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Thomas A. Burke, professor at The Johns Hopkins School of Public Health in Baltimore, Md., Thursday, July 19, 2007. The idea that sludge, the leftover semisolid wastes filtered from water pollution at 16,500 treatment plants, can be turned into something harmless, even if swallowed, has been a tenet of federal policy for three decades. A series of reports by the EPA's inspector general and the National Academy of Sciences between 1996 and 2002 faulted the adequacy of the science behind the EPA's 1993 regulations on sludge. The chairman of the 2002 academy panel, Thomas Burke, a professor at the Johns Hopkins Bloomberg School of Public Health, says epidemiological studies have never been done to show whether spreading sludge on land is safe. (AP Photo/Kathleen Lange)



Sludge Makeup Hard to Know

By KEVIN S. VINEYS – 21 hours ago

ARLINGTON, Va. (AP) — Every day Larry Slattery goes to work, the Environmental Protection Agency asks him to do the impossible.

Not only does Arlington County's water pollution control chief have to separate sewage and other pollutants from the wastewater gushing into the treatment plant. He also must turn the leftover sludge into a fertilizer and eliminate any risks of spreading illness when it is used.

"Now, it's not possible to totally eliminate everything," he said.

No one can say exactly what is in sludge. It's a constantly changing brew of human, commercial, hospital and industrial wastes. The primary organic ingredient is human excrement, which proponents say makes sludge a useful fertilizer.

Critics worry about the metals and pathogens that remain.

"These sludges are the worst media you can imagine because they will generate antibiotic resistant organisms," said Murray McBride, director of the Cornell Waste Management Institute.

What's not monitored raises even bigger concerns: perhaps tens of thousands of industrial chemicals, drugs, personal care products, flame retardants and other byproducts of modern civilization — virtually anything flushed down a toilet or poured into a drain.

All can end up being spread on land used to grow food or animal feed, or used on parks and ball fields, or sold to consumers as garden fertilizer.

"There are lots of things that make it through the treatment plants," said Thomas Burke, an epidemiologist at the Johns Hopkins Bloomberg School of Public Health in Baltimore. He headed the National Academy of Science's last study of sludge.

Some of the more alarming things found in treated sludge used as fertilizer include:

PCBs. Last year, Milwaukee sludge tainted with polychlorinated biphenyls was spread on parks and athletic fields. Officials believe the PCBs, a cancer-causing chemical banned in 1977, were illegally dumped or stirred up during sewer maintenance.

Thallium. Dairy farmers in Georgia say their herds were poisoned by sludge in the 1990s and that tests they conducted on milk bound for store shelves showed elevated levels of thallium, which was once used as rat poison.

Radiation. For years, Plutonium-239 was discharged from the Lawrence Livermore National Laboratory to the local treatment plant in California, which converted the sludge to fertilizer that was distributed to residents and spread on parkland. A federal probe determined in 2003 that although radiation levels in the area where sludge was used were elevated, there was no threat to human health. A 1994 General Accounting Office report listed nine treatment plants where radioactive contamination had been found.

When water first enters a treatment plant, wood, rocks, plastics and other big objects are screened out. What's left goes into large tanks where the heavy solids settle to the bottom. Bacteria and other microorganisms eat the organic pollutants. Chlorine is added to the water to kill these bugs; sodium bisulfite removes the chlorine.

The cleansed water is then discharged into local waterways.

The remaining pollutants are pumped to tanks where other bugs digest some of them. The sludge is then spun to remove excess water. It may be mixed with caustic lime or may be heat-treated to kill disease-causing microorganisms.

EPA rules for reducing these pathogens set up a two-part system for classifying sludge:

Class A, heated and composted to kill pathogens, is considered safe for direct contact immediately after it is made. Varieties are sold to consumers under brand names such as



Milorganite and Orgro. But fecal coliform and salmonella regrowth can occur.

Class B, not treated as much, is still considered safe for use as a fertilizer, but there are restrictions on how soon people and livestock can come in contact with it, as well as on its use for growing crops for human consumption.

Treatment plant officials rely on old-fashioned chemistry to tell them if something toxic has made it into the plant: often the smell in the air will change or the bacteria digesting the sewage will die off when contaminated by hazardous chemicals.

"Most of what's coming in here is pure water," Slattery said. "But that little bit of solids that's in there is a big deal."