

**Statement of**  
**James E. Skinner, PhD**  
**Former Professor of Physiology and the Neuroscience Program**  
**Baylor College of Medicine**  
**Before the**  
**House Environmental Resources and Energy Committee**  
**Hearing on House Resolution 426 (review of land application of sludge)**  
**October 8, 2014**

Dear Committee Chair:

The House Resolution 426 is a proposal to review the state's program on land application of sewage sludge, a program which has not been looked at by your Committee in 17 years. This review is coming up for a hearing on **Tuesday, October 14th at 11 am**. My understanding is that the matter before your Committee is to vote to get HR 426 out of the Environmental Resources and Energy Committee onto the House floor.

In support of a legislative review on the House floor, I am offering my own expertise in medicine to review all of the scientific literature on the matter. That is, a review of the papers that have been published in peer-reviewed journals and thus have the highest scientific standards.

First I present my credentials. I, James E Skinner, PhD, am a former Full Professor at Baylor College of Medicine. I am trained in molecular biology, physiology, pharmacology, immunology, endocrinology and other components of the medical sciences that are the foundation of the state-of-the-art of medicine. As a Professor I competed for and was awarded over \$18-million in research grants from the National Institutes of Health. I have had many students, residents and fellows and have published hundreds of papers with them.

I now describe the literature on the effects of "biololids class A class B" in health and medicine. I used this term in the search engine of the National Library of Medicine ([www.Pubmed.gov](http://www.Pubmed.gov)) and found 49 published articles among the top journals in medicine and public health.

Only one paper was published in 2001 and it was by the National Institutes of Health itself and was concerned with the health-effects of biosolids on workers and land owners. At the outset the data suggested concern, but not so much as to warrant banning biosolids from development.

From 2001 to 2005 increasing numbers of papers were published, and from 2005 to 2009 the publication rate peaked; the economic crash of 2008 caused a dip in the publication rate, as federal

money got diverted away from research. From 2009 to the present, the publication rate has come back and continues to increase.

Initially the archival peer-reviewed publications were concerned with health and risk assessment. New methods have now shown better ways to assess risk and have placed in doubt some of the earlier results that were interpreted to indicate low risk. When new methods become the focus of a sub-field, that area of science is maturing and the data become more scientifically persuasive.

Biosolids are not only found toxic to humans, but they can damage the farm land for decades to come. Trace metals, toxins, pathogens and deadly prions dumped into fields not only get into the air immediately, but they remain active in the soil for years, and can lead to crop failure. Worm growth, which is the sign of a healthy field and necessary to some types of crops, can be halted for up to 10 years after the single application of class B biosolids. This was proven recently in a controlled study at the Cornell University test site, which serves farmers in the Northeast.

There were three papers in the computer search that especially caught my attention. The first was a study by DI Lewis et al (2002) in Robesonia, PA, which suggested that respiratory infections and even death can be caused by pathogens released from biosolids. I became personally alarmed because Robesonia is in our neighborhood. The second study was by S Khuder et al (2007) that showed infection rates were, a) very high for rather mild types of respiratory and gastric illnesses, and b) dropped off as a function of distance from the biosolid-treated field. These results can only be explained by a causal relationship biosolids and health. The third persuasive paper was by Miles et al (2007) who showed something quite important in a paper entitled, "Survival of infectious prions in Class B biosolids." Although heat does reduce overall infectivity in Class A vs Class B, a whole lot remains in both classes and at hazardous levels; prions are not affected by any of these levels of heat. We must keep from recycling prions, else the same type of outbreak in Mad Cow Disease that occurred in Britain and the Northwest US 10 years ago is likely to reoccur. Prion diseases are lethal and there is no cure, and furthermore there are state and federal reports that prions are coming to Pennsylvania through the deer population.

The bottom line is that biosolids spread on farm fields release toxins, pathogens and prions into the air as wind driven aerosols and cause harm and sickness to people who live in the surrounding area. The Pennsylvania Legislature must consider the potential harm from biosolids before it is too late.

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