PUBLIC NOTICE

ENVIRONMENTAL PROTECTION

OFFICE OF LEGAL AFFAIRS

Notice of Action of Petition for Rulemaking

Water Resource Management

Petition for Department Rules Requiring the Disclosure, Monitoring, and Treatment, of Currently Unregulated Drinking Water Contaminants and Establishment of Fees to Fully Fund Controls

Petitioner: Bill Wolfe

Take notice that the Department of Environmental Protection (Department) has determined to deny the petition for rulemaking filed on September 1, 2023, by Bill Wolfe (petitioner), seeking rules requiring disclosure, monitoring, and treatment of currently unregulated drinking water contaminants, and the establishment of a fee schedule to fund such Department programming. A notice of receipt of the petition was published in the New Jersey Register on October 16, 2023. See 55 N.J.R. 2212(a).

The petitioner stated that currently unregulated contaminants have been detected in public water supply source waters and raw drinking water in New Jersey and pose significant adverse risks to human health and the environment. The petitioner cited and excerpted information, research, and data regarding unregulated contaminants and drinking water from several sources, including the Department and the U.S. Environmental Protection Agency (USEPA). The petitioner specifically requested rules to govern the following:

- Disclosure of data regarding past and future detection of unregulated contaminants in New Jersey water supply source waters and raw drinking water, including chemical name, concentration detected, location of sample, known and/or suspected ecological and human health effects of the chemical based on best available toxicological data and/or structure and activity relationships;
- Monitoring requirements for public water supply systems for a specific list of currently unregulated contaminants, including sampling frequency, location, analytical methods, and reporting and disclosure requirements;
- Treatment requirements for public water supply systems for currently unregulated contaminants detected in ground and surface public water supply source waters, including treatment technology and engineering performance standards; and
- A fee schedule to fund the monitoring, treatment, and reporting program for unregulated contaminants.

After careful consideration, the Department has determined to deny the petition for the reasons set forth below.

Monitoring and Disclosure of Unregulated Contaminants

The petitioner requests Department rulemaking to establish requirements for the monitoring of unregulated contaminants and the disclosure of any past and future occurrence of unregulated contaminants. As described in brief below, the Department's many existing research initiatives, monitoring programs, intergovernmental collaborations, and regulatory efforts to address unregulated contaminants make clear the longstanding policy and practice of the

Department to monitor unregulated contaminants and share occurrence data with the public. The petition is denied insofar as it misunderstands or ignores Department policy and programs that already serve the requested ends, therefore rendering the petition moot.

Beginning in 1997, the Department initiated studies of New Jersey water supplies to determine the occurrence of contaminants not then regulated by the Safe Drinking Water Act (SDWA). At that time, the occurrence of such "unregulated contaminants" in drinking water had begun to be observed in national and international studies.

In March 2003, the Department published results regarding the occurrence of "tentatively identified compounds" (TIC) in raw (*i.e.*, untreated) and finished (*i.e.*, treated) water in twenty-one water systems in New Jersey that have (a) historically reported volatile contaminants or (b) are proximate to known contaminated sites. A TIC is a compound that can be detected by an analytical testing method, but its identity and concentration cannot be confirmed without further analyses. Approximately 600 TICs were detected in the analyses of raw and finished water samples using these research analytical methods adapted to detect low levels (less than one part per billion) of non- and semi-volatile organic contaminants performed by the Environmental and Occupational Sciences Institute (Piscataway, New Jersey).

Other studies have also indicated the presence of unregulated contaminants in untreated ground and surface water used as sources of water by public water systems in New Jersey. See https://dep.nj.gov/dsr/water-quality/. For example, in April 2010, the Department summarized its investigations of a "treatment-based" approach to addressing unregulated contaminants in drinking water, which referenced *Water-Quality Data for Pharmaceuticals and Other Organic Wastewater*

Contaminants in Ground Water and in Untreated Drinking Water Sources in the United States, 2000-01, a joint project between the Department and the U.S. Geological Survey (USGS) and Centers for Disease Control and Prevention. Over ninety percent of the samples in this study contained detectable concentrations of one or more of the 126 target compounds. The number of compounds detected per sample ranged from zero to 32, with a median of 11. The total concentration of these compounds per sample ranged from non-detectable to 81 micrograms per liter (µg/L), with a median of 1.7 µg/L.

In 2003, the Department partnered with USGS to evaluate the occurrence of contaminants of emerging concern in New Jersey's streams and drinking water supplies. The study utilized analytical methods developed by USGS for the determination of more than ninety-five contaminants typically found in domestic, industrial, and agricultural wastewaters, including pharmaceuticals, antibiotics, hormones, personal care products, and various industrial and commercial products. This study found trace level organic contaminants that represent a broad suite of uses and origins can enter and persist in ambient waters and subsequently occur in finished drinking water supplies.

In 2016, the Department, through its Division of Science and Research, studied the occurrence of antibiotic compounds upstream and downstream of two wastewater treatment plants in northern New Jersey. Twenty-five antibiotic compounds and six antibiotic compound degradants were analyzed at nine sample locations. Eight antibiotic compounds were detected in both the water column and sediment as part of this study.

The Department has also conducted studies that investigate emerging contaminants in environmental media such as fish tissue, surface water, and sediments. For example, a 2015 study of per- and polyfluoroalkyl substances (PFAS) in fish tissue, sediment, and surface water (see https://dspace.njstatelib.org/handle/10929/68477) detected PFAS levels in fish tissue that led to the establishment of consumption advisories for several waterbodies around the state, while levels of PFAS in the water and sediment led to investigations of potential sources by the Department's Contaminated Site Remediation & Redevelopment program. Further Department studies have continued to expand the number of waterbodies in which PFAS are monitored in these three media.

Currently, the Department is also investigating multiple emerging contaminants in the same three environmental media across the state (e.g., fish tissue, surface water, and sediments). These chemicals include pharmaceuticals and personal care products, chlorinated paraffins, pesticides, and polybrominated biphenyl ethers. An additional study is investigating the presence of N-(1,3-dimethylbutyl)-N'-phenyl-p-phenylenediamine (6PPD) in New Jersey's environment. 6PPD is an organic chemical added to automobile tires to prevent them from degrading. This chemical and its transformation product, 6PPD-quinone, can contaminate surface waters through stormwater runoff and cause toxicity including lethality to certain types of fish in streams and stormwater runoff.

In addition to the foregoing research initiatives, the Department is responsible for numerous multi-year monitoring programs mandated by the Clean Water Act, some of which have served as prototypes for the nation. Through the Bureau of Freshwater and Biological Monitoring within its Division of Water Monitoring, Standards and Pesticide Control, the Department

regularly conducts water quality monitoring on a watershed basis to assess the physical, chemical, and biological conditions of waterbodies and watershed characteristics to evaluate the success of State and Federal Clean Water Programs. Department sampling stations include surface water as well as groundwater monitoring. A wide range of parameters are collected including chemical, physical, biological, and microbiological properties. These Department monitoring programs already incorporate monitoring for several emerging and unregulated contaminants, such as PFAS and 1,4-dioxane. Details of each program, its parameters and analyses, assessments and data are publicly accessible at https://www.state.nj.us/dep/wms/bfbm/.

Findings from these and other monitoring programs have led the Department to initiate the process of proposing surface water quality standards for 1,4-dioxane and several PFAS, as well as the development of recreational guidance for several cyanotoxins.

Furthermore, the Department, in partnership with USGS, monitors groundwater quality with its New Jersey Ambient Groundwater Quality Monitoring Network (AGWQMN). Initiated in 1999, the network consists of 150 shallow groundwater monitoring wells installed statewide. The goals of the AGWQMN are to assess ambient groundwater quality conditions and trends, evaluate contaminant sources, and identify emerging water quality issues. Understanding the quality of shallow groundwater is important because it is the water that typically recharges deeper aquifers potentially used for potable water supplies and provides base flow to local streams and wetlands. Each monitoring well is currently sampled once every three years, and six sampling cycles have been completed to date. Chemical and physical parameters analyzed in each groundwater sample include pH, total dissolved solids, dissolved oxygen, temperature, alkalinity,

major ions, trace elements, nutrients, gross-alpha particle activity, volatile organic compounds (VOCs), and pesticides. Seventy-two percent of the pesticides and volatile organic compounds sampled are not currently regulated. As research emerges on the potential environmental and health impacts of individual or classes of compounds, new analytes such as PFAS and 1,4-dioxane have been added to the network's analyte list to assess their occurrence in the shallow groundwater of the state. The AGWQMN analytical data can be accessed from the USGS National Ground-water Monitoring Network Data Portal at https://cida.usgs.gov/ngwmn/index.jsp and the USGS National Water Information System Web Interface (NWIS) at https://waterdata.usgs.gov/nwis/qw. The AGWQMN data is periodically summarized in the following reports:

- The 2018/2020 New Jersey Integrated Water Quality Assessment Report Clean Water Act 303(d) List and 305(b) Report can be accessed at https://www.state.nj.us/dep/wms/bears/assessment-report20182020.html

- The Ground Water Quality Environmental Trends Report can be accessed at https://dep.nj.gov/dsr/environmental-trends/#water

As part of its strategy to address PFAS, a major family of emerging contaminants, the Department is currently in the process of expanding PFAS monitoring as a component of its New Jersey Pollutant Discharge Elimination System (NJPDES) program. NJPDES governs, *inter alia*, facilities that discharge treated industrial or domestic wastewater into surface waters of the state or to a publicly owned treatment works (POTW) as part of that facility's wastewater operations.

Through its Division of Water Quality, the Department is engaged in an ongoing effort to identify and reduce or eliminate sources of PFAS in industrial wastewater.

To date, the Department has surveyed required all industrial dischargers to surface water, and significant indirect users of wastewater treatment plants to complete a "PFAS Source Evaluation and Reductions Requirements Survey" to evaluate whether their use of products or production of materials containing PFAS results in the inclusion of PFAS in effluent or wastewater produced at a NJPDES-permitted facility. The Department also issued a Request for Information to gather wastewater sampling data from the surveyed permittees. In addition, the Department is coordinating with POTWs that have a delegated pretreatment program to better understand any contributions from industrial facilities that discharge to those POTWs. In January 2023, Commissioner Shawn M. LaTourette issued Administrative Order 2023-01 further encouraging the collection of data that will aid in efforts to identify, reduce and eliminate sources of PFAS in wastewater and its residuals. The Department anticipates that this data collection will promote a more fulsome visualization of the occurrence of PFAS in wastewater and support further regulatory steps aimed at reducing discharges of PFAS to water resources. More information about this strategy to track down, reduce, and eliminate sources of PFAS is available at https://www.nj.gov/dep/dwq/pfas.htm.

Treatment of Unregulated Contaminants

The petitioner requests Department rulemaking to establish treatment requirements for public water supply systems for currently unregulated contaminants detected in ground and surface public water supply source waters, including treatment technology and engineering performance

standards. This request appears based on some of the above-referenced unregulated contaminant monitoring data. However, as described below, while unregulated contaminant monitoring provides a basis for further study that could result in the establishment of drinking water standards where appropriate, such unregulated contaminant monitoring data may not itself serve a sufficient basis for regulation. Rather, the Department is engaged in a variety of continuous efforts to obtain more complete information about the occurrence, toxicity, and possible treatment approaches for unregulated contaminants. The results of these ongoing efforts will enable the Department to determine whether science supports initiating a regulatory monitoring and treatment program for currently unregulated contaminants. Insofar as the requested rulemaking would duplicate, without appropriate scientific rigor, the research, standard setting, and Safe Drinking Water Act compliance programs already administered by the Department, the petition is denied.

As explained above, in March 2003, the Department published results regarding the occurrence of approximately 600 "tentatively identified compounds," or TIC, in water systems, which results were based on analytical methods adapted to detect low levels of contaminants. These screening techniques are meant to gauge the number and geographic distribution of unregulated contaminants in drinking water, but they are not appropriate techniques for use on a routine basis for monitoring water systems or to make regulatory decisions. For these methods to be used for regulatory monitoring of drinking water systems in the future, State or Federal regulators must develop and promulgate drinking water testing methods to obtain results from public water systems with adequate precision and accuracy. In short, the TIC data collected to date

do not themselves provide a sufficient basis to establish the regulatory program the petitioner seeks.

While the TIC results provide relevant data points about contaminant occurrence, information about contaminant toxicity that is critical to the establishment of regulatory standards has been lacking. For example, research conducted by the Department and Rutgers University (previously, the University of Medicine and Dentistry) to compile toxicity information about the TICs detected showed that toxicity information was available for only twenty-two percent of the TICs found in the New Jersey water samples, and that the information that was available was mostly regarded acute health effects. Information on chronic health effects is necessary to establish drinking water standards because they are intended to protect over a lifetime of exposure. For these reasons, the Department developed a list of potential options to address unregulated contaminants and sought public comment on them in a February 2004 Interested Party Review (see 36 N.J.R. 889(b)). Based on the comments received, the Department determined that implementing the water treatment technology approach would likely have the best outcome of the options presented. Of the few treatment technologies available to remove the various unregulated contaminants from drinking water, granular activated carbon (GAC) seemed to be the most promising.

In a report dated April 22, 2020, entitled *Approaches for Addressing Drinking Water and Wastewater Contaminants of Emerging Concern (CECs) in a Broader Context: Identification, Ranking and Treatment Removal*, the Department's Science Advisory Board (SAB) responded to the Department's questions regarding potential approaches to address CECs in water. The SAB

members agreed that "the current chemical-by-chemical approach for developing drinking water standards (maximum contaminant levels or MCLs) and water quality standards has tremendous rigor, as required by the regulatory process," and that development of a new health-based drinking water guideline for a contaminant, if there is sufficient health effects data, is resource intensive. Additionally, the SAB concluded that there may be insufficient health effects data for a chemical-specific approach for some CECs and that "MCL development is not feasible for the large number of CECs that can be detected using current analytical techniques." As such, the SAB concluded that "there is a need to develop a prioritization scheme that could be used to select which classes of compounds and CECs may pose the greatest hazards" and discussed several approaches and considerations for prioritization of CECs. Additionally, the SAB concluded that "there is justification for recommending or requiring additional treatment for public water systems located in geographical areas known to be impacted by multiple unregulated contaminants when there is evidence that contaminants are present in the drinking water at levels that could potentially affect public health." It recommended that "an underlying goal is finding cost effective methods that can interrupt or decrease the pathways resulting in human exposures to levels [of CECs] believed to pose little or no public health concern," that "water systems known to have elevated levels of CECs should have additional analytical evaluation," and that "the number, types and levels of the identified unregulated compounds and TICs present will determine the need for further study and possible recommendation of additional treatment." (See https://dep.nj.gov/wp-content/uploads/sab/sab-cec-2020.pdf)

Based on the general support for the approach of requiring treatment for unregulated contaminants, the Department approached two water systems, Fair Lawn Water Department (Bergen County) and Merchantville-Pennsauken Water Commission (Camden County), about conducting pilot demonstrations for the purpose of studying GAC performance and optimization. Both water systems reported the largest number of unregulated contaminants in water samples as compared to other public water systems in the TIC study and expressed interest in implementing treatment to remove them. With funding from the State, contracts to construct GAC treatment technology at these systems were awarded and construction was initiated in 2011. The first samples were collected in April of 2011 and sampling continued through 2014. This research was conducted by Rutgers Environmental and Occupational Health Sciences Institute (EOHSI) and the New Jersey Department of Health (NJDOH) Public Health and Environmental Laboratories, working with the Department's Division of Science and Research. This research evaluated occurrence and treatment removal of both target compounds of interest and tentatively identified compounds present at ultra-trace levels in raw and finished drinking water. Multiple analytical techniques, including research methods, were utilized, and three activated carbon media were investigated. For TICs identified by the NJDOH laboratory, 91 to 99 percent were removed to below the detection limit, while for TIC identified by EOHSI, 72 to 85 percent were removed to below the detection limit (see https://dspace.njstatelib.org/handle/10929/68525).

The Drinking Water Quality Institute (DWQI), New Jersey's drinking water advisory board, evaluates treatment technologies available to treat unregulated contaminants and makes recommendations on the best available technologies. Since 2015, the DWQI has made

recommendations to the Department on the best available treatment technologies to remove several contaminants, including perfluorononanoic acid (PFNA), perfluorooctanoic acid (PFOA), perfluorooctanesulfonic acid (PFOS), 1,2,3-Trichloropropane (1,2,3-TCP) and 1,4-dioxane.

The Department continues to work with New Jersey water systems to conduct pilot studies for novel treatment technologies for the removal of unregulated contaminants. For example, the Department recently collaborated with water systems to pilot technologies for the removal of PFAS, such as "Fluoro-sorb" media and an aqueous electrostatic concentrator in conjunction with reverse osmosis. These pilot studies help inform the Department's acceptance of these emerging technologies as permanent treatment solutions to meet drinking water standards for regulated contaminants and to remove unregulated contaminants.

In 2016, the Department partially funded a study conducted by the Water Research Foundation to evaluate a variety of water treatment technologies to remove PFAS. The study included nine drinking water utilities in New Jersey with detectable levels of PFAS in their source water. Of these nine systems, three utilized a surface water source, five utilized a ground water source, and one utilized a blend of ground and surface waters. Treatment technologies evaluated included conventional surface water treatment (coagulation, flocculation, sedimentations and filtration), advanced oxidation, GAC, anion exchange (AIX), and reverse osmosis (RO). This study found GAC, AIX, and RO to be the most effective full-scale drinking water treatment technologies to remove long-chain PFAS.

It is important to note that a water system's selection of treatment for unregulated contaminants is based on several considerations in addition to removal efficiency including system

site conditions, existing treatment, background quality of the source water, the size of the installation, and the concentration of the target contaminant in source water. Waters systems pilot test these treatment technologies and will select treatment based on specific system needs.

A key consideration in this context is also USEPA's recent rule proposal to establish MCLs for some of the most well studied PFAS, notably PFOA, PFOS, PFNA, hexafluoropropylene oxide dimer acid (HFPO-DA) and its ammonium salt (GenX), perfluorobutane sulfonate (PFBS), and perfluorohexanesulfonic acid (PFHxS). Since the occurrence of PFAS in New Jersey water bodies at levels relatively close to USEPA's proposed MCLs is widespread, the Department estimates between 300 and 400 public water systems in the State may exceed at least one of the USEPA's proposed MCLs. As noted by USEPA's in its proposal and the DWQI in its MCL recommendation for PFOA (see https://www.nj.gov/dep/watersupply/pdf/pfoa-recommend.pdf), the most common treatment technology for PFAS removal, GAC, provides a number of benefits in removing co-occuring contaminants such as synthetic organic compounds (SOCs), volatile organic compounds (VOCs), and disinfection by-product (DBP) precursors, not all of which are currently regulated.

If adopted, the Federal rule would in effect provide benefits by adding protections for many New Jerseyans who may be exposed to unregulated contaminants. As mentioned previously, site-specific considerations are key for operation of a public water system, and not all water quality challenges may be met by a single treatment technology. Water systems should be able to select the optimal treatment technology to best meet its needs. That is to say that making a strict mandate for GAC installation statewide, despite its benefits in many circumstances, would be inappropriate.

Additional information about USEPA's analysis in its proposal is available at https://www.regulations.gov/docket/EPA-HQ-OW-2022-0114/document.

While the aforementioned and other studies to evaluate the effectiveness of treatment are under way, the Department continues to evaluate the occurrence of unregulated contaminants in New Jersey drinking water sources through the implementation of the USEPA's Unregulated Contaminant Monitoring Rule (UCMR) (see 40 C.F.R. 141.35). The UCMR requires public water systems to monitor their water for a list of not more than 30 unregulated contaminants selected from the Contaminant Candidate List (CCL). Previous UCMR cycles required large public water systems serving more than 10,000 people, as well as a subset of randomly selected (by USEPA) small community water systems to monitor. Additionally, the current fifth iteration of the UCMR requires public water systems serving more than 3,300 people to monitor contaminants from the CCL, subject to the availability of EPA appropriations. The CCL is a list of contaminants currently not subject to any proposed or promulgated national primary drinking water regulations that are known or anticipated to occur in public water systems, and that may be subject to future regulation under the Federal Safe Drinking Water Act. The CCL is updated every five years by the USEPA.

The first UCMR List, UCMR1, consists of 12 chemical contaminants (with an additional 15 chemicals plus a microbiological parameter to be monitored at a subset of the selected water systems). The selected public water systems conducted monitoring for UCMR1 between 2001 and 2005. The second UCMR list, UCMR2, consists of 10 chemicals (with an additional 15 chemicals to be monitored at a subset of the selected water systems). The monitoring period for collecting samples for UCMR2 was 2008 through 2010. The UCMR2 list contains flame

retardants, explosives, nitrosamines, and acetanilides. UCMR3 required monitoring for 30 contaminants (28 chemicals and two viruses) between 2013 and 2015. Of the contaminants monitored through UCMR3, the Department has established MCLs for PFNA, PFOA, PFOS and 1,2,3-TCP. Furthermore, the Department has initiated the stakeholder engagement process in anticipation of rulemaking to establish and implement an MCL for an additional contaminant which was monitored through UCMR3, 1,4-dioxane. UCMR 4 monitoring occurred from 2018 to 2020 and included monitoring for a total of 30 chemical contaminants: 10 cyanotoxins (nine cyanotoxins and one cyanotoxin group) and 20 additional contaminants (two metals, eight pesticides plus one pesticide manufacturing byproduct, three brominated haloacetic acid [HAA] disinfection byproducts groups, three alcohols, and three semivolatile organic chemicals [SVOCs]). Although there was very low-detection frequency of cyanotoxins during UCMR4 monitoring, the Department has seen a rise in the occurrence of cyanotoxins in the source water among New Jersey water systems. This prompted the Department to establish a working group consisting of surface water systems, conduct an evaluation on potential health effects of cyanotoxins, and encourage water systems to conduct source water monitoring and develop Cyanotoxin Management Plans. In addition, in December 2021, the DWQI, started its evaluation of the four cyanotoxins. The DWQI is currently finalizing recommendations for the Department's consideration for each of these constituents. Following DWQI's completion of its work, the Department would then consider appropriate actions based upon those recommendations.

The current cycle of UCMR, UCMR5, requires monitoring for 29 PFAS and lithium between 2023 and 2025. USEPA is periodically publishing data collected from UCMR5, and the

first tranche of data was published in July 2023. The Department will be evaluating this data as it comes in during this monitoring period. The contaminants monitored pursuant to the UCMR are analyzed using USEPA certified drinking water methods at specified intervals so that USEPA can determine if the occurrence of the contaminants is such that maximum contaminant levels and future regulatory action are warranted. The UCMR data also enable the Department to assess the occurrence of unregulated contaminants within New Jersey. The data collected pursuant to the UCMR are available at https://www.epa.gov/sdwa/national-contaminant-occurrence-database-ncod.

Amidst this complex backdrop of scientific inquiry and regulatory action, the Department is widely acknowledged as a national leader in addressing emerging chemical contaminants, with the protection of public health its highest priority. One illustration of that deep commitment is the Department's recent actions in response to detections of 1,4-dioxane within the Delaware River Watershed.

In 2020, the Department became aware of sampling in the Delaware River Watershed which indicated areas of elevated 1,4-dioxane. In response to this detection, the Department convened an interstate task force to collaboratively potential sources of the chemical and evaluate ways to remediate the contamination. This working group consisted of the Department, Pennsylvania, Delaware, the Delaware River Basin Commission, and industry representatives. Further, the Department conducted a source assessment track down study to identify the source of 1,4-dioxane that impacted water supply intakes. The data from this monitoring, in addition to information received at the interstate task force meetings, informed areas of focus and in turn,

eliminated the source of 1,4-dioxane in the Delaware River Watershed.

Conclusion

In conclusion, the Department acknowledges that research conducted to date has demonstrated the presence of unregulated contaminants in water supplies. As described above, the Department is involved in varied and continuous efforts to obtain more complete information about the occurrence, toxicity, and possible treatment approaches for these contaminants. As the results of these ongoing efforts are analyzed, the Department will determine whether science supports initiating a regulatory monitoring and treatment program for currently unregulated contaminants. Any such future regulatory initiative will include a robust stakeholder process. The framework proposed by the petitioner, however, would be duplicative of the extensive research and monitoring efforts the Department is currently undertaking to identify and address potential risks to drinking water supplies as delineated in this response. Accordingly, the petitioner's request for rulemaking is denied. A copy of this notice has been mailed to the petitioner as required by N.J.A.C. 1:30-4.2.