Photo 1 of 5

Chris Peot shows biosolids, applied to a farm, in Mitchells, Va., Wednesday, June 6, 2007. 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. (AP Photo/Manuel Balce Ceneta)





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Sludge Fertilizer Program Spurs Concerns

By JOHN HEILPRIN and KEVIN S. VINEYS – 19 hours ago

BALTIMORE (AP) — Scientists using federal grants spread fertilizer made from human and industrial wastes on yards in poor, black neighborhoods to test whether it might protect children from lead poisoning in the soil. Families were assured the sludge was safe and were never told about any harmful ingredients.

Nine low-income families in Baltimore row houses agreed to let researchers till the sewage sludge into their yards and plant new grass. In exchange, they were given food coupons as well as the free lawns as part of a study published in 2005 and funded by the Housing and Urban Development Department.

The Associated Press reviewed grant documents obtained under the Freedom of Information Act and interviewed researchers. No one involved with the $446,231 grant for the two-year study would identify the participants, citing privacy concerns. There is no evidence there was ever any medical follow-up.

Comparable research was conducted by the Agriculture Department and Environmental Protection Agency in a similarly poor, black neighborhood in East St. Louis, Ill.

The sludge, researchers said, put the children at less risk of brain or nerve damage from lead, a highly toxic element once widely used in gasoline and paint. Other studies have shown brain damage among children, often in poor neighborhoods, who ate lead-based paint that had flaked off their homes.

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.

In a 1978 memo, the EPA said sludge "contains nutrients and organic matter which have considerable benefit for land and crops" despite the presence of "low levels of toxic substances."

But in the late 1990s the government began underwriting studies such as those in Baltimore and East St. Louis using poor neighborhoods as laboratories to make a case that sludge may also directly benefit human health.

Meanwhile, there has been a paucity of research into the possible harmful effects of heavy metals, pharmaceuticals, other chemicals and disease-causing microorganisms often found in sludge.

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.

"There are potential pathogens and chemicals that are not in the realm of safe," Burke told the AP. "What's needed are more studies on what's going on with the pathogens in sludge — are we actually removing them? The commitment to connecting the dots hasn't been there."

That's not what the subjects of the Baltimore and East St. Louis research were told.

Rufus Chaney, an Agriculture Department research agronomist who co-wrote the Baltimore study, said the researchers provided the families with brochures about lead hazards, tested the soil in their yards and gave assurances that the Orgro fertilizer was store-bought and perfectly safe.

"They were told that their lawn, as it stood, before it was treated, was a lead danger to their children," said Chaney. "So that even if they ate some of the soil, there would not be as much of a risk as there was before. And that's what the science shows."

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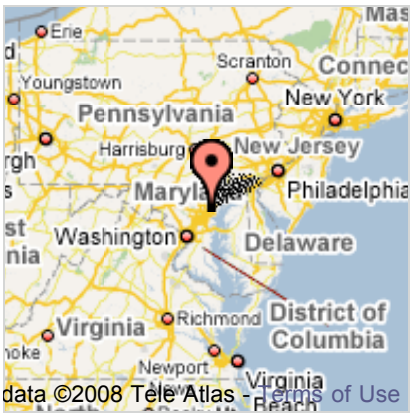

Chaney said the Baltimore neighborhoods were chosen because they were within an economically depressed area qualifying for tax incentives. He acknowledged the families were not told there have been some safety disputes and health complaints over sludge.

"They were told that it was composted biosolids that are available for sale commercially in the state of Maryland. I don't think there's any other further disclosure required," Chaney said. "There was danger before. There wasn't danger because of the biosolids compost. Composting, of course, kills pathogens."

The Baltimore study concluded that phosphate and iron in sludge can increase the ability of soil to trap more harmful metals including lead, cadmium and zinc, causing the combination to pass safely through a child's body if eaten.

It called the fertilizer "a simple low-cost" technology for parents and communities "to reduce risk to their children" who are in danger of lead contamination. The results were published in Science of the Total Environment, an international research journal, in 2005.

Another study investigating whether sludge might inhibit the "bioavailability" of lead — the rate it enters the bloodstream and circulates to organs and tissues — was conducted on a vacant lot in East St. Louis next to an elementary school, all of whose 300 students were black and almost entirely from low-income families.

In a newsletter, the EPA-funded Community Environmental Resource Program assured local residents it was all safe.

"Though the lot will be closed off to the public, if people — particularly children — get some of the lead contaminated dirt in their mouths, the lead will just pass through their bodies and not be absorbed," the newsletter said. "Without this iron-phosphorus mix, lead poisoning would occur."

Soil chemist Murray McBride, director of the Cornell Waste Management Institute, said he doesn't doubt that sludge can bind lead in soil.

But when eaten, "it's not at all clear that the sludge binding the lead will be preserved in the acidity of the stomach," he said. "Actually thinking about a child ingesting this, there's a very good chance that it's not safe."

McBride and others also questioned the choice of neighborhoods for the studies and why residents were not told about other, possibly harmful ingredients in sludge.

"If you're not telling them what kinds of chemicals could be in there, how could they even make an informed decision. If you're telling them it's absolutely safe, then it's not ethical," McBride said. "In many relatively wealthy people's neighborhoods, I would think that people would research this a little and see a problem and raise a red flag."

The Baltimore study used a compost of sludge mixed with sawdust and wood chips packaged as "biosolids," the term for sludge preferred by government and the waste industry.

"What we did was make the yards greener," said Pat Tracey, a Johns Hopkins University community relations coordinator who recalled helping with the lawn work. "They were bald, bad yards. It was considered sterile fertilizer."

Baltimore environmental activist Glenn Ross says choosing poor neighborhoods destined for demolition makes it hard to track a study's participants. "If you wanted to do something very questionable, you would do it in a neighborhood that's not going to be there in a few years," he said.

HUD documents show the study's lead author, Mark Farfel, has pursued several other studies of lead contamination including the risks of exposure from urban housing demolitions and the vacant lots left behind.

Farfel has since moved to New York, where he directs the World Trade Center Health Registry surveying tens of thousands of victims of the Sept. 11 attacks. He denied repeated requests for interviews and referred questions to Baltimore's Kennedy Krieger Institute, the children's research facility that was the recipient of HUD grants with Farfel as project manager.

The institute referred questions to Joann Rodgers, a spokeswoman for Johns Hopkins. She said a review board within its medical school approved the study and the consent forms provided to families that participated. "The study did not test children or other family members living in the homes," she said.

Some of Farfel's previous research has been controversial.

In 2001, Maryland's highest court chastised him, Kennedy Krieger and Johns Hopkins over a study bankrolled by EPA in which researchers testing low-cost ways to control lead hazards exposed more than 75 poor children to lead-based paint in partially renovated houses.

Families of two children alleged to have suffered elevated blood-lead levels and brain damage sued the institute and later settled for an undisclosed amount.

The Maryland Court of Appeals likened the study to Nazi medical research on concentration camp prisoners, the U.S. government's 40-year Tuskegee study that denied treatment for syphilis to black men in order to study the illness and Japan's use of "plague bombs" in World War II to infect and study entire villages.

"These programs were somewhat alike in the vulnerability of the subjects: uneducated African-American men, debilitated patients in a charity hospital, prisoners of war, inmates of concentration camps and others falling within the custody and control of the agencies conducting or approving the experiments," the court said.

On the Net:

- Baltimore study: http://tinyurl.com/3g2e3q
- East St. Louis project: http://tinyurl.com/43s3qx
- Maryland lead lawsuit: http://tinyurl.com/4ydssm
- National Academy of Sciences' report: http://tinyurl.com/4esxjv

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