



Biosolids: More Harm than Good, Part 1

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By *Lidia Epp*



David Lewis, Ph.D., formerly a senior-level research microbiologist at EPA-ORD, was terminated by EPA for publishing two articles in *Nature* that raised concerns over the 503 sludge rule. He currently serves as director of research for the [Focus for Health Foundation](#). Dr. Lewis kindly agreed to an interview for the MOTHER EARTH NEWS blog addressing the issue of agricultural use of sewage and industrial sludge, aka - biosolids. He is one of the most prominent scientific voices in the growing opposition to biosolids land application. Dr. Lewis' publications are frequently cited as an example of solid, unbiased scientific evidence of the danger posed by this practice. Read Part 1 of this interview below and Part 2 [here](#).

Lidia: Dr. Lewis, thank you so much for taking your time to address this issue today. Let's start with clearing up some confusion with the nomenclature. Is there a difference between "sewage sludge" and "biosolids"? Or it is just a different name for this same thing, which is simply a municipal waste?

Dr Lewis: Sewage sludge is semi-solid organic matter, mostly human feces and animal fats, which settles out at wastewater treatment plants. More than half of the sewage sludges produced in the United States are biologically and chemically treated, usually by adding lime, to reduce odors and indicator pathogen levels. Once treated, the product is called biosolids. It is repeatedly applied to farms, forests, school playgrounds, public parks and other public and private lands at rates measured in tons per acre.

Lidia: Does the EPA's Part 503 rule, a regulation that's intended to protect public from potential health dangers of biosolids, deliver on its promise?

Dr Lewis: After promulgating the 503 rule, EPA's Office of Water reneged on a promise it made to fund EPA's Office of Research & Development (ORD) \$10 million to improve the science. It regulates only nine of 27 heavy metals found in sewage sludge (As, Cd, Cu, Pb, Hg, Mo, Ni, Se, Zn), and no toxic organic chemicals. Many chemicals found at high (ppm) levels in biosolids are the worst of the worst, which EPA lists as priority pollutants. These are the ones we worry about most. They are highly persistent, biomagnified up the food chain, and known to cause adverse health effects in humans and animals.

Priority pollutants include endocrine disruptors, pesticides, pharmaceuticals, plasticizers and other chemical groups that concentrate in animal fats. As the fat solubility of chemicals increase, so does their neurotoxicity. Not surprisingly, exposures to these chemicals are linked to autism, ALS, Alzheimer's disease, Parkinson's disease and other neurological diseases and disorders.

Lidia: The concept of spreading the wide array of contaminants, pollutants, pathogens and toxins on the agricultural land - whose idea was it in the first place and why?

Dr Lewis: When EPA was first created, industrial wastes containing such pollutants were discharged into rivers. From there, they were carried away from our cities, and diluted to parts-per-trillion or lower levels in the oceans. EPA's solution to pollution was dilution. But, with the promulgation of the 503 sludge rule, EPA's approach changed to concentrating pollutants on land—where we live, work and play—at millions of times higher levels than allowed elsewhere under the Clean Water and Clean Air Acts.

Lidia: Isn't that a contradiction to the mission of the EPA, which after all is the Environmental Protection Agency? This practice goes against the common sense of protecting the environment! But let's forget the environment for a moment, what about protecting public health?

Dr Lewis: Not to worry, says the EPA, the wastewater industry, and major polluters. They point to a virtual absence of scientific evidence documenting illnesses and deaths in the scientific literature, and assure the public that pollutant-laden dust particles from fields covered with biosolids, and water from biosolids-contaminated private wells, do not cause any adverse health effects worth mentioning. Yet, air and water contaminated with the same chemicals from other sources at far lower concentrations are known to damage the immune system and cause cancer, birth defects, and neurological disorders. How can this be? EPA's answer, believe it or not, is "magic."

Dr. Alan Rubin in EPA's Office of Water explains:

Sludge magic [means] there are unique properties in the biosolids matrix that sequester metals [and] organics [and] significantly reduce, if not eliminate, movement of pollutants from the biosolids out to the environment. The processes, some of them are understood, some of them are not that well understood, but the whole thing taken together is called magic.

Lidia: Did he really say - "magic"? So it's the sludge magic that contributed to the scientific basis of Part 503 rule??? What did the scientific community have to say to that?!

Dr Lewis: Of course, peer-reviewed scientific journals would reject the idea of using magic as a basis for supporting regulations aimed at protecting public health. So, to create a body of "scientific" literature supporting the 503 sludge rule, EPA established a cooperative agreement with the Water Environment Federation, the wastewater industry's largest trade association, to fund a National Biosolids Public Acceptance Campaign. Under that agreement, scientists at USDA-supported agricultural colleges were funded, while scientists who linked biosolids to adverse health effects were systematically blacklisted, even accused of research misconduct. To support the sludge rule, EPA and the USDA supported skewing, and even fabricating, the data.

Lidia: Do you know any examples of skewing the data used by EPA?....

Dr Lewis: A good case in point is a study EPA funded at the University of Georgia (UGA), which EPA, the USDA, and a National Academy of Sciences panel used to dismiss cattle deaths on two dairy farms where biosolids from the City of Augusta, Georgia were applied. When the study was published in 2003, UGA issued a national press release in which lead author Julia Gaskin stated: "Some individuals have questioned whether the 503 regulations are protective of the public and the environment. This study puts some of those fears to rest."

In 2008, Nature published an editorial and news article about a federal court decision stating that environmental monitoring data in the Gaskin study were fabricated by the City of Augusta. When deposed about the fake data in a qui tam lawsuit, which the dairy farmers and I filed, Rufus Chaney, the scientist managing USDA's biosolids program, supported the use of fabricated data:

Question: Ms. Gaskin could have totally made up all that data and you would still rely on it because it was in a peer-reviewed study; is that accurate?

Answer: As long as it—as long as it was in general agreement with general patterns established in hundreds of papers....

Lidia: Dr. Lewis, in the light of those facts you just explained, the fate of the agricultural soils treated with biosolids looks rather grim. The human exposure to the pollutants present in the biosolids will likely increase in the future. What can be done to change that?

Dr Lewis: Soil remains the only part of the earth where high (ppm) levels of even the most harmful pollutants can be released unregulated. Instead of applying them to land, they should be reduced to simple inorganic compounds using new technologies, such as supercritical water gasification. Pollutants with serious adverse health effects should be destroyed rather than releasing them into the environment and regulating only a tiny fraction of them. To this end, Congress should pass a Clean Soil Act, and make polluters responsible for destroying toxic organic chemicals and recovering metals and radioactive elements at the source.

Reference documents supporting this article appear in Dr. David Lewis book, *Science for Sale* (Skyhorse Publishing, NY, 2014), and other writings and interviews:

- [How the EPA Faked the Entire Science of Sewage Sludge Safety: A Whistleblower's Story](#)
- [Dr. Mercola Discusses Biosolids with Dr. Lewis \(Full Interview\)](#)

Read Part 2 of my interview with Dr David Lewis. We will talk about his research at EPA exposing the harmful effects of biosolids land applications, the reaction of the EPA to his publications, how that affected his professional career and what he did about it. We will also share stories about the extraordinary "ordinary" people

opposed to the biosolids agricultural use and how they advocate for our health and the environment.

Lidia Epp is active with a local group of residents concerned about the agricultural application of biosolids, a dangerous practice that devastates farmland. She corroborates with local activists, politicians and scientists to bring public awareness to this issue and advocates for changes in state and federal regulations of biosolids land use. Read all of Lidia's MOTHER EARTH NEWS posts [here](#).

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