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CDC sounds an alarm on the risks of sludge

Farmers use tons of treated sewage as free fertilizer

By John Tuohy
USA TODAY

An upcoming report by the Centers for Disease Control and Prevention concludes that sewage sludge converted into fertilizer poses a potential health risk from E. coli, salmonella, hepatitis B, and other bacteria and viruses.

Workers who handle sludge are especially at risk, scientists found.

Sludge is made from human waste that is flushed down toilets in homes, businesses and industry. Following guidelines set by the federal Environmental Protection Agency, municipal sewage plants treat the waste to remove toxic metals and kill diseases, then ship the sludge to farmers and other landowners to use as a nutrient to grow crops and plants.

Since the EPA approved the sludge program in 1993, millions of tons have been spread on land across the country, including the White House lawn.

EPA rules divide sludge — which it calls biosolids — into two categories, depending on how it is treated and cleaned. The more expensive Class A treatment kills all the pathogens in the waste. The more common Class B treatment kills most, but not all, of the pathogens.

The CDC is recommending that all sludge be cleaned to Class A standards because of the risk that diseases could be transmitted through Class B sludge. "The best control is to eliminate the hazard by treating the biosolids to the Class A pathogen-free levels before application," Joe Cocalis, a scientist with the CDC's National Institute for Occupational Safety and Health (NIOSH), writes in a draft of the report, written with scientist Nancy Burton.

The report is to be released soon and is awaiting only the signature of the NIOSH director.

By Gary Tramontina for USA TODAY

A mother voices her fears: Tony Behun, the 11-year-old son of Brenda Robertson, died less than a week after riding his motorbike through sludge.

Two grieving mothers share their stories, 13D.

It's the first time the EPA's sludge program has been so closely scrutinized by another health agency, and the report comes on the heels of two other investigations that found problems with the program. Reports by the EPA's inspector general and Cornell University in Ithaca, N.Y., found that sludge could be harmful to the public.

The CDC report also bolsters the claims of a scattered conglomerate of environmentalists and citizens across the country who claim sludge is harmful to people and the ecosystem. They include two mothers in the Northeast who blame sludge for the deaths of their sons. People who live near sludge say it has made them sick. Farmers contend it has killed their livestock.

Sludge has become the preferred method of waste disposal for the nation's 16,000 municipal sewage plants because it is much cheaper than the alternatives: incineration and landfills.

In most cases, tons of sludge are given away to farmers, and the EPA has successfully promoted sludge as an environmentally friendly way to recycle sewage.

About 60% of sludge is now used as fertilizer, and farmers who use it say it beats anything on the market.

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EPA cites safety, but sludge has been blamed for puzzling deaths

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"The stuff works great. My yields are excellent ... and my soil fertility has improved," says Charlie Hansen of Center Harbor, N.H., who raises cattle and grows hay on 150 acres. Hansen began using sludge 10 years ago and spreads about 1,500 tons of it, which he gets free, on his land each year. "I would never use something that would hurt me or my children."

But CDC scientists advise workers who handle Class B sludge — the kind Hansen uses — to wear protective clothing, including respirators, goggles, coveralls and gloves. Scientists made their conclusions after investigating complaints of sickness by five sludge workers at the Butler County (Ohio) Department of Environmental Services' Lescurdesville facility.

"Based on available scientific evidence, we are developing recommendations for preventing potential risks to workers in settings where exposure to Class B biosolids may occur," NIOSH spokesman Fred Blasser says in a prepared statement.

EPA: No new rules 'without data'

Officials with the EPA insist Class B sludge is perfectly safe when used correctly and say there is no scientific evidence that it's unsafe.

"If we were to require Class A sludge, we would need the data to show us it is necessary to protect public health, and that data is not out there," says Diane Regas, deputy assistant administrator for water at the EPA. "We wouldn't want to impose new rules on the cities without the data."

But she calls the worker recommendations "very useful" and "common-sense advice."

Sludge critics say the CDC recommendations have much larger implications. If the CDC recommends that workers shield themselves against sludge, they say, then the EPA should make sure the public is protected, too. NIOSH can only recommend changes in the workplace, but the EPA can initiate public health policies.

"In the history of public health, I can't think of an instance when the workplace requirements were stricter than they were for the public," says EPA microbiologist David Lewis, who is suing the agency because he claims it is trying to fire him for criticizing the sludge program.

After all, Lewis says, any person can walk right onto a farm laden with tons of sludge and be as close to it as any worker.

That's what Brenda Robertson of Osceola Mills, Pa., says happened to her 11-year-old son, Tony Behun, in October 1994.

Tony rode his motorbike through a hillside at the site of an old strip mine that was covered in sludge, which plastered him from head to toe. The next day, he got sick. Within a week, he was dead.

For the past year, since Robertson began to suspect sludge was the cause, she has battled the Pennsylvania Department of Environmental Protection, which insists that sludge played no part. She has lobbied at the Capitol in Harrisburg and written to Gov. Tom Ridge for support.

"I don't think the EPA wants to admit there need to be changes made," Robertson says.

In Greenland, N.H., Joanne Marshall is suing to reach closure in the death of her son Shayne Conner in 1995, when he was 26.

Marshall lived downwind of a sludge site; she says the ammonia fumes that her son inhaled caused his death. She is suing the sewage plant that treated the sludge, the waste hauler that transported it and the farmer who grew his crops with it.

"I am 100% certain his death was caused by sludge," she says. "I have been disappointed and dismayed with the response of the government."

Rufus Chaney, a research agronomist with the U.S. Department of Agriculture, calls claims like Marshall's "ludicrous."

"Even if there were enough ammonia to make someone sick, the dispersal you would get on a big field negates it," Chaney says.

He calls critics of sludge "fecalphobes." Those are people who feel feces shouldn't be put anywhere and who ignore its organic value, he says. "To appreciate what goes in the process, they should try treating their own waste."

Critics: 'May result in risks'

The CDC is only the latest critic of sludge:

- In March, an audit by the EPA's inspector general concluded that the "EPA cannot assure the public that current land application practices are protective of human health and the environment."

The study found that biosolids "may result in increased risks to the environment and human health." The EPA reviewed only 38% of the reports sent to it by waste treatment plants, performs few inspections of the plants and does not keep track of the cumulative amount of pollutants at sites where sludge is spread. And there "is virtually no oversight" of the program, auditors found.

The EPA's Regas says the states are supposed to self-regulate because the EPA doesn't have the manpower to inspect every site in the country.

- In 1999, a study by Cornell University's Waste Management Institute said the EPA's sludge rules "do not appear adequately protective of human health." It found that groundwater leaching of sludge might be dangerous. Institute director Ellen Harrison says the EPA tried to discredit the report rather than address the concerns.
- The House Science Committee held hearings in March to examine allegations that top EPA officials intimidated activists who opposed sludge in their towns.
- A few scientists within the EPA, led by Lewis, are openly challenging the EPA's sludge rules.

Some scientists say pathogens that survive after Class B treatment are resilient enough to live long after Class B biosolids are spread on fields. They say the EPA never did thorough testing that could prove otherwise.

"They developed a theory that was not biologically sound," Lewis says. "I think that in some cases you can find E. coli or other pathogens living months or years later."

Al Gray, executive director of the Water Environment Federation, a non-profit group of sewage plant scientists and engineers, says it is sludge opponents who don't have the science to back up their fears. "We have yet to have a documented case of a worker or citizen getting sick from biosolids," he says.

Nevertheless, some rural local governments have told their leaders they don't want sludge from sewage plants in New York and Los Angeles dumped in their towns.

In New Hampshire, 44 municipalities have banned or restricted sludge. In California, 16 counties have used local government action to keep the sludge away.

But there are still a great number of farmers who swear by sludge.

In Hermiston, Ore., third-generation farmer Kent Madison, 40, who raises cattle on 15,000 acres, calls biosolids "truly the ultimate organic fertilizer."

"It has increased my grazing capacity eight times," he says. "And we have employees who work with it every day and have never had one health problem."

In Cottage Grove, Minn., farmer Gene Smallidge, 60, says sludge is helping him "get some of the highest corn yields in the state on some of the worst land."

"If you believe in recycling, then this is the ultimate," Smallidge says. "Everyone creates it, and everyone should learn to reuse it."