

Virginia Pollution Abatement Permit for Recyc Systems, Inc. - Lancaster County
Public Comments by Dr. Lynton S. Land, P.O. Box 539, Ophelia VA 22530

Virginia citizens and government officials must be aware of the consequences of the land application of municipal sewage sludge, irrespective of the fact that the practice is sanctioned by the State. Approximately 2000 acres in Lancaster County are currently being permitted, and according to the Joint Legislative Audit and Review Committee Report #89 (2005, p. 4) the average farm saves \$1,173 by not having to buy fertilizer.

In the absence of local data, I will use data from 27 fields reported in the 2004 and 2005 "Virginia On-Farm Corn Test Plots." For each acre on which corn was grown, on average, 162 pounds of conventional nitrogen (N) fertilizer were applied to yield an average of 174 bushels of corn grain. Assuming 56 pounds/bushel of grain, 15% moisture and 1.4% N in the dry grain, 116 pounds of N were removed from the field in the grain. Therefore each acre, on average, released 46 pounds (162 - 116) of N to the environment. Not all the N added as fertilizer but not removed from the field in the grain constitutes pollution. Some of the excess N is sequestered in the soil for the next crop, but a similar amount of N was already in the soil when the crop was planted. Denitrification might eliminate as much as one-third of the 46 pounds of excess applied N on each acre, but the remainder constitutes water pollution.

In the case of municipal sewage sludge, only 30% of the N is "crop available" according to required Nutrient Management Plans. Therefore, 540 pounds (162/0.3) of N must be applied to satisfy "crop nutrient needs." As a result, 424 (540 - 116) pounds of N is released to the environment. In order to use sewage sludge as fertilizer and satisfy the N needs of the crop, based on accepted science, nine times as much N pollution is caused than is true of conventional fertilizer. It is impossible to use animal wastes (poultry litter, sewage sludge and manure) as fertilizers without causing much more N pollution than is true of even a single-application of conventional chemical fertilizer. This is because time is required for microbes to decompose the organic particles in the sludge and release the nutrients so they are plant-available.

In the case of phosphorus (P), Dr. A. N. Sharpley, editor of "Agriculture and Phosphorus Management: The Chesapeake Bay" (1999, CRC Press, p. 66) stated "... much of the crop land in the Chesapeake Bay watershed is now considered "optimum" or "excessive" in phosphorus from an agricultural perspective and hence needs little additional phosphorus, from any source, to ensure that economically optimum crop yields are attained." A soil that tests "High" in P should receive no more than 40 pounds of P per acre. A 20-ton truckload of sludge, the amount typically spread on an acre, contains about 85 pounds of P. The State does not limit the amount of applied P "...to amounts established to support crop growth." as required by 9VAC25-32-600A, and is in clear violation of its own law. Abiding by the law would greatly increase the acreage needed to dispose of the waste, reducing the profits of the wastewater industry.

Sewage sludge also contains fecal coliform bacteria, which EPA mandates must not exceed 2 million “colonies” per dry gram. That translates into about 8 trillion bacteria in a 20-ton truckload, about the amount applied to each acre. The State does not test the sludge at the time of application, so there is no proof that EPA’s requirements are being met. Disposal of the bacteria-laden waste near water that is in violation of the Clean Water Act and restricted for the harvesting of shellfish because of high fecal coliform bacterial concentrations, continues to be allowed. The State contends that there is no proof that bacteria enter the water, despite flocks of seagulls that commonly forage on the fields, along with raccoons and other animals that act as vectors of bacterial transport. The TMDLs for bacteria that cause restrictions on the harvesting of shellfish currently in progress “... seek to eliminate 100% of the human derived fecal component.” (p. 18, TMDL Report: Towles Point to Deep Creek). Isn’t sewage sludge a “human derived fecal component”? Again, protecting the profits of the wastewater industry trumps common sense and generates nonsensical logic.

There are widely reported allegations of health problems caused by the land application of sewage sludge (e. g. www.sludgevictims.com), and growing concerns about disseminating organic compounds, including pharmaceuticals, on the land. Sludge contains antibiotics, and many medical professionals believe that the wanton disposal of these drugs promotes the development of antibiotic-resistant strains of bacteria. The effects of powerful drugs that are not destroyed during wastewater treatment, many of which are insoluble and end up in the sludge, are worrisome, but unknown. It is possible that the feminization of fish observed in the Potomac River is due to the discharge of chemicals (hormones) in birth control pills from wastewater treatment plants.

There are many negative consequences for society to land applying sewage sludge that the State dismisses in its zeal to protect the profits of the wastewater industry and agricultural interests. Only about 1% of Virginia farm acreage receives sewage sludge, so the profits of those few farmers obviously trump all other concerns in the eyes of the State. The 2000 acres destined to receive sewage sludge in Lancaster County will receive approximately 848,000 (424 * 2000) pounds of N in excess of what would have been applied if conventional chemical fertilizer had been used. Imagine walking around and spreading 170,000 50-pound bags of 10-10-10 fertilizer throughout the County, to no benefit of crops, and you can visualize the magnitude of just the N pollution problem. Society would benefit more, as would water quality in Chesapeake Bay, if the waste were used as biofuel, simultaneously reducing greenhouse gas emissions and the amount of oil we import.