

PFAS in, PFAS out: How wastewater in Manchester is a pathway for contamination

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Gaby Lozada / NHPR

A view of the Merrimack River in Manchester

When waste is flushed down the toilet or funneled out of industrial facilities in Manchester, Londonderry, Bedford and Goffstown, it ends up in a wastewater plant near the Manchester Regional Airport.

There, a strainer removes rags and sticks. Solids settle to the bottom of a chamber to be landfilled or burned, and special bacteria eat floating organic matter. The water is chlorinated, then de-chlorinated. Then it's put into the Merrimack River, a source of drinking water for about 700,000 people.

Along with it flow PFAS chemicals, according to several years of voluntary testing the city has done on the levels of four of those man-made chemicals in their effluent. Those chemicals are present in a variety of consumer products and industrial operations. Research

has shown they're linked to harmful health outcomes including certain kinds of cancer.

Manchester's wastewater treatment facility is due for a new permit from the Environmental Protection Agency. That "National Pollutant Discharge Elimination System" permit, or NPDES for short, allows the facility to discharge their treated wastewater into the river.

Federal regulators submitted a draft permit this year, and a public comment period on that permit ended in June. But advocates say the regulations in the permit don't go far enough to protect against PFAS chemicals that are flowing into the Merrimack.

"The regulators are playing catch up on this PFAS problem. They are finding that the PFAS problem is much larger than I think anyone anticipated," said Tom Irwin, a vice president with the Conservation Law Foundation, who focuses on New Hampshire.

Irwin's group has asked the EPA to include stronger limitations in the permit on PFAS coming out of the plant, as well as PFAS that come into the plant from industrial facilities. They've also asked federal regulators to take environmental justice considerations more seriously, noting that two census tracts near the treatment plant are already overburdened by environmental pollution.

The city of Manchester declined to comment for this story.

Irwin's team asked regulators to hold a public hearing on the permit. But in July, the EPA told NHPR they were not planning to do that, saying they "did not believe there was substantial interest."

Federal regulators said they are still evaluating the comments they received on the draft permit.

How PFAS get into wastewater

At the Manchester wastewater treatment plant, like others across the state, the PFAS chemicals that are widely present in the environment get collected and transformed. Though the treatment process doesn't put PFAS into the water, it does seem to change the chemicals, according Ellen Weitzler, a water permits supervisor with the EPA.

"The compounds don't all stay intact during the treatment process," she said. That means sometimes the levels of PFAS in the wastewater coming out of the facility are higher than the levels in wastewater coming into the facility.

That's one of the reasons it's difficult to measure where most of the PFAS that leaves the plant is coming from.

But the Manchester plant is treating wastewater from a variety of industries that have been connected to PFAS use, according to comments submitted by the Conservation Law Foundation in response to the draft permit.

The plant receives about 285,000 gallons of wastewater per day from the Nylon Corporation of America, plus tens of thousands of gallons from other companies like Velcro USA, Prysmian Cables & Systems, E&R Cleaners, Catholic Medical Center, and other manufacturers, cleaning services, and hospitals.

The liquid that emerges from landfills, known as leachate, is also processed at the Manchester plant. The closed Manchester municipal landfill and the active North Country Environmental Services landfill in Bethlehem both send leachate to the plant. In tests between 2019 and 2023, PFAS was consistently found in leachate from the Manchester landfill.

The Bethlehem landfill, owned by Casella Waste Systems, began sending leachate to Manchester in 2024, sending almost half a million gallons in February. That landfill has racked up hundreds of violations related to their leachate management and have failed to report incidents, according to state regulators. Tests from February 2024 show high levels of some PFAS chemicals in the Bethlehem landfill's leachate.

Included in exhibits attached to the Conservation Law Foundation's comments was an April email from Clark James with Casella Waste Systems.

He asked Manchester's Environmental Protection Division to issue another temporary permit for disposing of leachate, saying wet weather, landfill construction projects, and a lack of room at the Concord wastewater facility created a "dire need."

"I recognize this is a sticky topic with the City given the scrutiny of WWTP operations," he wrote, "but hope that we can work together to help bridge the immediate shortfall in capacity until we have time to discuss and develop a longer-term plan that addresses the City's concerns about treating emerging contaminants."

Casella representative Jeff Weld said in an email that the company is currently evaluating a method for removing PFAS from leachate at its landfill in Coventry, Vermont. (That project was prompted by requirements from state regulators). The company, Weld said, is still deciding whether it is possible and necessary to implement removal systems in other facilities.

“Ultimately, there are many point sources for PFAS chemicals that are entering wastewater treatment facilities each day and the responsibility for eliminating them from society lies with the producers of the chemicals, not with passive receivers such as landfills and wastewater treatment facilities,” he said, noting the company was “committed to doing [its] part.”

Lawyers with the Conservation Law Foundation say PFAS pollution from the wastewater treatment facility that is put into the Merrimack River disproportionately harms communities of color and lower-income communities. The plant burns sludge – the solids that are settled out of the wastewater – in an incinerator.

Lawyers say people who live near the plant, in census tracts already overburdened by environmental pollution, are breathing in air that may be contaminated by emissions from the facility’s incinerator. And, they say, PFAS, which doesn’t break down easily in the environment, is likely getting into drinking water for communities downstream.

“Despite awareness that it is receiving PFAS in influent and discharging PFAS to the Merrimack River since at least 2019, the Manchester WWTF has no treatment processes to remove PFAS and has not implemented

source reduction measures to reduce the PFAS entering the plant," CLF said in their comments.

Reducing PFAS in wastewater

Since Manchester's last NPDES Permit was issued in 2015, federal regulators have been channeling focused energy into PFAS contamination.

The Environmental Protection Agency adopted a PFAS roadmap in 2021, which includes restricting how much PFAS industrial facilities can discharge, and using the NPDES permitting process to "reduce PFAS discharges into waterways."

But right now, that action step mostly involves monitoring PFAS discharges. The EPA has not set numerical limits for PFAS in those permits, according to Lynne Jennings, who handles NPDES permitting for the EPA in the Northeast, though states that manage their own wastewater permitting may be instituting PFAS limits. Minnesota's Pollution Control Agency announced they were instituting PFAS limits for a 3M facility's wastewater in June.

"It is an evolution," she said. "And I do think eventually we will get to the point of including requirements in the permits themselves."

Federal regulators say they don't yet have enough data to create those requirements – a method for monitoring PFAS at wastewater treatment facilities was just approved this year.

And for municipalities, which are generally not the source of the PFAS contamination but simply the conduit, much of the early work will likely be on

industrial sources upstream that are using and disposing of PFAS.

"I think the initial focus will be on the pretreatment part," Jennings said. "Find out where your biggest contributors are and restrict them first and foremost."

Manchester city officials have the authority to set pre-treatment requirements for each industrial facility that sends wastewater through their plant. Those guidelines are based on federal regulations, but city officials can enact additional rules, too.

In an email from February 2024, a lawyer representing the City of Manchester told the Conservation Law Foundation that there had been no official communication between Manchester's Environmental Protection Division and industrial users of the wastewater treatment facility about PFAS.

Lawyers with the Conservation Law Foundation are asking federal regulators to require the city to implement measures to reduce PFAS coming in from industrial facilities, and to prohibit the facility from accepting landfill leachate that hasn't been treated to remove PFAS.

Irwin, with the Conservation Law Foundation, said regulators should take the whole picture of pollution in Manchester and in downstream communities into consideration when issuing the new permit.

"If the federal government is truly committed to advancing environmental justice and reversing historic environmental injustices, it really needs to be deliberate about considering environmental justice impacts, learning about the community and the

environmental and health impacts the communities facing, and then allowing that information to shape their decision," he said.