ENVIRONMENT

Tribune investigation: Chicago's sewage district fails to warn gardeners free sludge contains toxic forever chemicals

By Michael Hawthorne
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Mary Weaver harvests tomatoes in her garden plot in McCormick Community Gardens on Sept. 7, 2022, in Evanston. Weaver is concerned she and others might be inadvertently contaminating their vegetables by using PFAS-laden sludge as fertilizer in their community garden plots. (Erin Hooley / Chicago Tribune)

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Bags of the earthy muck are labeled organic or natural. Sometimes it is billed as exceptional quality compost. Industry held a nationwide contest years ago and decided to call it biosolids, a euphemism that beat out black gold, geoslime and humanure.

No matter how it is described, the humus-like material distributed to gardeners, neighborhood groups and landscapers by the Metropolitan Water Reclamation District is still sewage sludge — a byproduct of human excrement and industrial waste from Chicago and the Cook County suburbs.

Gardeners are encouraged to grow vegetables and leafy greens in the sludge-based compost. District officials promote the truckloads they donate to community gardens in low-income, predominantly Black neighborhoods and the piles they leave outside sewage treatment plants for anyone to shovel into buckets or pickup beds.

People collect free compost from the Stickney Water Reclamation Plant on May 17, 2022, in Cicero. (Erin Hooley / Chicago Tribune)

Those same officials have repeatedly failed to tell the public what they've known for more than a decade: Every scoop of sludge is contaminated with toxic forever chemicals linked to cancer and other maladies, a Chicago Tribune investigation has found.

Forever chemicals, also known as per- and polyfluoroalkyl substances or PFAS, have been widely used for decades in firefighting foam and to make products such as nonstick cookware, stain-repellent carpets, waterproof jackets and fast-food wrappers that repel oil and grease.

Conventional sewage treatment concentrates the chemicals in sludge, studies show. While composting with wood chips helps reduce pathogens and odors, the biological process increases PFAS levels in the product distributed to gardeners.

Yet there are no warnings about forever chemicals in the water reclamation district's promotional literature or on its website. The Tribune discovered the hazards during a review of scientific studies and thousands of pages of emails, internal memos and other documents obtained through Freedom of Information Act requests.

Mary Weaver's community garden in Evanston epitomizes the disconnect. Weaver and her fellow gardeners began using MWRD compost three years ago, drawn by the district's offer of free soil amendments to replace store-bought products Weaver and her neighbors once relied upon.

"I use organic fertilizer. I don't use pesticides," said Weaver, a retired nurse. "When I Googled this compost, everything I read claimed what they hand out is safe."

Mary Weaver picks tomatoes in her garden at a community garden in Evanston. Weaver and her fellow gardeners began using MWRD compost three years ago, drawn by the district's offer of free soil amendments to replace store-bought products. (Erin Hooley / Chicago Tribune)

The Tribune previously reported only the Greater Los Angeles area distributes more sludge than the MWRD, an independent, taxpayer-financed agency created to handle sewage from Chicago and other Cook County communities.

[Sludge contaminated with forever chemicals spread on thousands of acres of Chicago-area farmland]

More than half of the 134,652 tons of sludge generated locally in 2020 was spread on farmland within or near the Chicago area, according to district records. About 15% went to gardeners and landscapers.

Year after year, district officials have proclaimed their sludge-based compost is a "sustainable and environmentally beneficial product."

In 2015, district lobbyists persuaded the Illinois General Assembly and then-Gov. Bruce Rauner to approve legislation exempting sludge-based compost from state regulations classifying sludge alone as waste. The district cites the law it wrote as proof its compost is a "safe, beneficial and renewable resource that should be used locally."

At the same time, district leaders disregarded peer-reviewed research that found PFAS in tomatoes and lettuce grown in MWRD compost, downplayed the health risks and failed to take steps to reduce the highly toxic compounds in sludge, the Tribune investigation found.

MWRD scientists are among the authors of a 2011 study that found worrisome levels of forever chemicals in the district's sludge and, along with EPA researchers, participated in the 2013 tomato and lettuce study. Despite the use of scientific jargon and industry lingo throughout the latter paper, the conclusion is clearly stated:

"These results may also have important implications with respect to the potential routes of (PFAS) exposure in humans who might have repeatedly used (sludge) to fertilize their home gardens."

Because forever chemicals remain largely unregulated, there is nothing preventing the MWRD and other sewage districts across the nation from continuing to give away contaminated sludge. Treatment plant operators aren't even required to routinely test for the chemicals.

Through a spokeswoman, MWRD officials canceled a scheduled interview with the Tribune and asked for questions in writing.

Just because forever chemicals are found in sludge "is not a reason to forego beneficial reuse including by home gardeners," the district said in an email response that added local officials and others in the sewage treatment industry are awaiting guidance from the EPA.

Unloading sludge on others enables sewage districts to save money on disposal costs. The impact on individual gardeners is unknown — diseases caused by PFAS exposure can be diagnosed years later — but in July a team of New York University researchers estimated forever chemicals could saddle the current U.S. population with nearly $63 billion in hidden health costs.

The MWRD's response to PFAS echoes the district's reaction during the late 1970s when heavy metals and two other types of toxic chemicals were detected in sludge given away to Chicago-area gardeners. In those days, the EPA took out full-page advertisements warning people not to grow food in the sludge. Today the federal government's environmental watchdog says it is still studying PFAS and offers no official advice.

'No regulatory guidance'

Sludge-spreading played a role in the demise of one of Mayor Lori Lightfoot's first efforts to address Chicago gun violence.

Grounds for Peace, a $250,000 pilot program, put young men to work clearing vacant lots on Chicago's South and West sides, with a goal of transforming them into gardens.

When Lightfoot announced the initiative in the Woodlawn neighborhood during July 2019, two months after taking office, she cited research suggesting that beautifying neglected, crime-plagued areas can make them safer.

Lightfoot also recalled growing up in Ohio tending a garden with her family every summer, a routine that provided fresh vegetables and helped develop an appreciation for her surroundings.

"I hope that these young men really get that experience," Lightfoot said at the time. "Maybe some of them will go on to be growers or urban farmers, because this tradition in the Black community is strong and deep."

Agreements between the city and nonprofit groups responsible for day-to-day management of the program prohibited the use of sludge, according to copies provided to the Tribune. (The documents call it biosolids.)

It appears either somebody didn't read the documents carefully or City Hall failed to realize why the Metropolitan Water Reclamation District signed on as a Grounds for Peace partner.

Three months after the program began, the MWRD had dumped more than 270 tons of sludge-based compost on 26 lots in Woodlawn, Englewood and North Lawndale, a district tally shows.

One of the lots is next to a city landmark: The former home of Mamie Till-Mobley and her son, Emmett Till, a Black teenager tortured and murdered during a 1955 visit to Mississippi. Till's gruesome death — and his mother's decision to hold an open-casket funeral on the South Side — helped galvanize the civil rights movement.

Lightfoot's staff didn't find out that sludge had been spread next to the Till home and on the other Grounds for Peace lots until June 2020, according to an email string that during the next several months captured an increasing sense of exasperation among everyone involved in the program.

The garden next to the former home of Mamie Till-Mobley and her son, Emmett Till, on May 15, 2022, on Chicago's South Side. (Erin Hooley / Chicago Tribune)

Staff at the Department of Assets, Information and Services, an agency that now oversees many of the city's environmental programs, told the group that sludge-spreading has been banned on city property since at least 2006. (The prohibition does not include land owned by the Chicago Park District, which has fertilized parks with sludge and used tons of it during construction of Maggie Daley Park downtown, Steelworkers Park in South Chicago and The 606 trail on the Near Northwest Side.)

Kimberly Worthington, a deputy city commissioner, said in an email that she and her staff did not know the material described as compost by the MWRD was sewage sludge. After district officials forwarded a copy of the 2015 state law vouching for the safety of sludge-based compost, Worthington requested the results of any PFAS testing.

"We do not monitor for PFAS because currently there is no regulatory guidance for testing and monitoring of PFAS in biosolids," Albert Cox, a manager in the district's monitoring and research department, replied in a June 20, 2020, email.

The city paid for its own testing and found elevated levels of several forever chemicals in all eight lots sampled, a spreadsheet shows. Levels were considerably lower in sections of the lots where sludge hadn't been applied.

All of the detected concentrations were well below limits in a handful of states that at the time had regulated some PFAS in soil and water. But city officials noted that researchers are increasingly concerned about accumulation in soil because the chemicals linger indefinitely and can cause harm at extremely low levels.

As a precaution, the city hired a contractor to excavate and safely dispose of 25 tons of contaminated soil next to the Till home in the 6400 block of South St. Lawrence Avenue, according to emails and manifests.

This summer the lot bloomed with flowers planted in clean soil and mulch. Signs declare it is a garden and theater for the Till-Mobley Museum.

By contrast, many of the other vacant lots look as they did before, overgrown with weeds and strewn with broken bottles and garbage.

In response to questions from the Tribune, a Lightfoot spokesperson said the city is planning to excavate the lots and "dispose of the biosolids at an appropriate waste facility."

City officials and representatives from the nonprofit groups publicly blamed the COVID-19 pandemic for the anti-violence program's demise. Previously undisclosed emails show Lightfoot administration officials rebuffed several requests for meetings with MWRD representatives and decided the sludge-fertilized lots posed too much of a risk.

Brian Perkovich, the district's executive director, ended up writing a letter lamenting the city's policy could "send the wrong message" to other agencies in Cook County, "perhaps prompting them to follow suit and pass up all the environmental and economic benefits of using this sustainable resource and rely instead of commercial products lacking those benefits."

Urban Growers Collective, a nonprofit group brought in to teach gardening skills, also pushed back during the debate, stressing only flowers and grass were planted in the Grounds for Peace lots while accusing the city of "making it harder for folks" to grow food.

"It would be antithetical to our work and our mission to bring anything harmful into the community," Erika Allen, the group's co-founder, said in an interview.

Allen said she wasn't familiar with PFAS and its dangers. Regarding the MWRD's sludge-based compost, she said she wouldn't hesitate to use it for landscaping but would not grow food in it.

"Am I waving a flag and saying you should use this material to grow your collard greens and brassicas? No," Allen said.

'Suitable for vegetables'

Documents provided to the Tribune do not specify where the MWRD's sludge is used in vegetable gardens throughout the county or how much has been spread on individual plots over the years. But the district's social media accounts occasionally feature pictures of elected commissioners posing with gardeners next to raised beds of vegetables and leafy greens after a compost delivery.

"Farm to table," reads a sign in a June 2019 Facebook post from a West Side community garden.

Another post that month announced south suburban Lansing would be giving away free MWRD compost. "I remember 10-plus years ago there were issues," a commenter wrote, asking if the compost is "suitable around vegetables."

"Yes, this product is suitable for vegetables," the MWRD account manager replied. "The old version from more than a decade ago is long gone."

In the mid-1970s, the district and its sludge had different names. The Metropolitan Sanitary District promoted Nu Earth with many of the same superlatives the MWRD uses today when extolling the benefits of its EQ compost and biosolids.

One newspaper photo from the period shows people carrying bushel baskets of "free fertilizer" to cars backed into piles at the district's sewage treatment plant in southwest suburban Stickney. Another features two Sanitary District officials posing with giant cabbage, pumpkins and squash grown in a garden fertilized with Nu Earth. "Some harvest!" the caption reads.

The EPA was still fairly new then. Created in 1970, the same year as the inaugural Earth Day, the agency began reckoning with decades of industrial pollution fouling the nation's air, land and water. Dozens of nonprofit groups organized to press the government to act.

Free compost is collected at the Stickney Water Reclamation Plant on May 17, 2022, in Cicero. (Erin Hooley / Chicago Tribune)

Sewage sludge was one of the movement's targets. A local group called Citizens for a Better Environment announced in 1978 it had found Nu Earth was tainted with cadmium, a carcinogen that also causes kidney disease.

Officials at the EPA's Chicago office confirmed the findings and found more to worry about. Nu Earth sludge also was laden with chemicals known as polychlorinated biphenyls (PCBs) and polycyclic aromatic hydrocarbons (PAHs).

Don't grow vegetables or fruit trees in Nu Earth, the EPA cautioned in statements to local media and in newspaper advertisements.

The Sanitary District took out its own ads noting cadmium "is a natural element, like iron, oxygen and so on, and exists throughout nature." Under the heading "How does cadmium affect you?" the ad said, "There are differing opinions in the scientific community about what constitutes an acceptable level of cadmium in the diet."

Buried at the bottom of a page of words in small type: "DO NOT GROW VEGETABLES IN GARDENS FERTILIZED NU EARTH."

Dianne Luhmann was one of the gardeners who used the district's sludge. She and other parishioners at the First Presbyterian Church in Woodlawn had worked for years trying to foster a multiracial community in a neighborhood that had shifted from majority white to predominantly Black.

Offering space to grow food next to the church, dubbed God's Little Acre, was a key part of

their mission.

A garden area and greenhouse on the south end of First Presbyterian Church, 6400 S. Kimbark Ave., are shown Sept. 9, 2022, in Chicago. Parishioners and church leaders decided to close the garden after local environmental groups found the soil was contaminated with toxic substances. (John J. Kim / Chicago Tribune)

"The concept was so good," Luhmann recalled in an interview. "We had a food desert and all of this vacant land. I voted to use the Nu Earth, much to my chagrin later."

Church archives housed at the Newberry Library include letters, results from soil testing and presentations from public hearings convened in response to the EPA's warnings.

"It would be unadvisable to use this for a vegetable garden, particularly for greens," a University of Illinois Extension agent wrote to the church about God's Little Acre.

Parishioners and church leaders made the gut-wrenching decision to close the garden and excavate the cadmium-contaminated soil. The lot is vacant today.

"The real question is why was Nu Earth suggested in the first place," the Rev. Arthur Smith said at the time. "This question not only affected this garden ... but thousands of people in the Chicago metropolitan area."

'True believers'

Leaders of the nation's sewage treatment industry spent years searching for solutions after the Nu Earth scare and similar incidents in other cities. They eventually persuaded the EPA to require companies using heavy metals to treat waste on site before dumping it into sewers.

As long as levels of certain metals are below specific concentrations, the EPA concluded, sewage districts could start giving away sludge to farmers and gardeners again.

There was just the problem of that pesky, stomach-churning name, *sludge*.

The writer and activist John Stauber documented what happened next in "Toxic Sludge is Good for You," his 1995 book with Sheldon Rampton that outlined how global public relations firms influence political debates and steer public opinion.

One of the trade groups for sewage treatment operators held a contest for a nicer-sounding name. In 1991, the group settled on "biosolids," defining it as "the nutrient-rich organic byproduct of the nation's wastewater treatment process." Then the group hired a PR firm to promote it.

As he finished writing his book, Stauber said he got a call from an industry spokeswoman. She had heard about the book title through contacts in the publishing world and wasn't happy about it. "It's not toxic," she told him, according to his recollections in the book. "We've got a lot of work ahead to educate the public on the value of biosolids."

"There are some true believers out there and a lot of money behind them," Stauber said in an interview. "I think that really explains what's going on."

Too long to act

Billions also have been spent promoting PFAS as miracles of science in consumer products sold under brands such as Scotchgard, Stainmaster and Teflon.

Two of the most widely studied forever chemicals are so toxic the EPA announced in June there is effectively no safe exposure in drinking water. In August, agency officials said they plan to list the PFAS as hazardous substances under the federal Superfund law, which makes it easier to hold polluters accountable for contaminated properties.

[More than 8 million Illinoisans get drinking water from a utility where forever chemicals have been detected]

Michael Regan, President Joe Biden's pick to lead the EPA, acknowledges the agency has taken too long to act. Chemical industry documents provided to the agency in the late 1990s, and other secrets made public during lawsuits, show manufacturers knew decades ago that PFAS build up in human blood, take years to leave the body and don't break down in the environment.

Others transform over time into more hazardous compounds, increasing the risk that food grown in PFAS-contaminated soil could be tainted.

Long-term exposure to tiny concentrations of certain PFAS can trigger testicular and kidney cancer, birth defects, liver damage, impaired fertility, immune system disorders, high cholesterol and obesity, studies have found. Links to breast cancer and other diseases are suspected.

An EPA spokeswoman said the agency plans to release its conclusions about forever chemicals in sludge by the end of 2024. Public release of the document, known as a risk assessment, could begin a lengthy bureaucratic process that might result in new regulations.

Trade groups for sewage districts already are lobbying for an exemption from the possible Superfund designation. Chemical manufacturers and users should be responsible for keeping PFAS waste out of sewers and cleaning up contaminated sites, the groups contend.

[Farmer whose cows died from a mysterious disease helped unravel the origin of toxic chemicals]

"Currently, public wastewater utilities do not and cannot treat for PFAS, in large part due to the sheer volume of water they handle," the National Association of Clean Water Agencies said in a June policy statement cautioning that any restrictions on sludge-spreading would increase costs passed on to taxpayers.

Suggested talking points for local officials recommend telling customers who ask about PFAS that "science shows no significant health risk from human exposure to biosolids and that contamination of surface or ground water from biosolids is very unlikely."

Some states are conducting their own research and taking action.

Maine this year prohibited further use of sludge on farms and gardens after discovering PFAS in fertilized fields throughout the state. A bipartisan group of Maine lawmakers approved the ban two years after state officials adopted stringent limits on forever chemicals in beef, fish, hay, milk, soil and sludge.

One-time testing in 2019 by the Metropolitan Water Reclamation District, conducted during the Grounds for Peace debacle, shows sludge from Chicago and Cook County would have failed to meet the Maine standard.

The testing found levels of PFAS in the MWRD's raw sludge and EQ compost up to 10 times higher than what Maine allowed before banning sludge-spreading altogether.

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