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News

Raking through sludge exposes a stink

Environmental Protection Agency scientists accused of fabricating data about health effects of fertilizer.

Jeff Tollefson

A former US Environmental Protection Agency (EPA) scientist is suing the agency's officials and researchers at the University of Georgia in Athens, alleging that they manufactured and published false data to support the use of potentially harmful sewage sludges as fertilizers. The sludges have been linked to health problems in humans and cattle — and even deaths.



Farmer Andy McElmurray won his court case against the US Department of Agriculture over land poisoned by sludge fertilizer.

R. EHRHARDT/AP

The False Claims Act lawsuit brought by microbiologist David Lewis, who says he was forced out of the agency, alleges that EPA officials and University of Georgia researchers fraudulently orchestrated a grant and then fabricated data to ensure that the EPA's 'biosolids' programme would come out smelling pretty. If the charges stick, the scientists and EPA officials could be held personally liable and may be forced to pay back the original grant as well as some US\$4.6 million in subsequent grants, plus penalties.

“This is one of the few ways that you can hold people accountable for bad science and indeed for using false information to create that science,” says attorney Ed Hallman of Decker, Hallman, Barber & Briggs in Atlanta, who filed the lawsuit on behalf of Lewis and two Georgia dairy farmers.

At the heart of the case is a study by agricultural engineer Julia Gaskin of the University of Georgia and her colleagues, which concluded that using sludge as a fertilizer “should not pose a risk to animal health”. It was used in a 2002 report by the US National Academy of Sciences (NAS), which brushed aside allegations that livestock had been killed by the toxic biosolids. The report states, with explicit reference to the Gaskin study, that the EPA had investigated these cases

and found “no substantiation” to the allegations. Gaskin and her colleagues published their study a year later in the *Journal of Environmental Quality*¹.

“Data on sewage sludge were unreliable, incomplete, and in some cases, fudged.”

The lawsuit alleges that the researchers concealed their own evidence that sewage sludge applications contaminated land and probably contributed to cattle deaths on two dairy farms in Georgia, according to recently unsealed court documents. They then conducted a new study on different land — using sewage-sludge data that were known to be “fudged”, in the words of one federal judge — to show that the use of biosolids is safe, according to the lawsuit.

Gaskin would not talk about specifics but says she stands by her work. She also says that the paper was never intended to study problems with biosolids on the dairy farms. “The purpose of this paper was not the focus that has been alleged,” she says. “That was not part of this effort.” University officials and the EPA declined to comment on the lawsuit or discuss the biosolids programme.

The US biosolids programme, which dates back to the 1970s, relies on residential and industrial wastes routed through thousands of water-treatment plants. Some 60% of the residual sludges from the process — several million dry tonnes annually — are now used as fertilizers rather than being buried or incinerated. But questions remain about the sludges' impact on human and animal health — the programme has been the subject of multiple lawsuits for more than a decade.

Court ruling

In February, a district court in Augusta, Georgia, ruled in favour of the McElmurray family, which had sued the Department of Agriculture for farm subsidies on land they could not plant because of various contaminants from sludge, including cadmium, molybdenum, arsenic and thallium. Judge Anthony Alaimo described a “broad consensus” that data on the city of Augusta's sewage sludge toxicity and its application were “unreliable, incomplete, and in some cases, fudged”.

These were the same records that were used in the Gaskin study to calculate application rates on the farms that they analysed, and documents suggest that the researchers knew there were problems with the data. In one draft of the study, University of Georgia soil scientist William Miller scrawled a note with a smiley face saying: “We should fess up here that we don't know exact rates of application or specific characteristics of sludges applied.”

Miller did not respond to e-mails or phone calls from *Nature*. In a recent interview with Associated Press, however, he acknowledged these doubts but maintained that the study “does not include fake data”.

“I'm at a total loss to look at anything in the Gaskin paper or its conclusions that are not based on fabricated data or the concealment of their own data,” says Lewis, who claims he was forced out of the EPA in retaliation for his research into the health impacts of sewage sludge.

In 2002, Lewis and his colleagues published a study in the journal *BMC Public Health* documenting reported health problems among more than 48 people who lived near fields where 'Class B' sludges — the most common and least sanitized — were applied². Some 25% of those surveyed were infected by *Staphylococcus aureus*, which contributed to two people's deaths. This research was cited in the 2002 NAS report as well, although the report stated that there was no “documented scientific evidence” to substantiate reports of human illnesses or death. The academy said that it was not charged with evaluating human health claims but went on to acknowledge a “persistent uncertainty” about health impacts.

The NAS report recommended that the EPA conduct a new survey of chemicals and pathogens in sewage sludge, begin systematically tracking health complaints, and conduct epidemiological studies to assess the impacts of biosolids. The EPA has yet to implement these recommendations, although officials say a new survey of toxic chemicals found in sludges is due out later this year.

Last year, a team led by epidemiologist Sadik Khuder of the University of Toledo in Ohio published similar findings to those of Lewis's team. Their larger study found that the risk of various health problems correlated with the proximity to farms where Class B sludges had been applied³.

“We have no idea what's going into the waste-stream,” says Murray McBride, director of Cornell Waste Management Institute in Ithaca, New York. He says that there are unknown risks from cleaner 'Class A' sludges as well, because the sterilization process doesn't kill all the pathogens and doesn't affect a host of other chemicals used in modern industry. McBride says that the scientific community and regulatory agencies have been slow to address these questions because of the huge economic and institutional investment in the biosolids programme. “There's a vested interest now in keeping this land application going,” he says.

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CORRECTED: There is a "Correction":<http://www.nature.com/uidfinder/10.1038/453577d> associated with this story. The 2002 biosolids study from the National Academy of Sciences (NAS) did not reference research into health impacts by Environmental Protection Agency (EPA) whistleblower David Lewis. The citation was included in a prepublication draft that is still posted on the EPA's internet site, but the NAS panel voted to remove the reference before final publication. An NAS spokesman said the panel decided the information was not relevant as the panel was not charged with evaluating health impacts.

References

1. Gaskin, J. W., Brobst, R. B., Miller, W. P. & Tollner, E. W. *J. Environ. Qual.* **32**, 146–152 (2003).
2. Lewis, D. L., Gattie, D. K., Novak, M. E., Sanchez, S. & Pumphrey, C. *BMC Public Health* **2**, 11 (2002). | [Article](#) | [PubMed](#) |
3. Khuder, S. *et al. Arch. Environ. Occup. Health* **62**, 5–11 (2007).

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