Ten Government-Industry Myths about Biosolids

Caroline Snyder Ph.D.*

MYTH NO. 1: For more than 2000 years industrial waste and sewage sludge have been land-applied as soil amendments. (Source: EPA[i])

FACT: The myriad hazardous industrial chemical wastes found concentrated in modern treated sewage sludges (biosolids), including pesticides, pharmaceuticals, plasticizers, flame retardants and growth hormones to mention a few, did not even exist until recent decades.

MYTH NO. 2: Biosolids are nutrient-rich organic fertilizers. (Source: EPA[ii])

FACT: It's highly deceptive to call mixtures of many thousands of industrial chemical pollutants "nutrient-rich" simply because several of the pollutants are nitrogen and phosphorus compounds found in commercial fertilizers. Biosolids produced from sewage sludges generated in industrial urban centers are undoubtedly the most pollutant-rich materials on Earth. When applied to land, industrial pollutants in biosolids reenter aquatic systems and are magnified up the food chain.[iii]

MYTH NO. 3: Over 99% of biosolids is composed of water, organic matter, sand, silt, and common natural elements. (Source: NEBRA[iv])

FACT: It's also deceptive to call mixtures of many thousands of industrial chemical pollutants "natural," especially when EPA and the biosolids industry are targeting consumers who use the words "natural" and “organic” to mean free of synthetic chemical contaminants.

MYTH NO. 4: Biosolids are essentially pathogen free. (Source: State of California[v])

FACT: Many if not most pathogenic (disease-causing) bacteria and viruses can survive treatment processes used to produce biosolids (Class A and Class B); and many dangerous pathogens, such as *Salmonella* and *Staphylococcus*, can re-grow to high levels in biosolids, which is mostly comprised of human feces.[vi] New research indicates that sewage sludge treatment facilities are actually breeding grounds for antibiotic-resistant pathogens.[vii]

MYTH NO. 5: Infectious prions will not survive wastewater treatment and therefore are not present in land-applied biosolids. (Source: U. Arizona[viii])

FACT: The latest research shows that prions survive wasterwater treatment processes.[ix]

MYTH NO. 6: Biosolids are not sources of pathogens or toxicants. Sludge syndrome is a somatic disease triggered by biosolids odors and by fears raised in the community and through the media. (Source: Mid-Atlantic Biosolids Association[x])

FACT: Odors from biosolids are a warning that the material is emitting disease-causing pathogens and biological toxins, *e.g.*, endotoxins. Peer-reviewed scientific studies have demonstrated that resulting health effects are not imagined but real. [xi]

MYTH NO. 7: Allegations of health problems linked to biosolids exposure are urban myths. (Source: NEBRA[xii])

FACT: Many hundreds of sludge-exposed rural neighbors have reported chronic respiratory, skin and gastrointestinal conditions consistent with exposures to the types of chemical and biological contaminants found in biosolids. The relationship between land application of biosolids and such adverse health effects has been documented in valid scientific studies, including the peer-reviewed scientific literature.[xiii]

MYTH NO. 8: Treatment breaks down most organic chemical pollutants. (Source: NEBRA[xiv])

FACT: EPA's 2009 Targeted National Sewage Sludge Survey of 74 sewage treatment plants in 38 states, which sampled 145 industrial chemical pollutants, found them in every sample.[xv] Their concentration ranges often topped ppm-levels and higher, exceeding concentrations considered safe in drinking water by orders of magnitude. Moreover, the breakdown products from organic chemical pollutants are often more harmful than the parent compounds.[xvi]

MYTH NO. 9: Biosolids contaminants are tightly bound to soil and do not become bioavailable. According to Rufus Chaney, "You can put enough heavy metals in the soil to kill the crop but that crop is still safe for human consumption." (Source: USDA[xvii])

FACT: EPA and the USDA buried studies demonstrating heavy metals in biosolids exceeding current levels permitted by EPA caused liver and kidney damage in farm animals grazing on fields treated with biosolids.[xviii] After EPA promulgated the current sludge rule in 1992, it

worked with the Water Environment Federation to establish the "National Biosolids Public Acceptance Campaign." EPA's Office of Inspector General investigated EPA's efforts to silence Dr. David Lewis, one of its top scientists who documented adverse health effects, and concluded that EPA could not assure the public that land application of biosolids is safe.[xix]

MYTH NO. 10: US sludge regulations that govern the land application of biosolids (40 CFR Part 503) are completely protective, based on science and valid risk assessment models. (Source: NEBRA[xx])

FACT: A 1999 Cornell Waste Management Institute paper concluded that the 503s do not protect human health, agriculture, or the environment.[xxi] The 503s regulate only nine metals plus inorganic nutrients (N, P). Even though industry can legally discharge any amount of hazardous waste into sewage treatment plants, the rules are based on chemical-by-chemical risk assessment which ignores the effects of mixtures and interactions. The 2002 NRC biosolids panel recognized this and concluded that "*is not possible to conduct a risk assessment for biosolids at this time (or perhaps ever) that will lead to risk-management strategies that will provide adequate health protection without some form of ongoing monitoring and surveillance . . . the degree of uncertainty requires some form of active health and environmental tracking*.[xxii]

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[iv] NEBRA, Response to Toxic Action Center's Toxic Sludge in Our Communities. March 3, 2003.

[v] CalRecycle. http://www.calrecycle.ca.gov/organics/biosolids/

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[xii] NEBRA March 3, 2003 op.cit p. 10.

[xiii] Lewis, D. L. et al. 2002. Interactions of pathogens and irritant chemicals in land-applied sewage sludges (biosolids) BMC 2:11. http://www.biomedcentral.com/1471-2458/2/11; Lewis, DL, Gattie DK. 2002. Pathogen risks from applying sewage sludge to land *Environ. Sci. Technol.* 36:286A-293A; Ghosh, J. 2005. Bioaerosols Generated From Biosolids Applied Farm Fields In Wood County, Ohio. Master of Science Thesis, Graduate College of Bowling Green State University. Abstract by Robert K Vincent, Advisor. www.ohiolink.edu/etd/sendpdf.cgi/Ghosh%20Jaydeep.pdf?bgsu1131322484; Khuder, S. *et al. Arch. Environ. Occup. Health* 2007; 62, 5–11.

[xiv] NEBRA. March 3, op.cit. p. 22.

[xv] USEPA. Biosolids: Targeted National Sewage Sludge Survey Report - Overview, January 2009, EPA 822-R-08-014. http://water.epa.gov/scitech/wastetech/biosolids/tnsss-overview.cfm; See also Jennifer G. Sepulvado, Andrea C. Blaine, Lakhwinder S. Hundal, and Christopher P. Higgins. Occurrence and Fate of Perfluorochemicals in Soil Following the Land Application of Municipal Biosolids. *Environ. Sci. Technol.*, Publication Date (Web): March 29, 2011 (Article) DOI: 10.1021/es103903d

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