



NEWS FROM THE WONDERFUL WORLD OF SOIL AND PLANTS

Bio-Solids or Sewage Sludge Revealed

Part 1 of 4

By John Ferguson

Yesterday I was listening in on a City of Houston Solid Waste Department hosting an internet meeting on recycling organics. Several of the companies in our area that are composting sewage sludge are banding together and are pressuring TNLA (Texas Nursery and Landscape Association) to recommend it for use in landscaping and for sale in our nurseries and garden centers! This includes encouraging Landscape Architects to specify it in their projects.

Historically, biosolids (sewage sludge) have been dealt with common disposal practices including ocean dumping, landfilling, and incineration. When sewage sludge is buried in landfill it creates many problems hence landfill operators do not want it. Incineration creates toxic gasses and is very expensive and ocean dumping has been outlawed due to extreme environmental damage it causes. As a result, disposal prices are rising.

To save money many cities are pelletizing it to sell as fertilizer or composting it. There is a limited market for this toxic material, hence several companies are using it in bagged products to sell to gardeners and homeowners. These companies believe that our yards and gardens are the perfect dumping ground for this toxic waste. These companies do not care about you, your family and children or your pets, all they want is your money.

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A question I often hear is “Why does the EPA allow this to happen?” The answer is simple, the EPA is run by the companies they are supposed to regulate.

For example, last week the 9th U.S. Circuit Court of Appeals found the EPA failed to follow established guidelines for determining cancer risk, ignored important studies, ignored advice from scientific advisory panels, ignored their own scientists, and declared that the herbicide glyphosate was not carcinogenic. The court also found that the EPA’s ruling was in violation of the Endangered Species Act in its assessment of glyphosate.

Similarly, the book below Science for Sale goes into the EPA coverup on sewage sludge and how the courts found the EPA guilty. Hence the nick name of the **Enhanced Profit Agency**.

The EPA no longer protects people, they just protect corporate interests, and this is what occurs with sewage sludge (aka Biosolids). More on this below.

Let’s start our review of this issue with the following excellent article by Dr. Snyder:

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.

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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 re-enter 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

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therefore, are not present in land-applied biosolids. (Source: U. Arizona viii)

FACT: The latest research shows that prions survive wastewater 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,

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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

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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

i R.K. Bastian. Interpreting Science in the Real World for Sustainable Land Application 2005; JEQ, 34,1:174.

ii EPA Fact Sheet. <http://water.epa.gov/polwaste/wastewater/treatment/biosolids/>

iii Hale, R.C., M.J. LaGuardia, E.P. Harvey, M.O. Gaylor, T.M. Mainor, and W.H. Duff. Persistent pollutants in land applied sludges. *Nature* 412:140-141.

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/>

vi Gattie, DK and DL Lewis. 2004. A high-level disinfection standard for land-applied sewage sludge (biosolids). *Environ. Health Perspect.* 112:126-31.

vii Gibbs, RA et al. 1997. Re-growth of faecal coliforms and salmonellae in stored biosolids and soil amended with biosolids. *Water Science and Technology* 35 (11-12).

viii Miles S.L; Takizawa, C.P. Gerba, and I.L. Pepper. 2011. Survival of Infectious Prions in Class B Biosolids. *J.Env..Sci. & Hlth.* 46: 364-370.

ix Kaplan N. Prions’ Great Escape.

<http://www.nature.com/news/2008/080701/full/news.2008.926.html>

x Toffey, W.E. Biosolids Odorant Emissions as a Cause of Somatic Disease. Presentation to the 2007 North East Biosolids & Residuals Conference & Exhibit. Philadelphia Water Department. December 4, 2007.

xi Shusterman, D. 1992. Critical review; the health significance of environmental odor pollution. *Arch.Environ.Health* 47:76-87.

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

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- 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. *Environmental Science and Technology*, Publication Date (Web): March 29, 2011 (Article) DOI: 10.1021/es103903d
- xvi DL Lewis, W Garrison, KE Wommack, A Whittemore, P Steudler, J Melillo. Influence of environmental changes on degradation of chiral pollutants in soils. *Nature* 1999; 401:898-901; Paris DF, Lewis DL. Chemical and microbial degradation of ten selected pesticides in aquatic systems. *Residue reviews* 1973; 45:95-124.
- xvii MD Abernethy, "To sludge or not to sludge?: At summit, scientists discuss risks," Interview with R. Chaney, USDA. Green Consumer Headlines, Times-News, May 2, 2010. <http://www.managemylife.com/mmh/articles/curated/278108>
- xviii US EPA Report: EPA-600/S1-81-026, 232 p. (Apr. 1981). "Sewage Sludge – Viral and Pathogenic Agents in Soil-Plant-Animal Systems." G.T. Edds and J.M. Davidson, Institute of Food and Agricultural Systems, University of Florida. An EPA Project Summary is available at <http://nepis.epa.gov/> by searching 600S181026 or key words in the title of the report.

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xix U.S. EPA Office of Inspector General Status Report - Land Application of Biosolids, 2002-S-000004, Mar. 28, 2002.

www.epa.gov/oig/reports/2002/BIOSOLIDS_FINAL_REPORT.pdf

xx NEBRA, "Is biosolids recycling safe? How do we know?"

<http://www.nebiosolids.org/index.php?page=faqs>

xxi Harrison, E.Z. McBride M.B. and Bouldin D.R. Land application of sewage sludges: an appraisal of the US regulations. International Journal of Environment and Pollution, Vol.11, No.1. 1-36. Retrieved at <http://cwmi.css.cornell.edu/PDFS/LandApp.pdf>. See also Case for Caution Revisited 2008 (revised 2009) retrieved at <http://cwmi.css.cornell.edu/case.pdf>. <http://cwmi.css.cornell.edu/PDFS/LandApp.pdf>. The 503 sludge rule can be found at

<http://water.epa.gov/scitech/wastetech/biosolids/upload/fr2-19-93.pdf>

xxii National Academy of Sciences, National Research Council. Biosolids Applied to Land: Advancing Standards and Practices, National Academy Press, Jul. 2, 2002.

www.nap.edu/books/0309084865/html, *Citizens for Sludge-Free Land

www.sludgefacts.org 9-6-13

I will add:

MYTH NO. 11: The EPA often states they did not find any toxins in the sample.

FACT: This statement often means the EPA never tested for the toxic chemical in question. If one does not test of course, they will not find anything.

There is a very good book on how the government (EPA), falsified safety data on sewage sludge and the following cover up, by a whistle blower Dr. David Lewis. Evidence presented in Federal courts confirmed Dr. Lewis's testimony.

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Science For Sale: How the US Government Uses Powerful Corporations and Leading Universities to Support Government Policies, Silence Top Scientists, Jeopardize Our Health, and Protect Corporate Profits, by David Lewis, PhD., Skyhorse Publishing, 2014, ISBN: 978-1-62636-071-6

Note: All proceeds from this book go to the National Whistle Blower's Center (www.whistleblowers.org)



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