city of CINCINNATI
Interdepartment Correspondence Sheet

Date: September 20, 2023

To: Mayor and Members of City Council **202302010**

From: Sheryl M.M. Long, City Manager

Subject: City-Owned Facility PFAS Assessment

Reference Document #202300782

The City Council, at its session on March 3, 2023, referred the following item for review and report:

> MOTION, submitted by Councilmembers Jeffreys and Owens, to develop a plan on how best to address the issue of PFAS— commonly known as "forever chemicals"—in public city-owned spaces in the City of Cincinnati, we move that the Administration provide a report on:
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> - An assessment of what Cincinnati Fire Department's protective equipment contains forever chemicals currently and recommendations on the cost and feasibility of CFD using available alternatives.
>
> - A list of all City facilities that have artificial turf. This should include an assessment of whether or not artificial turf contains forever chemicals or crumb rubber (also called beads).
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> - The costs and feasibility of exploring alternatives to using artificial turf that contain forever chemicals in City-owned properties, both in new developments and for replacing existing artificial turf in the City.
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> - Recommendations on what steps can be taken at City landfills and other City facilities to prevent leeching of forever chemicals into the environment, particularly the air and waterways.
>
> - The cost and feasibility of testing or monitoring the City's playgrounds, fields, waterways, and other City facilities for PFAS and other forever chemicals.

Over the last decade, concerns about the persistence and toxicity of per- and polyfluoroalkyl substances (PFAS) have spurred federal agencies to develop new standards and regulations for PFAS. The City has been tracking these developments and is well positioned to comply with regulatory requirements and adopt best management practices to address PFAS issues. The attached report summarizes key initiatives the Administration is taking to protect City residents, workers, and visitors, as well as the natural resources of our City and region.

The Administration is not recommending any new legislative or policy measures at this time but will provide updates as the City implements the initiatives described in this report.

REPORT TO COUNCIL
ADMINISTRATION INITIATIVES TO ADDRESS PFAS IMPACTS

Introduction

The City Manager oversees the day-to-day operations and execution of the Mayor and City Council's policy vision. The Office of Environment Sustainability (OES) provides environmental technical assistance to the City Manager's Office (CMO) and the various City Departments. In response to the Councilmembers' request for an update on City initiatives related to PFAS, this report summarizes the Administration approach to addressing PFAS impacts, and the specific initiatives being undertaken by various City Departments, including:

- Parks, CRC and CPD – Turf Fields
- CFD – Turnout Gear and Firefighting Foam
- GCWW – Drinking Water Supply
- MSD – Wastewater Collection and Treatment
- Procurement – Purchases of Goods and Services for the City

As science, environmental standards, manufacturing practices, and product specifications evolve, the City will continue to monitor these developments and make appropriate adjustments to its various initiatives to ensure City operations properly address impacts associated with PFAS.

Background on PFAS

Per- and polyfluoroalkyl substances (PFAS) are a group of synthetic chemicals that have been used in consumer products and industrial processes since the 1940s. They are effective at resisting heat, water, oil, and grease and impart desirable attributes to products that incorporate these chemicals. PFAS have been used in non-stick cookware, waterproof clothing, stain-resistant fabrics and carpets, food packaging, and firefighting foams, to name just a few. They have also been used in manufacturing processes as surfactants, mold release agents, and polymer extrusion aids. Because of their broad use over the past 80 years and their persistence in the environment, PFAS are ubiquitously found at low levels in environmental media, drinking water supplies, and in the blood of a majority of the U.S. population. Thus, PFAS may be described as both "forever chemicals" and as "everywhere chemicals."

Since 2002, production and use of two of the leading PFAS chemicals – perfluorooctane sulfonic acid (PFOS) and perfluorooctanoic acid (PFOA) – have declined. As the use of some PFAS has

declined, associated blood PFAS levels have declined as well. However, as PFOS and PFOA are phased out, people may be exposed to other PFAS that replace these chemicals.[1] In October 2021, recognizing the unique challenges posed by PFAS, the United States Environmental Protection Agency (USEPA) announced its PFAS Strategic Roadmap designed to protect public health and the environment.[2] The agency committed to continue research, develop standards to restrict PFAS from entering environmental media where they can impact human health and ecological systems, and accelerate cleanup of PFAS contamination.

The City's General Approach

Council requested the Administration report on the issue of PFAS in public city-owned spaces. The Motion identified several specific examples, including City employee use of products that may contain PFAS (e.g., fire department turnout gear), public spaces that incorporate materials that may contain PFAS (e.g., artificial turf), and City operations that play a role removing PFAS from environmental media (e.g., management of landfill leachate). Department-specific initiatives are discussed more fully below, but across the board the City takes the same general approach: 1) assess opportunities, 2) evaluate options, 3) implement actions, 4) collaborate/communicate, and 5) iterate.

> Assess Opportunities. The City reviews its operations and services to identify areas where PFAS may be used or handled, or where PFAS compounds may be released to the environment.
>
> Evaluate Options. The City evaluates options to minimize exposure to PFAS and reduce releases of PFAS to the environment. In some cases, the City is required to take action. For example, the Greater Cincinnati Water Works (GCWW) is required to monitor 29 PFAS compounds under the 2021 Unregulated Contaminant Monitoring Rule (UCMR). In other cases, the City has latitude on whether/when to take an action. For example, the Cincinnati Fire Department (CFD) is in the process of phasing out use of PFAS-containing firefighting foam even though it is not yet a requirement. Decisions about discretionary actions involve an evaluation of risk and availability of suitable alternatives.
>
> Implement Actions. Where action is either required or deemed appropriate, the City takes necessary actions, whether through policy, purchasing practices, operational changes, or capital programs.

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1 See, Agency for Toxic Substances and Disease Registry (ATSDR) "PFAS in the U.S. Population," https://www.atsdr.cdc.gov/pfas/health-effects/us-population.html.

2 See, USEPA, "PFAS Strategic Roadmap: EPA's Commitments to Action 2021-2024," https://www.epa.gov/pfas/pfas-strategic-roadmap-epas-commitments-action-2021-2024.

Communicate/Collaborate. The Administration actively shares information about new developments and opportunities. City Departments collaborate with professional and governmental organizations to stay abreast of new developments.

Iterate. As the science, standards, regulations, industry practices, and product formulations evolve, the City updates its assessments, evaluates new options, and implements new or modified actions.

Efforts to reduce exposure to PFAS and minimize the release of PFAS to the environment are consistent with the Administration's commitment to advance the sustainability, equity, and resilience of our city.

DEPARTMENT-SPECIFIC OPPORTUNITIES

CFD: Firefighting Foam and Turnout Gear

CFD uses PFAS-containing aqueous film forming foam (AFFF) for fighting liquid fuel fires. Eleven states in the US have banned the use of AFFF and the federal government has banned use of AFFF at military facilities by no later than October of 2024. While Ohio has not banned AFFF for firefighting, the state prohibits training exercises using PFAS-containing foams (ORC 3737.52). CFD has been reducing its inventory of AFFF in anticipation of phasing it out and replacing it with a fluorine-free foam. At present, supplies of fluorine-free foams are being directed first to military facilities subject to the federal ban before being supplied to local fire departments. As soon as fluorine free foams are available, CFD will complete its phase-out of AFFF. In the interim, should CFD need to use AFFF to respond to a liquid fuel fire, CFD has procedures in place to protect City firefighters and limit the release of AFFF from firefighting operations.

CFD also uses turnout gear – personal protective equipment (PPE) used by firefighters – that contains PFAS in its moisture protection layer. CFD is required to use turnout gear that complies with National Fire Protection Association (NFPA) Standard 1971 (OAC4123:1-21-02). The NFPA standard for turnout gear requires use of a moisture protection layer that passes a test that at present can only be met with PFAS-containing products. In March of 2023 the International Association of Fire Fighters (IAFF) sued NFPA regarding the standard. Turnout gear has a 10-year maximum lifetime from date of manufacture and must be replaced at that point with new gear. The annual CPD budget for replacement of PPE for its sworn members is $220,000. In addition, CFD provides its new recruits with new turnout gear. CFD spends about $600,000 for issuing new gear to each recruit class. Currently, CFD is scheduled to have two classes per year of 55 recruits each. CFD evaluates new, improved gear as it becomes available for new recruit classes and to replace existing gear during each annual cycle. CFD has also adopted best practices to reduce exposure to PFAS in turnout gear by requiring decontamination procedures and not allowing turnout gear in firehouse living areas.

Parks, CRC, CPD: Artificial Turf Fields

The blades, backing materials, and infill used in artificial turf fields have the potential to contain PFAS compounds. There are no standards for PFAS in new turf fields, and there is no clear consensus on banning new turf fields. In those instances where bans on new fields were considered, existing turf fields were "grandfathered" and allowed to remain for their remaining useful life. The typical cost to convert a grass sports field to an artificial turf sports field ranges from $700,000 to $1.5 million; the cost to replace artificial turf on an existing artificial turf sport field is in the range of $360,000 to $620,000. Artificial turf sports fields have a life expectancy of about 10 years, depending on intensity of use.

The City currently operates a number of facilities with synthetic turf, including properties managed by Parks, the Cincinnati Recreation Commission (CRC), and the Cincinnati Police Department (CPD).

- Parks operates seventeen synthetic turf areas. Their synthetic turf includes fields and play areas that incorporate artificial turf within its design. They are mostly in new playground construction concentrated in the Waterfront District. Their largest turf facility is at Smale Riverfront Park.

- CRC operates nine facilities with synthetic turf. These are for recreational purposes including mini soccer pitches, baseball infields, and football fields. Most of these fields were installed by the Motz Group.

- CPD operates one synthetic turf field at their Spinney Field training facility. The synthetic turf field was replaced by the Motz Group in 2021.

Existing City operated turf fields have not been tested for PFAS. As noted above, there is no health-based or consensus standard in turf fields for PFAS content. As such, there is no reference standard to which results could be compared. The Motz Group has sampled their artificial turf system products as a proactive response to questions about whether PFAS is present. The Motz Group turf system currently includes three components including Schmitz foam pad, Shaw Sports Turf, and Safeshell natural infill. The Safeshell infill is an organic material derived from ground walnut shells and food-grade components.

Motz recently collected representative product samples of each of these three materials (not from a City facility) and had them analyzed for PFAS. No detections were reported except for hexafluoropropylene oxide dimer acid (HFPO-DA) in the Safeshell sample. HFPO-DA (or GenX) is a replacement for legacy PFAS in manufacturing.

GCWW: Drinking Water

For almost 20 years, GCWW has been monitoring for PFAS in the source waters it withdraws from the Ohio River and the Great Miami Aquifer for treatment in its Richard Miller and Charles Bolton treatment plants, respectively. GCWW is currently performing monitoring required under USEPA's Unregulated Contaminant Monitoring Rule. GCWW's PFAS monitoring data may be found on GCWW's website at: https://www.cincinnati-oh.gov/water/water-quality-and-treatment/water-your-health/pfas/. Previous FYI Memos dated February 15, 2019 and March 16, 2023 provide further information on USEPA regulatory activities and GCWW actions to ensure compliance and safety of our drinking water.

The levels of PFAS chemicals in drinking water are not currently regulated. However, in March 2023 the USEPA proposed maximum contaminant limits (MCLs) for six PFAS compounds in drinking water. PFOS and PFOA each have a proposed MCL of 4 parts per trillion. An additional four PFAS – PFHxS, PFNA, PFBS, and HFPO-DA (GenX) – have a single proposed MCL as a mixture, based on a "hazard index calculation." USEPA projects that the rule will be finalized by early 2024 and drinking water utilities will have 3 years to comply with the new MCLs (target date early 2027). GCWW projects that the finished water produced by its Richard Miller Treatment Plant will meet these standards because the Granular Activated Carbon (GAC) treatment process is extremely effective in removal of PFAS compounds. However, depending on the regulatory levels in the final rule, GCWW may need to install additional treatment at its Bolton groundwater plant. GCWW has recently received a grant to examine various treatment options for PFAS removal at that plant.

The City has also taken action to hold manufacturers accountable for contamination of the source waters in the Ohio River and the Great Miami Aquifer. In May 2023, the City joined a multi-district litigation (MDL) suit against manufacturers of PFAS and AFFF that was initiated in the Federal District Court for the District of South Carolina (MDL-2873). On the eve of the first bellwether case going to trial in June, the largest defendants in the case (3M and Dupont-related entities) proposed a class-action settlement that would make more than $12 billion available to impacted water providers across the county to address PFAS impacts. The settlement is dependent on a sufficient number of parties opting into the settlement. It will take some time to determine whether the settlement is viable and, if so, how much the City might be awarded. If the global settlement is not viable the City may continue with its individual case.

MSD: Wastewater Collection and Treatment

MSD is a publicly owned treatment works (POTW) that provides sewer service to about 232,000 households and businesses in Cincinnati and Hamilton County. MSD treats about 184 million gallons per day of wastewater. MSD is collaborating with USEPA Office of Research and Development to evaluate how PFAS in influent coming to the treatment plant partitions between

treated effluent and wastewater treatment solids. MSD also plans to participate in USEPA's POTW Influent Study that will collect data on industrial discharges of PFAS-containing wastewater sent to POTWs for treatment. This information will allow USEPA to identify industrial sources of PFAS and assess the need for additional regulatory control measures (e.g., Effluent Limitation Guidelines (ELGs) or pre-treatment standards). The USEPA strategy is to identify and reduce PFAS at the source, to the extent possible, rather than relying on local POTWs to provide treatment.

Industrial source categories that are being evaluated by USEPA include: landfill leachate; textile manufacturers; electrical and electronic components; pulp, paper, and paperboard; organic chemicals, plastics & synthetic fibers; and metal finishing and electroplating. One of the first new ELGs will address PFAS in landfill leachate. Landfills will likely be required to monitor leachate for PFAS beginning as soon as 2024. Pretreatment standards may be applicable to landfill leachate as early as 2027. Monitoring and pretreatment standards will be incorporated into MSD's Industrial User rules and permits. Currently, MSD treats landfill leachate discharged directly to MSD sewers or trucked for discharge to MSD sewers from several landfills, including the local Rumpke landfill.

USEPA is also currently working on a risk assessment for two PFAS compounds (PFOA and PFOS) in biosolids from wastewater treatment. This risk assessment will serve as a basis for determining whether regulation of biosolids for agricultural use or land application is appropriate. Currently about 70% of biosolids in the United States are land-applied to pasture, rangeland, and agricultural land for crop production. MSD does not land apply any of its biosolids. All MSD biosolids are disposed in regulated Subtitle D landfills after dewatering or incineration.

City Purchasing: PFAS-free Products

City Municipal Code Section 321-22 requires that that all city departments, boards, and commissions specify environmentally preferable supplies, services, or construction when appropriate. Products that do not contain PFAS are considered environmentally preferred.

While there are third-party certifications available that identify and, in some cases, validate "PFAS-free" products, these certifications may only cover a handful of the thousands of individual chemicals that fall within the class of PFAS compounds. This will continue to be an issue as industry shifts from current PFAS chemicals to "next generation" chemicals. With these limitations in mind, the City will continue to include a preference for environmentally preferred products in its procurement process where appropriate to ensure that market forces contribute to changes in manufacturing processes.

CONCLUSION

The Administration is not recommending any new legislative or policy measures at this time but will provide updates as the City implements the initiatives described in this report.

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