	Community and Nontransient Noncommunity serving fewer than 3,300 persons and more than 149 service connections	Quarterly samples per entry point, for one year <sup>6,7,8</sup>	Quarterly	Once per entry point every three years <sup>6,7,8</sup>
Dicamba 2,4-D Dieldrin Dinoseb 1,4-Dioxane Diquat Endothall Endrin	Perfluorooctanesulfonicacid (PFOS) Perfluorooctanoic acid (PFOA) Picloram Polychlorinated biphenyls Propachlor Simazine 2,3,7,8-TCDD (Dioxin) 2,4,5-TP (Silvex) Toxaphene	Community and Nontransient Noncommunity serving fewer than 3,300 persons and fewer than 150 service connections	Quarterly samples per entry point for one year <sup>6,7,8</sup>	Quarterly	Once per entry point every three years <sup>6,7,8</sup>

		Noncommunity excluding NTNC	State discretion <sup>9</sup>	State discretion <sup>9</sup>	State discretion <sup>9</sup>
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**Table 9C (continued)**

<sup>1</sup>The location for sampling of each ground water source of supply shall be between the individual well and at or before the first service connection and before mixing with other sources, unless otherwise specified by the State to be at the entry point representative of the individual well. Public water systems which take water from a surface water body or watercourse shall sample at points in the distribution system representative of each source or at entry point or points to the distribution system after any water treatment plant.

<sup>2</sup>The State may decrease the quarterly monitoring requirement to annually provided that system is reliably and consistently below the MCL based on a minimum of two quarterly samples from a ground water source and four quarterly samples from a surface water source. Systems which monitor annually must monitor during the quarter that previously yielded the highest analytical result. Systems serving fewer than 3,300 persons and which have three consecutive annual samples without detection may apply to the State for a waiver in accordance with footnote 6.

<sup>3</sup>If a contaminant is detected, repeat analysis must include all analytes contained in the approved analytical method for the detected contaminant.

<sup>4</sup>Detected as used in the table shall be defined as reported by the State approved laboratory to be greater than or equal to the method detection levels.

<sup>5</sup>The State may allow a system to postpone monitoring for a maximum of two years, if an approved laboratory is not reasonably available to do a required analysis within the scheduled monitoring period.

<sup>6</sup>The State may waive the monitoring requirement for a public water system that submits information every three years to demonstrate that a contaminant or contaminants was not used, transported, stored or disposed within the watershed or zone of influence of the system.

<sup>7</sup>The State may reduce the monitoring requirement for a public water system that submits information every three years to demonstrate that the public water system is invulnerable to contamination. If previous use of the contaminant is unknown or it has been used previously, then the following factors shall be used to determine whether a waiver is granted.

- a. Previous analytical results.
- b. The proximity of the system to a potential point or nonpoint source of contamination. Point sources include spills and leaks of chemicals at or near a water treatment facility or at manufacturing, distribution, or storage facilities, or from hazardous and municipal waste landfills and other waste handling or treatment facilities. Nonpoint sources include the use of pesticides to control insect and weed pests on agricultural areas, forest lands, home and gardens, and other land application uses.
- c. The environmental persistence and transport of the pesticide or PCBs.
- d. How well the water source is protected against contamination due to such factors as depth of the well and the type of soil and the integrity of the well casing.
- e. Elevated nitrate levels at the water supply source.
- f. Use of PCBs in equipment used in production, storage or distribution of water.

<sup>8</sup>The State may allow systems to composite samples in accordance with the conditions in Appendix 5-C of this Title.

<sup>9</sup>State discretion shall mean requiring monitoring when the State has reason to believe the MCL has been violated, the potential exists for an MCL violation or the contaminant may present a risk to public health.

## **SUMMARY OF REGULATORY IMPACT STATEMENT**

### **Statutory Authority:**

The statutory authority for the proposed revisions is set forth in Public Health Law (PHL) sections 201 and 225. Section 201(1)(l) of the PHL establishes the powers and duties of the New York State Department of Health (Department), which include the supervision and regulation of the sanitary aspects of public water systems. Section 225 of the PHL sets forth the powers and duties of the Public Health and Health Planning Council (PHHPC), which include the authority to establish, amend and repeal sanitary regulations to be known as the State Sanitary Code (SSC), subject to the approval of the Commissioner of Health. Further, section 225(5)(a) of the PHL allows the SSC to deal with any matter affecting the security of life or health, or the preservation or improvement of public health, in New York State.

### **Legislative Objective:**

The legislative objective of sections 201 and 225 of the PHL is to ensure that PHHPC, in conjunction with the Commissioner of Health, protect public health by adopting drinking water sanitary standards. In accordance with that objective, this regulation amends the SSC by revising Part 5 to enhance current protections governing public water systems. Furthermore, this amendment will update the SSC in accordance with the recommendations of the Drinking Water Quality Council, by establishing specific maximum contaminant levels (MCLs) for perfluorooctanoic acid (PFOA), perfluorooctanesulfonic acid (PFOS) and 1,4-dioxane.

**Needs and Benefits:**

In 2017, New York State (NYS) identified PFOA, PFOS and 1,4-dioxane as emerging contaminants in drinking water. That same year, the Drinking Water Quality Council (DWQC) was created, with direction to recommend MCLs for these emerging contaminants. After discussions and deliberations, the DWQC recommended MCLs to the Department for PFOA, PFOS and 1,4-dioxane. Specifically, the DWQC recommended: an MCL of 10.0 parts per trillion (ppt) (or, expressed in different units, 0.0000100 milligrams per liter (mg/L)) for PFOA; 10.0 ppt (or 0.0000100 mg/L) for PFOS; and 1.0 part per billion (ppb) (or 0.0010 mg/L) for 1,4-dioxane.

From 2015 through 2018, the Department coordinated targeted sampling of 278 public water systems for PFOA and PFOS. The 278 public water systems were mainly medium (serving 3,300 to 10,000 persons) to small (serving less than 3,300 persons) community water systems and non-transient noncommunity systems typically with a groundwater source located near a potential source of PFOA and/or PFOS. The results of this testing are shown in Figures 1A and 1B.

Figure 1A.

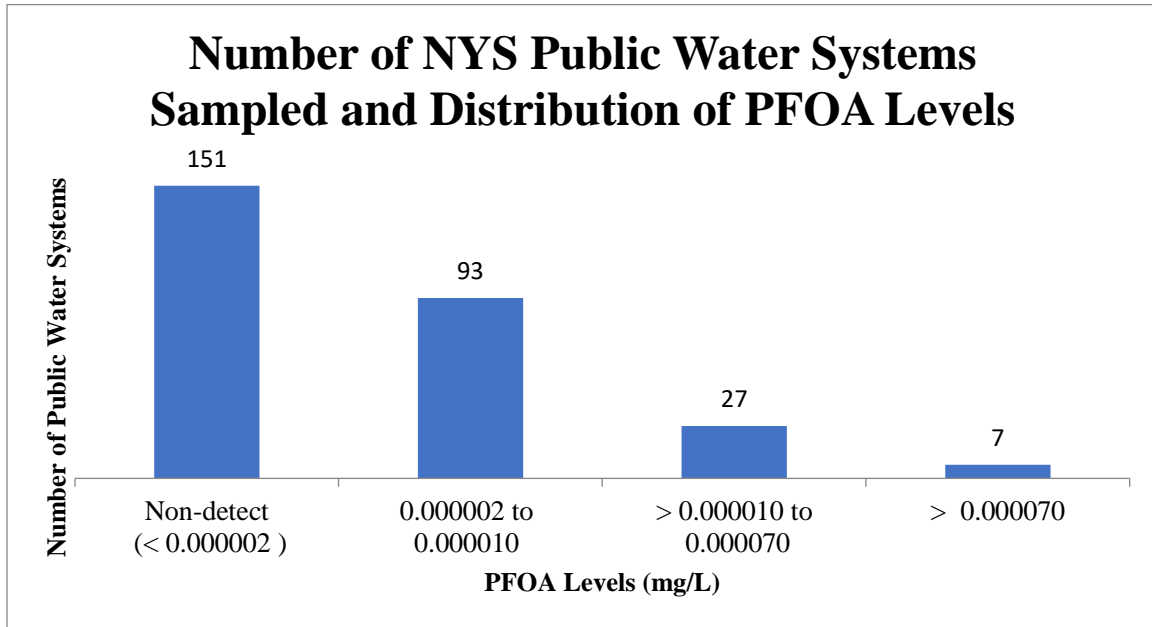
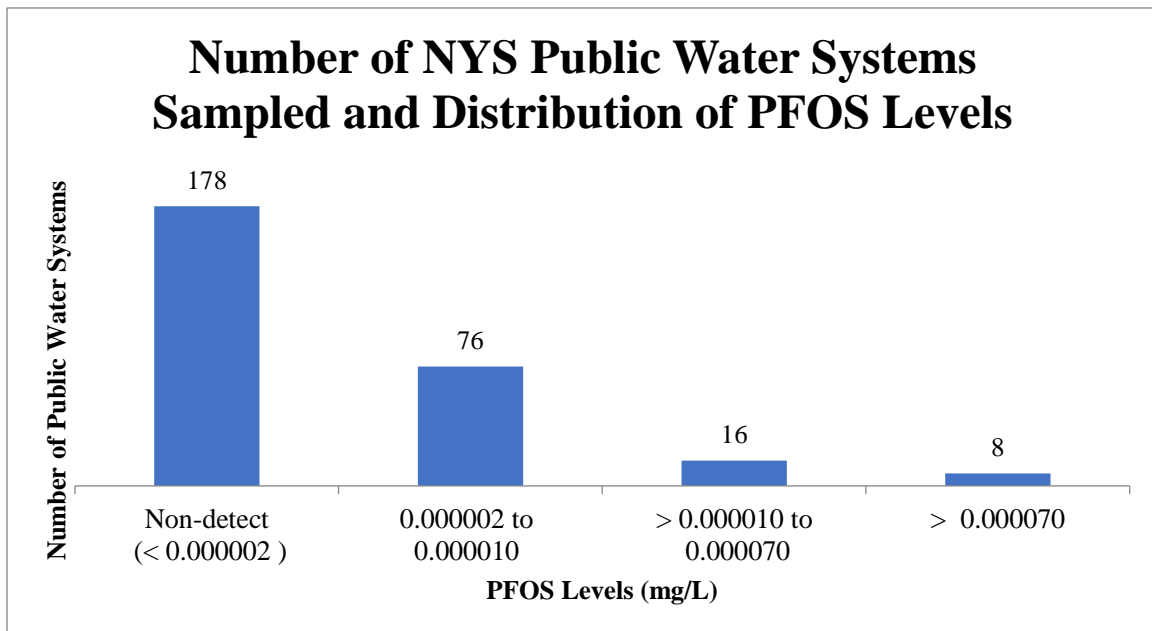


Figure 1B.

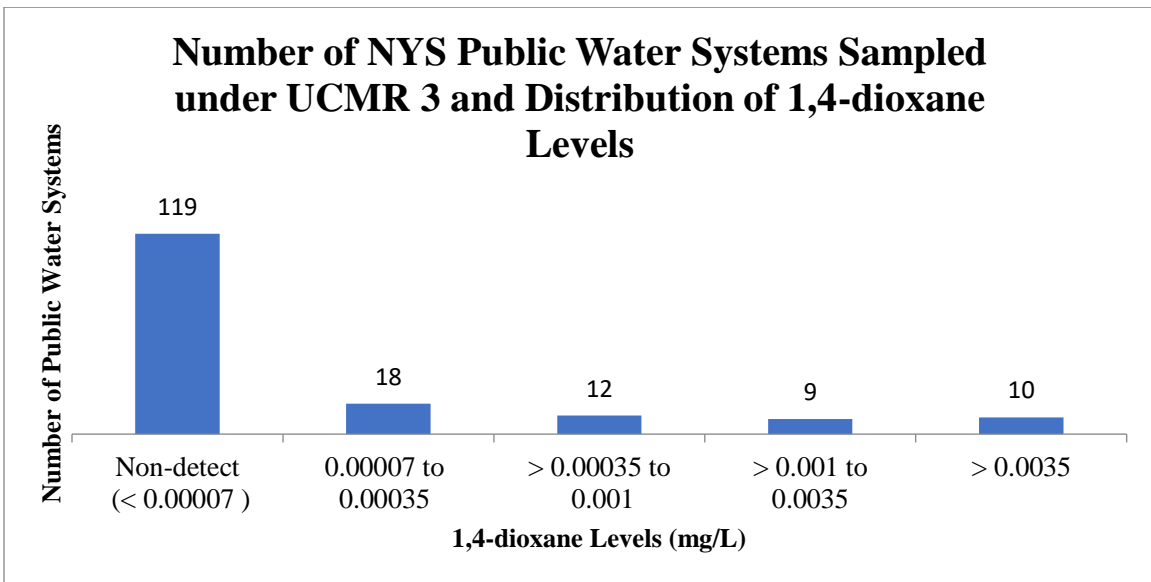


From 2013 through 2015 public water systems across NYS, under the United States Environmental Protection Agency (US EPA) Unregulated Contaminant Monitoring Rule



3 (UCMR 3), tested for 1,4-dioxane. All large public water systems (serving 10,000 persons or more) and 32 randomly selected medium and small water systems (serving less than 10,000 persons) in NYS conducted testing. Figure 2 shows that 11 percent (%) of the water systems tested had 1,4-dioxane levels above the DWQC’s recommended MCL of 0.0010 mg/L.

Figure 2.



Based on the UCMR3 data, 51% of the samples from Long Island public water systems had levels of 1,4-dioxane above the reporting level of 0.00007 mg/L compared to 6% for NYS excluding Long Island.

The Department provided the DWQC with technical information on a range of health-based drinking water values for PFOA, PFOS and 1,4-dioxane after an evaluation of the available health effects information on the chemicals from toxicological studies. These values included current national and state guidelines and advisory levels, as well as

potential health based values developed by the Department. Based on their review of this information, the DWQC recommended an MCL of 0.0000100 mg/L for PFOA and PFOS as individual compounds, which is within the range of the potential health based water values presented to the DWQC by the Department (0.000006 to 0.000070 mg/L for PFOA and 0.000008 to 0.000070 mg/L for PFOS). The DWQC recommended an MCL of 0.0010 mg/L for 1,4-dioxane, which is within the range of current national and state guidelines and advisory levels presented by the Department (0.00035 to 0.2 mg/L).

In the absence of federal regulations governing PFOA, PFOS and 1,4-dioxane in drinking water, and after consideration of the recommendations provided by the DWQC, the Department is proposing to amend 10 NYCRR Part 5 to establish MCLs for these contaminants. The Department is proposing an MCL of 0.0000100 mg/L for PFOA and PFOS as individual contaminants, and 0.0010 mg/L for 1,4-dioxane. These MCLs will apply to all public water supplies regulated by the Department and provide a sufficient margin of protection against adverse health effects in the most sensitive populations, including fetuses during pregnancy, breastfed infants, and infants bottle fed with formula reconstituted using tap water. In addition, the MCLs provide a sufficient margin of protection for lifetime exposure through drinking water for the general population.

### **Compliance Costs**

#### **Cost to Private Regulated Parties:**

There are approximately 7,200 privately owned public water systems in NYS. Of these, an estimated 2,100 systems serve residential suburban areas, manufactured housing communities and apartment buildings, residential and non-residential health care

facilities, industrial and commercial buildings, private schools and colleges, and other facilities. The remaining 5,100 privately owned public water systems serve restaurants, convenient stores, motels, campsites and other transient systems. Costs will include initial monitoring, continued routine monitoring and treatment in the event of a MCL exceedance for PFOS, PFOA and/or 1,4-dioxane.

Monitoring and treatment costs for privately-owned public water systems is dependent upon the system size, the number of affected entry points/sources and the concentration of each contaminant. The exact costs for monitoring and treatment of PFOS, PFOA and 1,4-dioxane for public water systems, including privately-owned public water systems, cannot be determined due to several variables. The cost for a single PFOA/PFOS analysis is between \$200-\$300 per sample. The cost of a single 1,4-dioxane analysis is between \$100-\$250.

It is estimated that approximately 21% of all public water systems, including privately-owned public water systems, will have levels of PFOA or PFOS above the proposed MCLs of 0.0000100 mg/L. For small systems serving less than 3,300 persons, capital and annual maintenance costs are estimated to be approximately \$400,000 and \$25,000, respectively. For medium systems (serving 3,300 or more persons but less than 10,000 persons), capital and annual maintenance costs are estimated to be approximately \$2,400,000 and \$125,000, respectively. For large systems (serving 10,000 persons or more), capital and annual maintenance costs are estimated to be approximately \$15,000,000 and \$725,000, respectively.

It is estimated that eighty-nine (89) public water *facilities*, (a single public water system may be comprised of multiple public water facilities), will have a detection of 1,4-dioxane above the proposed MCL of 0.0010 mg/L. The average cost of treatment for 1,4-dioxane is estimated to be \$3,570,000 per system, with an estimated average annual operation and maintenance cost of approximately \$150,000 per system.

Public water systems will likely make rate adjustments to accommodate these additional capital and operational costs.

**Cost to State Government:**

State agencies that operate public water systems will be required to comply with the proposed amendments. There are approximately 250 State-owned or operated facilities with a public water system. Examples of such facilities are State-owned schools, buildings, correctional facilities, Thruway services areas, and any other State-owned structure or property that serves an average of at least 25 individuals daily at least 60 days out of the year.

Costs will include initial monitoring for PFOA, PFOS and/or 1,4-dioxane, continued routine monitoring, and treatment in the event of a MCL exceedance. These potential costs will be the same as the costs to private regulated parties.

The proposed regulation will also impose administrative costs to the Department relating to implementation and oversight of the drinking water monitoring requirements including

review and approval of sampling schedules; review and reporting of sample results; providing technical assistance to the public water suppliers; review and approval of plans (i.e., treatment plans); and activities associated with enforcement and public notification of MCL exceedances.

Additionally, the Department and NYS Department of Environmental Conservation (NYSDEC) will incur costs associated with the investigation, remediation, and long-term monitoring associated with the release of these contaminants.

Although the proposed regulations do not apply to private wells, costs will be incurred by NYSDEC, as the lead agency for investigating, remediating, and monitoring of contaminated sites, as the MCLs will be used by the NYSDEC as guidance to determine whether a private well in NYS is contaminated by PFOA, PFOS and/or 1,4-dioxane. There are an estimated 800,000 private water supply wells in NYS. At this time, it is not possible to estimate the number of private wells that might be affected by contamination and, therefore, associated costs to NYSDEC cannot be determined.

**Cost to Local Government:**

The regulations will apply to local governments—including towns, villages, counties, cities, and authorities or area wide improvement districts—which own or operate a public water system subject to this regulation. There are approximately 1,500 public water systems that are owned or operated by local governments.

Costs will include initial monitoring for PFOA, PFOS and/or 1,4-dioxane, continued routine monitoring, and treatment in the event of a MCL exceedance. These potential costs will be the same as the costs to private regulated parties.

Local health departments that regulate drinking water will also incur administrative costs related to local implementation and oversight of the drinking water monitoring requirements including review and approval of sampling schedules; review and reporting of sample results; providing technical assistance to the public water suppliers; review and approval of plans (i.e., treatment plans); and activities associated with enforcement and public notification of MCL exceedances.

**Local Government Mandates:**

Local governments will be required to comply with this regulation as noted above.

**Paperwork:**

The additional monitoring, reporting, recordkeeping and paperwork needed for PFOA, PFOS and 1,4-dioxane is expected to be minimal because operators of public water supplies are currently required to keep such records for existing MCLs, and these regulations only add three additional chemicals. The reporting and recordkeeping requirements will increase if MCLs are exceeded and/or treatment is required.

**Duplication:**

There will be no duplication of existing State or federal regulations.

**Alternatives:**

One alternative is to maintain the existing MCL of 0.05 mg/L that applies to all unspecified organic chemicals when no chemical-specific MCL exists. Another alternative is to wait for the US EPA to issue a federal MCL. Based on DWQC deliberations and the additional analysis done by the Department it was determined that the current MCL of 0.05 mg/L, which is a generic standard for a broad class of organic chemicals is not protective of public health for these three specific chemicals. Waiting for the US EPA to set a new MCL was impractical due to the prevalence and concerns surrounding PFOA, PFOS and 1,4-dioxane. Therefore, the Department determined that adoption of the DWQC MCL recommendations for PFOA, PFOS and 1,4-dioxane is in the best interest of protecting the public health of NYS residents.

**Federal Standards:**

There is no federal MCL for PFOA, PFOS or 1,4-dioxane.

**Compliance Schedule:**

The MCLs will be immediately effective upon publication of a Notice of Adoption in the New York State Register. Public water systems serving 10,000 persons or more must begin monitoring within 60 days of adoption. Water systems serving 3,300 to 9,999 people must begin monitoring within 90 days of adoption and water systems serving less than 3,300 must begin monitoring within 6 months of adoption.

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## **REGULATORY IMPACT STATEMENT**

### **Statutory Authority:**

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### **Legislative Objective:**

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**Needs and Benefits:**

In 2017, New York State (NYS) identified PFOA, PFOS and 1,4-dioxane as emerging contaminants in drinking water. That same year, the Drinking Water Quality Council (DWQC) was created, with direction to recommend MCLs for these emerging contaminants. After discussions and deliberations, the DWQC recommended MCLs to the Department for PFOA, PFOS and 1,4-dioxane. Specifically, the DWQC recommended: an MCL of 10.0 parts per trillion (ppt) (or, expressed in different units, 0.0000100 milligrams per liter (mg/L)) for PFOA; 10.0 ppt (or 0.0000100 mg/L) for PFOS; and 1.0 part per billion (ppb) (or 0.0010 mg/L) for 1,4-dioxane.

PFOA, PFOS and 1,4-dioxane are anthropogenic chemicals that have been manufactured or used throughout the United States. PFOA and PFOS have been used for their emulsifier and surfactant properties in fire-fighting foam, polishes, and cleaners. PFOA has also been used in fluoropolymers (e.g. Teflon), cosmetics, lubricants, paints, coatings, laminates, adhesives and photographic films. 1,4-dioxane has been used as a stabilizer for chlorinated solvents, as a laboratory reagent and as a solvent in the manufacture of other chemicals. 1,4-dioxane is also found in paint strippers, antifreeze, dyes, greases, detergents, cosmetics and other consumer products.

PFOA and PFOS are no longer manufactured in the United States, but there may be some limited ongoing uses of these chemicals. The use of 1,4-dioxane as a solvent and solvent stabilizer has decreased because of the phase out of many chlorinated solvents, but it is

still used as a chemical intermediate and laboratory solvent, and can be found in some consumer products.

From 2015 through 2018, the Department coordinated targeted sampling of 278 public water systems for PFOA and PFOS. The 278 public water systems were mainly medium (serving 3,300 to 10,000 persons) to small (serving less than 3,300 persons) community water systems and non-transient noncommunity systems typically with a groundwater source located near a potential source of PFOA and/or PFOS. The results of this testing are shown in Figures 1A and 1B.

Figure 1A.

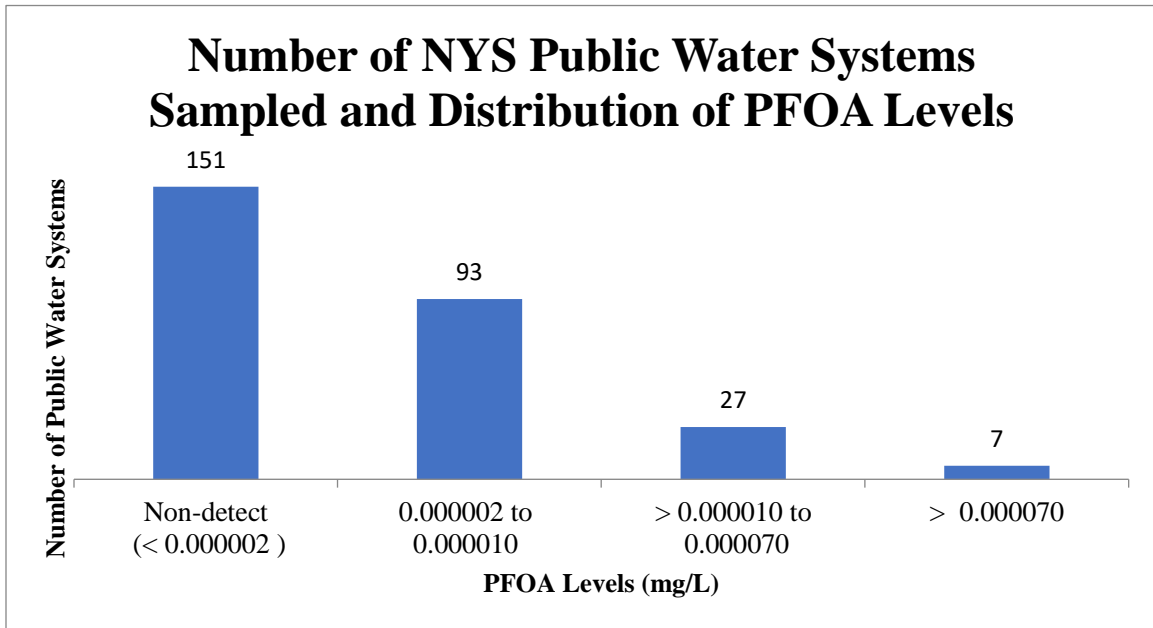
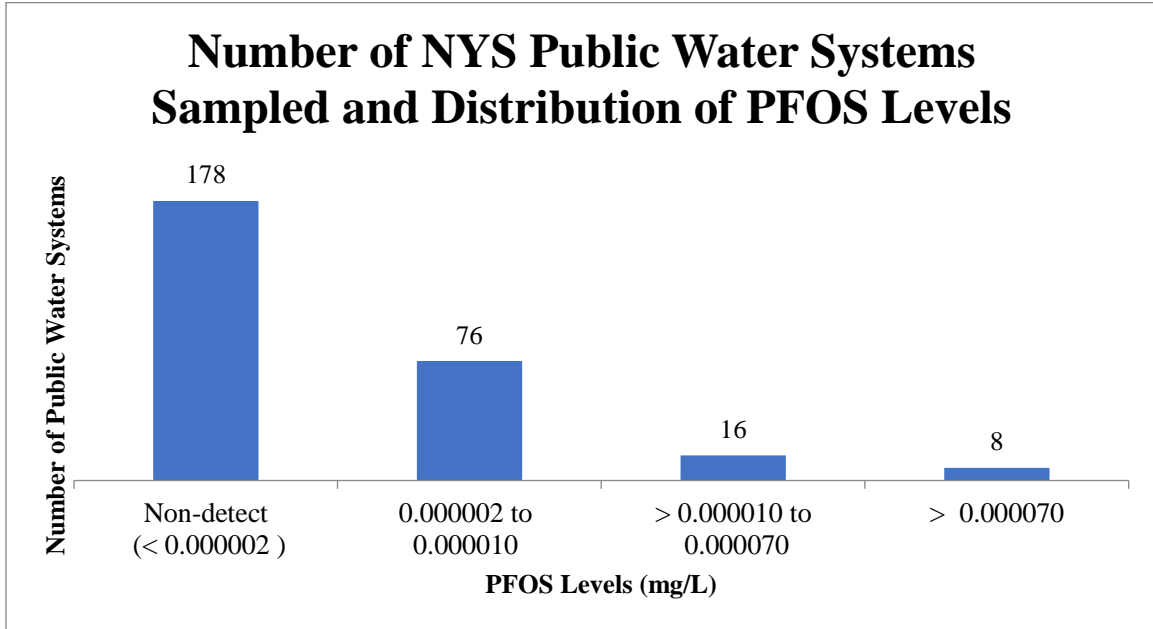
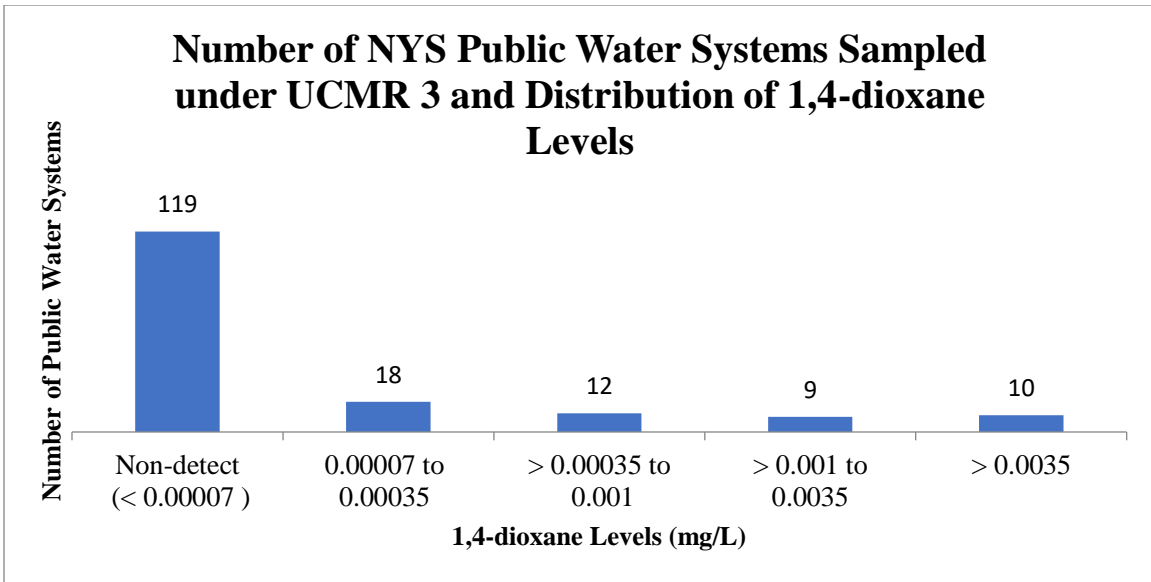


Figure 1B.



From 2013 through 2015 public water systems across NYS, under the United States Environmental Protection Agency (US EPA) Unregulated Contaminant Monitoring Rule 3 (UCMR 3), tested for 1,4-dioxane. All large public water systems (serving 10,000 persons or more) and 32 randomly selected medium and small water systems (serving less than 10,000 persons) in NYS conducted testing. Figure 2 shows that 11 percent (%) of the water systems tested had 1,4-dioxane levels above the DWQC's recommended MCL of 0.0010 mg/L.

Figure 2.



Based on the UCMR3 data, 51% of the samples from Long Island public water systems had levels of 1,4-dioxane above the reporting level of 0.00007 mg/L compared to 6% for NYS excluding Long Island.

The toxicity of PFOA has been extensively reviewed, evaluated and summarized by several authoritative bodies, including the US EPA, the Agency for Toxic Substances and Disease Registry (ATSDR), Health Canada, and the states of New Jersey and Minnesota. These evaluations indicate associations between increased PFOA exposure in humans and an increased risk for several types of health effects. These include effects on the liver, kidney, immune system, thyroid gland, cholesterol levels, uric acid levels, pre-eclampsia (a complication of pregnancy that includes high blood pressure), ulcerative colitis, development effects, and kidney and testicular cancer. Exposure to PFOA has also been shown to cause several adverse health effects in laboratory animals. PFOA caused cancer of the liver, pancreas, and testis in rats exposed for their lifetimes. Noncancer health effects caused by PFOA exposure in animals include liver toxicity, kidney toxicity,

developmental toxicity and immune system toxicity. The US EPA considers PFOA to have suggestive evidence of carcinogenic potential.

The toxicity of PFOS has also been extensively reviewed, evaluated and summarized by several authoritative bodies, including the US EPA, ATSDR, Health Canada, European Food Safety Authority, the Organization for Economic Co-operation and Development and the states of New Jersey and Minnesota. These evaluations indicate associations between increased PFOS exposure in humans and an increased risk for several health effects, including increases in total serum cholesterol, triglycerides, and uric acid, altered immune response, and effects on reproduction and development. PFOS exposure has also been shown to cause several adverse health effects in laboratory animals including liver and thyroid cancer in rats exposed for their lifetimes. Noncancer effects caused by PFOS in animals include effects on the liver, immune system, cholesterol levels, and the developing nervous system, and reduced survival in offspring born to rats. The US EPA considers PFOS to have suggestive evidence of carcinogenic potential.

The toxicity of 1,4-dioxane has been extensively reviewed, evaluated and summarized by the US EPA and ATSDR. 1,4-dioxane causes liver cancer in several species of laboratory animals (rats, mice and guinea pigs) exposed to high levels for their lifetimes. Other cancers caused by 1,4-dioxane in laboratory animals include breast cancer and cancer of the peritoneum and nasal cavity. Laboratory animals exposed to large amounts of 1,4-dioxane in drinking water for long periods of time also had noncancer health effects on the liver, kidney, nasal cavity and respiratory system. Based on sufficient evidence for

carcinogenicity in animals, the USEPA classifies 1,4-dioxane as likely to be carcinogenic to humans by all routes of exposure, and the United States Department of Health and Human Services includes 1,4-dioxane in its list of chemicals that are reasonably anticipated to be human carcinogens.

The Department provided the DWQC with technical information on a range of health-based drinking water values for PFOA, PFOS and 1,4-dioxane after an evaluation of the available health effects information on the chemicals from toxicological studies. These values included current national and state guidelines and advisory levels, as well as potential health based values developed by the Department. Based on their review of this information, the DWQC recommended an MCL of 0.0000100 mg/L for PFOA and PFOS as individual compounds, which is within the range of the potential health based water values presented to the DWQC by the Department (0.000006 to 0.000070 mg/L for PFOA and 0.000008 to 0.000070 mg/L for PFOS). The DWQC recommended an MCL of 0.0010 mg/L for 1,4-dioxane, which is within the range of current national and state guidelines and advisory levels presented by the Department (0.00035 to 0.2 mg/L).

In the absence of federal regulations governing PFOA, PFOS and 1,4-dioxane in drinking water, and after consideration of the recommendations provided by the DWQC, the Department is amending 10 NYCRR Part 5 to establish MCLs for these contaminants. The Department is proposing an MCL of 0.0000100 mg/L for PFOA and PFOS as individual contaminants, and 0.0010 mg/L for 1,4-dioxane. These MCLs will apply to all public water supplies regulated by the Department and provide a sufficient margin of

protection against adverse health effects in the most sensitive populations, including fetuses during pregnancy, breastfed infants, and infants bottle fed with formula reconstituted using tap water. In addition, the MCLs provide a sufficient margin of protection for lifetime exposure through drinking water for the general population.

These regulations will amend 10 NYCRR 5-1.52, Table 3, to list PFOA, PFOS and 1,4-dioxane and their proposed MCLs. In addition, these regulations will amend 10 NYCRR 5-1.52, Table 9C, to include these three contaminants in the current minimum monitoring requirements for additional organic chemicals. Table 9C was also amended to remove references to “Group 1” and “Group 2” chemicals as these groupings are outdated and no longer relevant. The MCLs apply to finished water. Initial monitoring for community and non-transient noncommunity public water systems will be quarterly for one year depending on system size. Monitoring at transient noncommunity public water systems will be at the Department’s discretion. Previous testing conducted using an Environmental Laboratory Approval Program (ELAP) approved method and laboratory may satisfy some or all of the initial monitoring requirements at the Department’s discretion, or the local health department’s discretion in consultation with the Department. Specifically, sample results for PFOA and PFOS analyzed after June 1, 2016 may be used to satisfy the initial monitoring requirements for 2019-20. Sample results for 1,4-dioxane analyzed after June 14, 2017 may be used to satisfy the initial monitoring requirements for 2019-20.



## **Compliance Costs**

### **Cost to Private Regulated Parties:**

There are approximately 7,200 privately owned public water systems in NYS. Of these, an estimated 2,100 systems serve residential suburban areas, manufactured housing communities and apartment buildings, residential and non-residential health care facilities, industrial and commercial buildings, private schools and colleges, and other facilities. The remaining 5,100 privately owned public water systems serve restaurants, convenient stores, motels, campsites and other transient systems. Costs will include initial monitoring, continued routine monitoring and treatment in the event of a MCL exceedance for PFOS, PFOA and/or 1,4-dioxane.

Monitoring and treatment costs for privately-owned public water systems is dependent upon the system size, the number of affected entry points/sources and the concentration of each contaminant. The exact costs for monitoring and treatment of PFOS, PFOA and 1,4-dioxane for public water systems, including privately-owned public water systems, cannot be determined due to several variables. The cost for a single PFOA/PFOS analysis is between \$200-\$300 per sample. The cost of a single 1,4-dioxane analysis is between \$100-\$250.

It is estimated that approximately 21% of all public water systems, including privately-owned public water systems, will have levels of PFOA or PFOS above the MCLs of 0.0000100 mg/L. For small systems serving less than 3,300 persons, capital and annual maintenance costs are estimated to be approximately \$400,000 and \$25,000, respectively.

For medium systems (serving 3,300 or more persons but less than 10,000 persons), capital and annual maintenance costs are estimated to be approximately \$2,400,000 and \$125,000, respectively. For large systems (serving 10,000 persons or more), capital and annual maintenance costs are estimated to be approximately \$15,000,000 and \$725,000, respectively.

It is estimated that eighty-nine (89) public water *facilities*, (a single public water system may be comprised of multiple public water facilities), will have a detection of 1,4-dioxane above the MCL of 0.0010 mg/L. The average cost of treatment for 1,4-dioxane is estimated to be \$3,570,000 per system, with an estimated average annual operation and maintenance cost of approximately \$150,000 per system.

Public water systems will likely make rate adjustments to accommodate these additional capital and operational costs.

**Cost to State Government:**

State agencies that operate public water systems will be required to comply with the proposed amendments. There are approximately 250 State-owned or operated facilities with a public water system. Examples of such facilities are State-owned schools, buildings, correctional facilities, Thruway services areas, and any other State-owned structure or property that serves an average of at least 25 individuals daily at least 60 days out of the year.

Costs will include initial monitoring for PFOA, PFOS and/or 1,4-dioxane, continued routine monitoring, and treatment in the event of a MCL exceedance. These potential costs will be the same as the costs to private regulated parties.

The proposed regulation will also create administrative costs to the Department relating to implementation and oversight of the drinking water monitoring requirements including review and approval of sampling schedules; review and reporting of sample results; providing technical assistance to the public water suppliers; review and approval of plans (i.e., treatment plans); and activities associated with enforcement and public notification of MCL exceedances.

Additionally, the Department and NYS Department of Environmental Conservation (NYSDEC) will incur costs associated with the investigation, remediation, and long-term monitoring associated with the release of these contaminants.

Although the proposed regulations do not apply to private wells, costs will be incurred by NYSDEC, as the lead agency for investigating, remediating, and monitoring of contaminated sites, as the MCLs will be used by the NYSDEC as guidance to determine whether a private well in NYS is contaminated by PFOA, PFOS and/or 1,4-dioxane.

There are an estimated 800,000 private water supply wells in NYS. At this time, it is not possible to estimate the number of private wells that might be affected by contamination and therefore costs to NYSDEC cannot be determined.

**Cost to Local Government:**

The regulations will apply to local governments—including towns, villages, counties, cities, and authorities or area wide improvement districts—which own or operate a public water system subject to this regulation. There are approximately 1,500 public water systems that are owned or operated by local governments.

Costs will include initial monitoring for PFOA, PFOS and/or 1,4-dioxane, continued routine monitoring, and treatment in the event of a MCL exceedance. These potential costs will be the same as the costs to private regulated parties.

Local health departments that regulate drinking water will also incur administrative costs related to local implementation and oversight of the drinking water monitoring requirements including review and approval of sampling schedules; review and reporting of sample results; providing technical assistance to the public water suppliers; review and approval of plans (i.e., treatment plans); and activities associated with enforcement and public notification of MCL exceedances.

**Local Government Mandates:**

Local governments will be required to comply with this regulation as noted above.

**Paperwork:**

The additional monitoring, reporting, recordkeeping and paperwork needed for PFOA, PFOS and 1,4-dioxane is expected to be minimal because operators of public water

supplies are currently required to keep such records for existing MCLs, and these regulations only add three additional chemicals. The reporting and recordkeeping requirements will increase if MCLs are exceeded and/or treatment is required.

**Duplication:**

There will be no duplication of existing State or federal regulations.

**Alternatives:**

One alternative is to maintain the existing MCL of 0.05 mg/L that applies to all unspecified organic chemicals when no chemical-specific MCL exists. Another alternative is to wait for the US EPA to issue a federal MCL. Based on DWQC deliberations and the additional analysis done by the Department it was determined that the current MCL of 0.05 mg/L, which is a generic standard for a broad class of organic chemicals is not protective of public health for these three specific chemicals. Waiting for the US EPA to set a new MCL was impractical due to the prevalence and concerns surrounding PFOA, PFOS and 1,4-dioxane. Therefore, the Department determined that adoption of the DWQC MCL recommendations for PFOA, PFOS and 1,4-dioxane is in the best interest of protecting the public health of NYS residents.

**Federal Standards:**

There is no federal MCL for PFOA, PFOS or 1,4-dioxane.

**Compliance Schedule:**

The MCLs will be immediately effective upon publication of a Notice of Adoption in the New York State Register. Public water systems serving 10,000 persons or more must begin monitoring within 60 days of adoption. Water systems serving 3,300 to 9,999 people must begin monitoring within 90 days of adoption and water systems serving less than 3,300 must begin monitoring within 6 months of adoption.

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## **REGULATORY FLEXIBILITY ANALYSIS FOR SMALL BUSINESS AND LOCAL GOVERNMENTS**

### **Effect on Small Business and Local Governments:**

Many of the public water systems affected by the new regulations are owned or operated by either small businesses or local governments. The Department does not maintain information on the exact number of the public water systems owned by small businesses. There are approximately 1500 water systems owned by local governments.

### **Reporting and Recordkeeping and Other Compliance Requirements:**

The obligations on small businesses and local governments are the same as for all owners or operators of public water systems. The regulations require additional monitoring, reporting, recordkeeping and public notification requirements for three additional contaminants, PFOA, PFOS and 1,4-dioxane. These requirements will increase if MCLs are exceeded and/or treatment is required.

Local health departments that regulate drinking water will also incur administrative costs related to local implementation and oversight of the drinking water monitoring requirements including review and approval of sampling schedules; review and reporting of sample results; providing technical assistance to the public water suppliers; review and approval of plans (i.e., treatment plans); and activities associated with enforcement and public notification of MCL exceedances.

**Professional Services:**

Public water systems impacted by the amended regulations will require the services of a laboratory to analyze samples for PFOA, PFOS and 1,4-dioxane. The laboratory must be approved by the Department under its Environmental Laboratory Approval Program (ELAP). Sufficient laboratory capability and capacity is anticipated to be available to process the initial staggered testing demands and future testing. If an MCL is exceeded, a licensed professional will be required to design changes to the public water system to meet the MCL.

**Compliance Costs:****Cost to Private Regulated Parties and Local Governments:**

A small business or local government will incur the same costs as other regulated parties. Costs will include initial monitoring, continued routine monitoring, and treatment in the event of a MCL exceedance for PFOS, PFOA and 1,4-dioxane.

Monitoring and treatment costs for small businesses and local government owned public water systems is dependent upon the system size, the number of affected entry points/sources and the concentration of each contaminant. The exact costs for monitoring and treatment of PFOS, PFOA and 1,4-dioxane for public water systems, including privately-owned public water systems, cannot be determined due to several variables.

The cost for a single PFOA/PFOS analysis is between \$200-\$300 per sample. The cost of a single 1,4-dioxane analysis is between \$100-\$250. For small systems serving less than 3,300 persons, capital and annual maintenance costs are estimated to be approximately \$400,000 and \$25,000, respectively. For medium systems (serving 3,300 or more persons



but less than 10,000 persons), capital and annual maintenance costs are estimated to be approximately \$2,400,000 and \$125,000, respectively. For large systems (serving 10,000 persons or more), capital and annual maintenance costs are estimated to be approximately \$15,000,000 and \$725,000, respectively.

It is estimated that eighty-nine (89) public water *facilities*, (a single public water system may be comprised of multiple public water facilities), will detect 1,4-dioxane above the MCL of 0.0010 mg/L. The average cost of treatment for 1,4-dioxane is estimated to be \$3,570,000 per system, with an estimated average annual operation and maintenance cost of approximately \$150,000 per system.

Public water systems will likely make rate adjustments to accommodate these additional capital and operational costs.

Local health departments that regulate drinking water will also incur administrative costs related to local implementation and oversight of the drinking water monitoring requirements including review and approval of sampling schedules; review and reporting of sample results; providing technical assistance to the public water suppliers; review and approval of plans (i.e., treatment plans), and activities associated with enforcement, including public notification of MCL exceedances.

**Economic and Technological Feasibility:**

These regulations are economically and technologically feasible for small businesses and local governments. Analytical methods exist for accurate sample analysis to detect PFOA, PFOS and 1,4-dioxane. There are also technologically feasible treatment solutions for all three contaminants. Treatment may present a greater challenge to smaller systems that typically have less resources including financial and technical expertise than larger systems.

**Minimizing Adverse Impact:**

The Department has included several provisions that minimize the impacts on regulated parties. Previous testing conducted using an ELAP approved method and laboratory may satisfy some or all of the initial monitoring requirements at the Department's discretion, or the local health department's discretion in consultation with the Department; sampling frequency will decrease after the first year if a contaminant (or the contaminants) is/are not detected at a public water system; the start of initial sampling is proposed to be staggered, requiring large systems to test first (within 60 days of adoption) and providing more time for smaller systems such that water systems serving between 3,300 to 10,000 persons should sample within 90 days of adoption and water systems serving less than 3,300 persons must begin sampling within 6 months of adoption.

In addition, New York State offers programs to support public water systems with infrastructure investments including but not limited to treatment and development/connection to alternate sources of water. Programs include the Drinking Water State Revolving Fund which provides market rate, low to no interest loans and

grants available to many municipally and privately-owned public water systems based on need and financial hardship. In addition, the New York State Clean Water Infrastructure Act of 2017 invests \$2.5 billion in clean and drinking water infrastructure projects and water quality protection across the State. It provides funding to the New York State Water Infrastructure Improvement Act of 2017 (WIIA) for grants to assist municipalities with water quality infrastructure. A separate \$200 million has been provided to support grants for drinking water projects that will address emerging contaminants such as PFOA, PFOS or 1,4-dioxane.

**Small Business and Local Government Participation:**

Small business and local governments were not specifically consulted on this proposal, however the MCLs set forth in this proposed rule were recommendations from the Drinking Water Quality Council (DWQC) which met numerous times in a public forum and were also recorded. The recordings are publicly available on the Department's website. During each DWQC meeting, members of the public were allowed to comment, and comments were provided to the Department outside of the meetings. Based on the information available it is not possible to determine the number of small businesses that participated during the meetings or provided comments, but from sign in sheets at the meetings some businesses did participate in the meetings. All comments provided by the public were made available to the DWQC for their consideration.

## **RURAL AREA FLEXABILITY ANALYSIS**

### **Types and Estimated Numbers of Rural Areas:**

These regulations apply to rural areas of the state, where approximately 6,400 small public water systems are located, in the same manner as the rest of the state.

### **Reporting, Record keeping and Other Compliance Requirements**

#### **Reporting and Recordkeeping:**

The obligations imposed on rural area public water systems are the same as for all owners or operators of public water systems. The regulations require additional monitoring, reporting, recordkeeping and public notification requirements for three additional contaminants, PFOA, PFOS and 1,4-dioxane. These requirements will increase if MCLs are exceeded and/or treatment is required.

#### **Professional Services:**

Like all public water systems, rural area public water systems impacted by the amended regulations will require the services of a laboratory to analyze samples for PFOA, PFOS and 1,4-dioxane. The laboratory must be approved by the Department under its Environmental Laboratory Approval Program (ELAP). Sufficient laboratory capability and capacity is anticipated to be available to process the initial staggered testing demands and future testing. If an MCL is exceeded, a licensed professional will be required to design changes to the public water system to meet the MCL.

**Compliance Costs:**

Rural area public water systems will incur the same costs as other regulated parties. Costs will include initial monitoring, continued routine monitoring, and treatment in the event of a MCL exceedance for PFOS, PFOA and 1,4-dioxane. There are approximately 7,200 privately-owned water systems. Of these, an estimated 2,100 systems serve residential suburban areas, manufactured housing communities and apartment buildings, residential and non-residential health care facilities, industrial and commercial buildings, private schools and colleges, and other facilities. The remaining 5,100 privately-owned systems, such as those at restaurants, motels and campsites, serve transient populations.

Monitoring and treatment costs for rural area public water systems is dependent upon the system size, the number of affected entry points/sources and the concentration of each contaminant. The exact costs for monitoring and treatment of PFOS, PFOA and 1,4-dioxane for public water systems, including rural area public water systems, cannot be determined due to several variables. The cost for a single PFOA/PFOS analysis is between \$200-\$300 per sample. The cost of a single 1,4-dioxane analysis is between \$100-\$250. For small systems serving less than 3,300 persons, capital and annual maintenance costs are estimated to be approximately \$400,000 and \$25,000, respectively. For medium systems (serving 3,300 or more persons but less than 10,000 persons), capital and annual maintenance costs are estimated to be approximately \$2,400,000 and \$125,000, respectively. For large systems (serving 10,000 persons or more), capital and annual maintenance costs are estimated to be approximately \$15,000,000 and \$725,000, respectively.

It is estimated that eighty-nine (89) public water *facilities*, (a single public water system may be comprised of multiple public water facilities), will have a detection of 1,4-dioxane above the MCL of 0.0010 mg/L. The average cost of treatment for 1,4-dioxane is estimated to be \$3,570,000 per system, with an estimated average annual operation and maintenance cost of approximately \$150,000 per system.

**Economic and Technological Feasibility:**

These regulations are economically and technologically feasible for rural area public water systems. Analytical methods exist for accurate sample analysis to detect PFOA, PFOS and 1,4-dioxane. There are also technologically feasible treatment solutions for all three contaminants. Treatment may present a greater challenge to smaller systems that typically have less resources including financial and technical expertise than larger systems.

**Minimizing Adverse Economic Impact on Rural Areas:**

The Department has included several provisions that minimize the impacts on regulated parties. Previous testing conducted using an ELAP approved method and laboratory may satisfy some or all of the initial monitoring requirements at the Department's discretion, or the local health department's discretion in consultation with the Department; sampling frequency will decrease after the first year if a contaminant (or the contaminants) is/are not detected at a public water system; the start of initial sampling is proposed to be staggered, requiring large systems to test first (within 60 days of adoption) and providing more time for smaller systems such that water systems serving between 3,300 to 10,000

persons should sample within 90 days of adoption and water systems serving less than 3,300 persons must begin sampling within 6 months of adoption.

In addition, New York State offers programs to support public water systems with infrastructure investments including but not limited to treatment and development/connection to alternate sources of water. Programs include the Drinking Water State Revolving Fund which provides market rate, low to no interest loans and grants available to many municipally and privately-owned public water systems based on need and financial hardship. In addition, the New York State Clean Water Infrastructure Act of 2017 invests \$2.5 billion in clean and drinking water infrastructure projects and water quality protection across the State. It provides funding to the New York State Water Infrastructure Improvement Act of 2017 (WIIA) for grants to assist municipalities with water quality infrastructure. A separate \$200 million has been provided to support grants for drinking water projects that will address emerging contaminants such as PFOA, PFOS or 1,4-dioxane.

**Rural Area Participation:**

Rural area stakeholders were not specifically consulted on this proposal, however the MCLs set forth in this proposed rule were recommendations from the Drinking Water Quality Council (DWQC) which met numerous times in a public forum and were also recorded. The membership of the DWQC included members from rural areas. The recordings are publicly available on the Department's web-site. During each DWQC meeting, members of the public could comment, and comments were provided to the

Department outside of the meetings. Based on the information available it is not possible to determine the exact number of rural stakeholders that participated during the meetings or provided comments, but from sign in sheets at the meetings rural communities attended DWQC meetings. All comments provided by the public were made available to the DWQC for their consideration.



## **JOB IMPACT STATEMENT**

### **Nature of the Impact:**

The Department expects there to be a positive impact on jobs or employment opportunities. A subset of public water system owners will likely hire firms or individuals to assist with regulatory compliance. Public water systems impacted by this amendment will require the professional services of a certified or approved laboratory to perform the analyses for PFOA, PFOS and 1,4-dioxane, which may create a need for additional laboratory capability and capacity. Additionally, a subset of owners will require the services of a licensed professional engineer to design facilities to meet the MCLs through treatment, or to access an alternate source.

### **Categories and Numbers Affected:**

The Department anticipates no negative impact on jobs or employment opportunities as a result of the proposed regulations.

### **Regions of Adverse Impact:**

The Department anticipates no negative impact on jobs or employment opportunities in any particular region of the state.

### **Minimizing Adverse Impact:**

Not applicable.