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Re: Virginia Pollution Abatement Permit 03002  
for Nutri-Blend Inc.- Campbell County

On behalf of Citizens for Sludge-Free Land, I very much appreciate the opportunity to submit written comments regarding the handling of biosolids permits for sites in Campbell County, VA.

Let's be honest. We recycle nutrients, and we dispose of pollutants. Sewage sludges contain only a few nutrients, but many thousands of pollutants. The effects of most of these pollutants on human health and the environment are unknown. Land application of sewage sludge, therefore, is mainly the transfer of pollutants from industrialized urban centers to agricultural soils. It is being disguised and promoted under a veil of green-sounding terminology, such as "biosolids," "recycling" and "beneficial reuse." That, by any definition, is deception.

VA code specifies that to be valid, a permit can only be granted with the informed consent of the landowner. Therefore, a key question is raised: Are farmers and landowners who contemplate using sewage sludges as fertilizers given accurate, complete, and up-to-date information about the real and potential risks of this practice?

After reviewing many of the brochures, documents, language, as well as the links provided to prospective sludge users by the Virginia Department of Environmental Quality (DEQ), the Biosolids Council, the Cooperative Extension Service, and Nutri-Blend Inc, the answer to this question appears to be a resounding "NO."

The language used to describe and define land-applied sewage sludge in these documents is deceptive. Whereas the Federal Clean Water Act defines sewage sludge as a pollutant, VA farmers are told that sewage sludge is the nutrient rich solid or semi solid material resulting from treating sewage; but they are not told that most of the pollutants and contaminants removed from wastewater are concentrated in the resultant sludges.

Reading the VA Web sites and supporting documents that refer to toxic metals as “trace elements” and to hazardous chemicals as “analytes,” farmers are given the impression that processed sewage sludge is a harmless material containing only helpful nutrients. The truth is that the nutrients represent only a fraction of what can be found in this waste material.

On its Web site the VA Cooperative Extension Service claims that it “provides the latest research-based recommendations to environmentally friendly crop production.” Yet biosolids research published in the last ten years, and earlier still relevant research, has been completely ignored by the Extension Service. When presented objectively, this research hardly supports the claim that spreading sludge on land provides “environmentally friendly” crop production.

The Extension Service Web site also claims that its documents are based on the “best information currently available.” Yet the information in its biosolids fact sheet, entitled *Risks and Concerns of Land Applying Biosolids* < [pubs.ext.vt.edu/452/452-304/452-304.html](http://pubs.ext.vt.edu/452/452-304/452-304.html) > --deceptively dated May 1, 2009--is ten years old and in most cases relies on even older and outdated references.

- The fact sheet, for example, ignores endocrine disrupting chemicals contained in sludges that can damage developing organisms in parts per trillion. Abnormal reproductive organs have been found in common species of fishes and other aquatic organisms throughout the United States. These chemicals are causing widespread effects on reproduction at extremely low levels in water; in sewage sludges they are present at much higher concentrations. Sewage sludge regulations have lagged far behind this rapidly developing area of environmental science.
- Despite the fact sheet’s claim that Class A processing “destroys 100% of all pathogens,” several of the methods endorsed by EPA to further reduce sludge pathogens may not work as they were intended. Moreover, bacteria can hide in “gunk” [Lewis 1998] or in protozoa [Barker et al, 1999]. Destruction of easily killed indicator pathogens, when sludge is processed to Class A, cause more resistant ones to survive and re-grow, especially in moist and cool climates or when sludge is top-dressed or stockpiled. In addition, non-culturable-but-viable bacteria occur in sludges [Yanko,1988; Gibbs et al,1997; Lewis, et al, 2004; Sardessai, 2005] and can re-grow or become reactivated when sludge is dewatered [Yian Qui et al 2007; Higgins et al, 2007]
- Despite recent published evidence to the contrary, this fact sheet still assumes that odor at land application sites is a mere nuisance problem. In fact, odor is not only a risk indicator. Numerous field observations, investigative reports and a number of published studies have demonstrated that exposure to odorous microbial products, irritant chemicals and volatile organic compounds at sludge application sites can cause serious, even life threatening, respiratory health problems. [Lewis et al, 1998; 2002, Schiffman et al, 1998; 2006; Ghosh,2005; Khuder et al, 2007]

- The fact sheet refers to “normal background concentrations” of metals in soil, but does not differentiate between the relatively harmless nature of geogenic metals as compared to smelted metals found in sludge; many of the latter can become bioavailable and toxic when organic matter on sludged sites decays.
- New surveys have identified hundreds of unregulated and unmonitored organic chemical compounds typically found in sludges, many of which are persistent and hazardous. Countless scientific studies have also demonstrated that breakdown products of chemicals can often be more toxic than the parent compound [For example, Lewis 1998, Hale et al, 2001; LaGuardia et al, 2004; and Ciparis et al, 2005]. Toxic effects of metals can be additive [Bojeong et al, 2009]; and even synergistic; and surfactants can mobilize toxic organic pollutants [Dentel et al, 1993].
- The chemical and biological compositions of sewage sludges are constantly changing as contaminants interact at wastewater treatment facilities and in the field. The impression given by the VA DEQ and others that they know what any batch of sewage contains is completely deceptive. Only a handful of the innumerable chemical and biological pollutants concentrated in sewage sludges are monitored. This fact is fully reflected in the EPA’s National Sewage Sludge Survey which shows wide swings in the concentration of metals, chemicals, and pharmaceuticals that were detected in sludges across the country.
- Chemical-by-chemical risk assessment of land applied sludge, therefore, cannot reliably gauge the real risks to human health and the environment because sludge is too complex and unpredictable a mixture of thousands of compounds, in addition to pathogens. The most recent National Academy of Sciences report, *Biosolids Applied to Land* (NAS), echoing Lewis’ research and recommendations, stressed the need to synthesize existing information on potential interactions of chemicals and pathogens that lead to an increased susceptibility to infection, particularly by inhalation. The NAS report repeatedly states that the current federal regulations that govern the land application of sewage sludge lack a scientific foundation and are based on outdated risks assessment methodologies. Yet the Cooperative Extension document quotes at length, and still relies on, the twenty-year old debunked EPA risk assessment.

Serious health complaints by rural residents exposed to sewage sludge have mounted since the current regulations went into effect. Court documents and published research have demonstrated how state and federal agencies work with sludge lobbying groups and industry-funded scientists to cover up “incidents” and silence critics. At least 18 counties in Virginia reported incidents. In Waterford, Loudoun County, half of the residents reported similar symptoms after sludge had been spread in their town. They had no idea what sludge was or what made them sick, until they researched the issue. [Barbara Rubin, September 11, 1998. Letter to the Senate Environment and Public Work Committee] A physician in Bedford County noticed unusual rashes and skin irritations of patients, all

who lived near recently sludged sites. Another physician in Clarke County advised an affected resident to stay inside and not drink his well water.

In conclusion, these misleading and out-dated Extension Service biosolids fact sheets fail to provide farmers and landowners with accurate and complete information about risks associated with land applied sewage sludges, as is required by the Virginia code. Worse yet, they present the illusion that land application of sewage sludge is “a normal agricultural practice.” It is clearly not that at all.

*Agricultural soils are a unique and valuable resource. Protecting [them] requires anticipating and avoiding potential harms, since once contaminated with persistent pollutants, the damage will remain for the foreseeable future. Once contaminated, stopping the application of pollutants, such as metals and many organic chemicals that are in biosolids will not correct the problem. The contamination will remain for decades or centuries. It is thus critical to prevent this essentially permanent degradation.” [Case for Caution Revisited < <http://cwmi.css.cornell.edu/case.pdf> >*

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CC

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