

DOW – 1.3.14

New York State Department of Environmental Conservation, Division of Water

Division of Water Technical and Operational Guidance Series

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Title: Publicly Owned Treatment Works
(POTWs) Permitting Strategy for
Implementing Guidance Values for PFOA,
PFOS, and 1,4-Dioxane

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I. Summary:

This guidance outlines the Department's initial implementation strategy for applying the guidance values (GVs) for Perfluorooctanoic acid (PFOA), Perfluorooctanesulfonic acid (PFOS), and 1,4-Dioxane (1,4-D) in State Pollutant Discharge Elimination System (SPDES) permits for Publicly Owned Treatment Works (POTWs)¹.

¹ DOW 1.2.2 – Administrative Procedures and the Environmental Benefit Permit Strategy for Individual SPDES Permits classifies permits for POTW discharges as 05 and 07.

II. Policy:

In accordance with the New York State Environmental Conservation Law (ECL) Article 17, Titles 7, 8² and Article 70, as well as 6 NYCRR Parts 621 and 750, New York administers the approved State Pollutant Discharge Elimination System (SPDES) program and procedures required to control discharges to the state's water resources.

SPDES permits issued for discharges to waters of the state shall comply with various effluent limitations, where each limitation is applicable per 6 NYCRR 750-1.11(a). Specifically, 6 NYCRR 750-1.11(a)(5) provides that a SPDES permit shall include conditions necessary to meet guidance values, where such limitations are more stringent than the other limitations in 6 NYCRR 750-1.11(a). The GVs for PFOA, PFOS, and 1,4-D are included in an addendum to Technical and Operational Guidance Series (TOGS) 1.1.1 - Ambient Water Quality Standards and Guidance Values and Groundwater Effluent Limitations, issued February 2023. The GVs are a numeric translation of New York State's narrative water quality standards for toxic and other deleterious substances, 6 NYCRR 703.2, and were derived using the same methodology to establish water quality standards as described in 6 NYCRR Part 702.

III. Purpose and Background:

The purpose of this guidance is to establish an initial implementation strategy to apply the GVs for PFOA, PFOS, and 1,4-D through SPDES permits for discharges from POTWs. As the science surrounding these contaminants is evolving, this policy is a starting point and will continue to be adjusted as necessary.

The PFOA, PFOS, and 1,4-D implementation strategy for industries with direct discharges to waters of the State is addressed in TOGS 1.3.13: Industrial Permitting Strategy for Implementing Guidance Values for PFOA, PFOS, and 1,4-Dioxane. A different implementation strategy from that developed to address manufacturers or primary sources of these contaminants is necessary because POTWs do not 1) manufacture these contaminants, but rather receive them from upstream sources, and 2) have treatment systems that are not designed to treat these contaminants.

PFOA, PFOS, and 1,4-D are relatively ubiquitous in the environment due to their historical widespread use and persistence. PFOA and PFOS have been used in a wide variety of consumer and industrial products as surface coatings and/or protectants because of their nonstick properties. Although their releases have been declining since companies began phasing out their production and use in the early 2000s, trace amounts are still being observed in imported goods as impurities.³ In addition, because of their anti-degradation properties, these contaminants

² CWA § 402(b); 33 U.S.C. § 1342(b)

³ ATSDR, Toxicological Profile for Perfluoroalkyls, US Dept of Health and Human Services, May 2021.

remain a concern from industries that had historically used these chemicals in their production. Research further indicates that these compounds can bioaccumulate in various organisms, including fish and humans.⁴ 1,4-D has been largely used as a solvent stabilizer for chemical processing but can also be found as a purifying agent in the manufacturing of pharmaceuticals, as well as a contaminant in ethoxylated surfactants commonly used in consumer cosmetics, detergents, and shampoos.⁵ Use of 1,4-D as a solvent stabilizer has since been terminated, but it currently remains a purifying agent for the pharmaceutical industry, as well as a by-product present in many consumer goods.⁶ Research indicates that this chemical does not bioaccumulate in the food chain.⁶

The Department will continue to review new data and information on specific industrial categories potentially associated with these contaminants. EPA initiated development of effluent limitation guidelines, or has identified a need for additional research, for the following industrial categories as they relate to the potential presence of PFOA or PFOS in their wastewater: organic chemicals, plastics, and synthetic fibers; metal finishing; electroplating; electrical and electronic components; textile mills; landfills; leather tanning and finishing; plastics molding and forming; and paint formulating.⁷ In addition, the Department identified a preliminary list of SIC codes where PFOA, PFOS, and 1,4-D may be present at levels considered to be environmentally significant (See Appendix A & B of TOGS 1.3.13). An updated list, which will periodically be adjusted based on new information, is available at: <https://www.dec.ny.gov/chemical/127939.html>.

Although there are currently no federally established technology-based standards related to these contaminants, the Department is aware of treatment technologies currently available which 1) are capable of achieving local limits⁸ to prevent passthrough or interference (i.e. sludge disposal) and 2) meet any final effluent limitations, to be derived from the GVs, in the SPDES permits for the POTWs. As stated in TOGS 1.3.13: Industrial Permitting Strategy for Implementing Guidance Values for PFOA, PFOS, and 1,4-Dioxane, these treatment technologies should be implemented at industrial and commercial facilities that generate waste streams containing these contaminants prior to discharging to POTWs. The implementation of these treatment technologies at the POTW are not as effective or efficient due to dilution of sources with municipal sewage and introduction of conventional sewage pollutants that complicate emerging contaminant treatment.

⁴ USEPA, Technical Fact Sheet – Perfluorooctane Sulfonate (PFOS) and Perfluorooctanoic Acid (PFOA), November 2017.

⁵ ATSDR, Toxicological Profile for 1,4-Dioxane, US Dept of Health and Human Services, April 2012.

⁶ USEPA, Technical Fact Sheet – 1,4-Dioxane, November 2017.

⁷ USEPA, PFAS Strategic Roadmap: EPA’s Commitments to Action 2021-2024, October 2021.

⁸ 6 NYCRR 750-2.9

IV. Responsibility:

Administration of this guidance document is handled by Division of Water's Bureau of Water Permits in Central Office. Implementation of the guidance is handled by Central Office and Regional permit writing staff.

V. Procedure:

In accordance with this initial implementation strategy, the Department will prioritize evaluation for the presence of PFOA, PFOS and 1,4-D at POTWs that are located within a HUC 12 watershed of a drinking water supply (Class A, AA, A-S and AA-S, GA and GSA ambient waters in New York State) or recycle biosolids. This targeted approach initially focuses on existing POTWs that have the greatest potential for discharge of the subject compounds to drinking water sources.

Additionally, whenever any POTW's SPDES permit is being actively reviewed by the Department for another permitting action, the Department will seek information (details below) from the POTW regarding these contaminants. This allows the Department to collect information on a statewide scale to inform the Department's 1) understanding of background levels of these contaminants, and 2) list of industrial sources with the potential to have these contaminants present in their discharge.

The following may be utilized by the Department to implement this policy:

- **Existing POTWs Within a Drinking Water Supply Watershed or that Recycle Biosolids**- In accordance with 6 NYCRR 750-2.1(i), and where sufficient data is not already available, the Department will send existing POTWs within a drinking water supply watershed, or existing POTWs that trigger additional actions per "DMM- 7/Biosolids Recycling in New York State – Interim Strategy for the Control of PFAS Compounds," a Request for Information (RFI). To respond to the RFI, the POTW will provide results from representative⁹ samples of the influent and effluent levels for 1,4-D and the 40 Per- and Polyfluoroalkyl Substances (PFAS) compound suite available through EPA's draft Method 1633. The POTW will take these samples quarterly for a 12-month period.
- **POTW SPDES Permits Under Active Review** - In accordance with 6 NYCRR 750-1.18, where the Department is actively reviewing a POTW's SPDES permit for another permitting action, the Department may propose a modification to include a monitoring program for the 40 PFAS compound suite available through EPA's draft Method 1633 and/or 1,4-D. In accordance with 6 NYCRR 750-2.5(a)(2), the monitoring will inform the science on background levels and ensure waste streams are being accurately characterized to reflect these new emerging contaminants.

⁹ A representative sample is one that adequately reflects the general wastewater characteristics of the facility and captures all potential waste streams ultimately contributing to the discharge. See 6 NYCRR Part 750-1.7(b) and 2.5 for additional detail.

- **Disclosure of Industrial Users** - In accordance with 6 NYCRR 750-1.7(a)(9), all POTWs are required to disclose information on their industrial users with their Application Form 2A. As part of the regularly required pollutant scan, the Department modified Application Form 2A, to require influent sampling for 1,4-D and the 40 Per- and Polyfluoroalkyl Substances (PFAS) compound suite available through EPA's draft Method 1633.
- **Industrial Users of POTWs** - In accordance with 6 NYCRR 750-2.9(a)(1), if a industrial discharge to the POTW represents a substantial change in the volume or character of pollutants introduced to the POTW, the POTW accepting waste from the industrial facility must provide adequate notice to the Department prior to accepting the discharge. Given the low levels expressed by the GVs for these contaminants, the introduction of any detectable amount of PFOA, PFOS, or 1,4-Dioxane would represent a substantial change in character and require notice to the Department.

Where the Department identifies POTWs that require additional investigation based on the information submitted, and in accordance with TOGS 1.2.2 and 6 NYCRR 750-1.19, the Department will adjust the Environmental Benefit Permit Strategy (EBPS) scores associated with the SPDES permits. When a POTW reaches priority status, per the EBPS, the Department will propose a modification to the SPDES permit in accordance with established procedures and guidance. This modification may include additional monitoring, Action Levels and/or a pollutant minimization program (PMP) to track down potential sources and identify and implement actions to reduce effluent concentrations of PFOA, PFOS and 1,4-D to protect source waters. Consistent with 6 NYCRR 750-1.14, compliance schedules may be utilized in SPDES permits to achieve compliance with new effluent limit(s) or other SPDES permit requirements (e.g. develop and implement PMPs). Appendix A provides an example framework for a PMP that may be incorporated into SPDES permits for POTWs.

As required by 6 NYCRR 750-2.9(a)(4), POTWs may use the authority provided by their sewer use law to control the discharge of industrial wastewater through Best Management Practices (BMPs) and pretreatment. This minimizes the need for additional treatment at the POTW. These BMPs may include but are not limited to: requests for information/disclosure of their use of products containing these contaminants; wastewater sampling to determine presence of these emerging contaminants; voluntary reductions of product(s) and/or equipment substitution; or establishment of local limits (see [Appendix A](#)). These BMPs may be included as necessary steps in a POTW's PMP.

This phased implementation strategy, initially utilizing PMPs, is expected to control costs to the POTW and remove controllable sources of PFOA, PFOS and 1,4-D from the environment, while focusing the Department's permitting efforts to maximize public health benefits. However, if further analysis determines a significant source of concern and/or contamination exists in the effluent from POTWs, other than those in the initial implementation policy, the Department may propose modification to the POTWs SPDES permit based on established procedures and guidance.

VI. Related References:

TOGS 1.1.1: Ambient Water Quality Standards and Guidance Values and Groundwater Effluent Limitations

TOGS 1.2.1: Industrial Permit Writing

TOGS 1.2.2: Administrative Procedures and Environmental Benefit Permit Strategy for Individual SPDES Permits

TOGS 1.3.1: Total Maximum Daily Loads & Water Quality-Based Effluent Limits

TOGS 1.3.3.: SPDES Permit Development for POTWs

TOGS 1.3.8: New Discharges to Publicly Owned Treatment Works

TOGS 1.3.13: Industrial Permitting Strategy for Implementing Guidance Values for PFOA, PFOS, and 1,4-Dioxane

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Appendix A

Example Framework for Pollutant Minimization Program (PMP) for Publicly Owned Treatment Works

GOAL

The goal of the Pollutant Minimization Program (PMP) is to identify all known sources of the contaminant of concern and to reduce those sources to the Maximum Extent Practicable, ultimately resulting in the discharge meeting any calculated Water Quality Based Effluent Limits.

(POTWs)

Step 1: Characterization of waste stream

1. SCREENING/QUANTIFICATION OF EMERGING CONTAMINANTS

Commence a study to quantify sources of PFOA, PFOS, and 1,4-D at the permittee's POTW on or before EDP + 6 months. This study must include the following:

i) Identification of “industrials users” (see Appendix A and B of TOGs 1.3.13) - POTWs are encouraged to prioritize those users based on likelihood of contribution (e.g., high, medium, low)¹⁰. POTWs may choose to utilize an industrial survey to help identify facilities with known current or historical usages of these compounds.

ii) Evaluation of Pollutants - For each “industrial user”, starting with highest priority, an evaluation of which parameters that industrial user discharges at levels greater than the guidance values identified in the following table:

PFOA	6.7 ng/L
PFOS	2.7 ng/L
1,4-Dioxane	0.35 ug/L

iii) Conduct Sampling - The POTW shall collect sampling results for PFOA, PFOS and/or 1,4-D for a minimum of one year from each industrial user where the discharge of one or more of the above noted parameters is known or suspected. A minimum of quarterly sampling is recommended.

iv) Determination of Average Daily Flow - A determination of average daily wastewater flow from each industrial user should be completed. Such determination shall be based on water meter readings, wastewater flow measurement, or reasonable alternative for all industrial users.

v) Estimation of Uncontrolled Loadings - An estimation of uncontrollable loadings of each parameter derived from a minimum of twelve grab sampling and analysis events of residential wastewater. The minimum practicable detection levels for PFOA, PFOS, and

¹⁰ POTWs should prioritize trackdown efforts based on industries most likely contributing. For instance, manufacturers of products from raw materials (ie. Paper Mills) and those with higher process wastewater flows are more likely to be contributing higher levels of the contaminants than those industries dealing with products second hand (i.e. Car Washes/Laundromats) and facilities with lower process wastewater flows.

1,4-D shall be achieved through EPA draft method 1633 and EPA method 8270, respectively.

vi) Inventory of Water Treatment Chemicals - A list of all Water Treatment Chemicals in use from each of the industrial users.

2. RAW WATER STUDY

The permittee shall obtain and submit to the Department copies of the Raw Water Studies upon their completion to be conducted by the water suppliers within the permittee's service area under the Safe Drinking Water Act. If individual water studies are not complete by EDP + 18 months, the permittee shall submit existing data obtained for these studies from the individual water departments.

3. REMOVALS STUDY

Commence a study to quantify removals of PFOA, PFOS, and 1,4-D through the POTW. This study should include collection and analysis of 12 monthly influent and effluent representative grab samples for the above noted parameters. Effluent sample collection should lag influent sample collection by the hydraulic retention time of the treatment plant. The minimum practicable detection levels shall be achieved through EPA draft method 1633 and EPA method 8270, respectively.

Step 2: Implementation

Begin implementation to reduce sources of PFOA, PFOS and/or 1,4-D at the permittee's POTW on or before EDP + 18 months.

1. REDUCE POLLUTANT LOADINGS

- i) Starting with higher priority industries, develop a schedule to reduce pollutant contributions from controllable sources to the maximum extent practicable.
- ii) Based on the POTW's prioritization of industries, the PMP should examine voluntary source reductions at each of the facilities found to be contributing PFOA, PFOS, and/or 1,4-D. The PMP should first focus on Best Management Practices such as product substitutions, historical equipment changeout, etc., at each of the high priority industries.
- iii) If necessary, revise sewer use law to limit the discharge of PFOA, PFOS, and/or 1,4-D to the POTW.
- iv) Should results from Step 1 determine a significant source to be residential wastewater, the municipality should consider public education and restrictions on certain substances to reduce loadings from these nonindustrial sources.
- v) Following implementation of i) to iv), review influent data for PFOA, PFOS, and/or 1,4-D. If results are above Action Levels, repeat step ii) for lower priority industries.

vi) Re-characterize the waste streams of industries for PFOA, PFOS, and/or 1,4-D.

2. EVALUATE RESULTS

i) Review and summarize each industry's implementation efforts and current characterization. Identify significant sources.

ii) If necessary, require additional reductions from significant sources and set a schedule for compliance.

iii) Re-characterize the waste streams of significant sources for PFOA, PFOS, and/or 1,4-D.

3. SUMMARY REPORT

On or before EDP + 60 months, develop a summary report of all implementation efforts. Identify issues that the POTW has encountered as it has implemented the PMP. Submit to the Department for review and comment.

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