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# BIOSOLIDS: QUESTIONS & ANSWERS

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**Q. Who regulates the generation and land application of biosolids in Virginia and how can I be sure they protect my health and the environment?**

**A. The U. S. Environmental Protection Agency and the Virginia Department of Environmental Quality (DEQ) enforce clearly defined regulations that ensure the protection of human health and the environment.**

Biosolids are mostly organic solids resulting from the treatment of wastewater that have undergone additional treatment to kill pathogens. During treatment, bacteria and other tiny organisms break sewage down into simpler, harmless organic matter. The organic matter combined with bacterial cell masses, settles out to form biosolids. To develop national biosolids standards, the EPA conducted the most comprehensive risk assessment ever performed by the agency. The resulting regulations, which can be found in Title 40 of the Code of Federal Regulations [CFR], Part 503, requires the protection of public health and the environment from any reasonably anticipated adverse effects of potential pollutants and pathogens in biosolids.

## **Wastewater Treatment Plants**

Wastewater treatment plants in Virginia are regulated by the Department of Environmental Quality (DEQ), which issues permits to facilities that land apply biosolids. Before permits are issued, the wastewater treatment plants must demonstrate that their processes meet federal and state standards for the production of biosolids. The plants must routinely test biosolids for nutrients, pathogens trace elements, solids content and pH. Biosolids generated by wastewater treatment plants must meet federal and state regulations before the material can be land applied. Here's a summary of these requirements.

*Trace elements:* Concentration limits were established to prevent adverse impacts to human health and the environment. Many of these elements are essential plant micronutrients that are found naturally in soils and in commercial fertilizers. The small amounts found in biosolids come from water and wastewater piping systems and discharges from businesses, industries and homes. Levels in today's wastewater treatment plants are extremely low because of reduced industrial inputs and extensive federally mandated pretreatment programs.

*Pathogens:* Wastewater contains beneficial microorganisms from the human digestive system. Biosolids may also contain pathogenic or disease-causing bacteria and other organisms. Today's wastewater treatment processes significantly reduce pathogens by creating a hostile environment for their survival. Biosolids are treated through either aerobic or anaerobic digestion and/or lime stabilization before being certified for land application. Both composted and heat-dried biosolids are virtually pathogen-free.

*Organic Compounds:* Biosolids may contain very small traces of organic compounds. These compounds come from industries and homes. Over time, natural soil microbes and environmental conditions significantly degrade these organic compounds.

## **Land Application – A Beneficial Use**

Education and public involvement are essential components of the biosolids program administered by the Virginia Department of Environmental Quality (DEQ). A successful biosolids program begins with the education and participation of a well-informed citizenry through a process that goes beyond a traditional public hearing.

Once a wastewater treatment plant's biosolids program is approved for land application by the DEQ, the plant contracts with a land application company to transport and land apply the biosolids to farmland. The land application contractor, which is permitted by the DEQ, is responsible for developing a biosolids management plan that contains regulatory-required safeguards for human health and the environment. A permit application requires a signed land agreement with the landowner, soil test results, and a site-specific Nutrient Management Plan approved by the Virginia Department of Conservation and Recreation, Division of Stormwater Management.

Each site in a county receiving biosolids must be permitted by the DEQ. The first permit in a county usually requires several months and involves public information meetings with DEQ staff and the contractor, and meetings with local elected officials. Subsequent permits in a county usually do not require a public meeting, unless desired by the county.

Virginia counties, if they so choose, can become even more involved in the regulation and monitoring of biosolids by passing a local ordinance. This allows a locality to test, monitor and enforce state regulations for land application and storage of biosolids within its border. The Virginia General Assembly, when it created this local monitoring system, also allowed localities to be reimbursed for the cost of local oversight and monitoring. These funds come from fees collected by the DEQ from land appliers, based on the biosolids tonnage applied in the county. Approximately 24 counties in Virginia currently have biosolids ordinances.

## **Applying Biosolids on Agricultural Land in Virginia**

Once a specific site is determined to be suitable, the land application contractor must notify the adjacent landowners and citizens by posting signs around the property. There are several site-specific management criteria that must be followed. These include, but are not limited to, ensuring compliance with a farm's Nutrient Management Plan, soil pH is maintained, buffer distances from surface water and wells, adjacent properties and residencies are observed and restrictions on access, harvest and grazing are met. The application is monitored by DEQ and by the locality, if a county has a local monitor, to ensure compliance with the permitted plan. Monitors may also collect samples of the biosolids being applied for independent testing of pathogens and trace elements. Monitors may also order the abatement of any violation of state regulations.

The land application company is responsible for documenting that the biosolids applied meet federal and state standards and that the site application plan was followed during application. The land application company must maintain this information for inspection and provide an annual report of all applications to the DEQ.

