



New England Biosolids Case Studies*

Lewiston-Auburn Water Pollution Control: Being a Good Neighbor

***biosolid** n. (1990): solid organic matter recovered from a sewage treatment process and used esp. as fertilizer.

--*Merriam-Webster's Collegiate Dictionary*

Background

The Lewiston-Auburn Water Pollution Control Authority began treating wastewater for the cities of Lewiston and Auburn, Maine in 1974. The facility currently treats an average of 11.0 million gallons per day (MGD) of wastewater from residential, commercial, and industrial sources in both towns.

During the first four years of operation, the biosolids separated in the facility's primary and secondary treatment processes were landfilled. In 1978, the facility began treating the nutrient-rich biosolids with lime to meet the quality requirements of federal Class B standards. Biosolids can be classified as Class A or Class B based on their pathogen content, and their subsequent use is strictly designated by their classification. As a Class B product, the Lewiston-Auburn biosolids are approved for agricultural use, and are applied to area permitted agricultural fields.

By the early 1980s, up to 100% of the biosolids were being land applied, but this number gradually declined over the decade. In 1993, to increase the rate of biosolids recycling, a biosolids composting facility was developed in Auburn. This facility currently processes 60-70% of the biosolids from the facility to federal Class A standards, creating a compost product that is valued by homeowners, nurseries, landscapers, and contractors. The remaining 30-40% of biosolids from the facility are still treated through lime stabilization to federal Class B standards and used as a soil amendment on local agricultural fields.

Two Types of High Quality Products

The Lewiston-Auburn Class A compost is approved for general gardening and landscaping use. The biosolids compost is similar to common topsoil, and its high organic content makes this product valuable to gardeners. Class B biosolids are more similar to manure than to topsoil. As with manure, the facility's Class B biosolids are applied at carefully monitored rates on permitted farm fields to control the amount of nitrogen in the agricultural soils. Controlled land application of Class B biosolids is important, because different types of crops require different nitrogen levels for optimum growth and Class B biosolids have more nitrogen than Class A compost.

The Lewiston-Auburn facility ensures the quality and safety of their biosolids products by constantly measuring the temperature of the Class A products during processing as well as monitoring the pH levels, or acidity, of the Class B products. The heating process includes elevating the temperature of the biosolids to 151° F for at least three consecutive days to destroy any disease-causing pathogens. Because the wastewater treatment facility receives discharge from a variety of sources, the Lewiston-Auburn facility also regularly tests their Class A and Class B products for metals, pathogens, volatile and semi-volatile organic compounds, dioxins, furans, and pesticides. Pre-treatment of industrial wastes on-site at

industrial facilities upstream from the wastewater facility, as well as constant monitoring by the staff at Lewiston-Auburn, ensure safe, reliable, products which consistently meet all state and federal standards.

Mac Richardson, a twelve-year employee and currently the facility Superintendent, favors the dual processing for his facility's biosolids. The ability to produce both Class A and Class B products gives him flexibility in controlling the flow of biosolids from the facility. With both options available, facility operators can easily keep up with the routine maintenance required at each treatment facility. In the end, the dual process operation saves him money and helps generate consistently high quality products.

Being a Good Neighbor

Composting and land application can generate unpleasant odors. There are different ways to control the odors of biosolids products during land application and the composting process. The Lewiston-Auburn facility employs several techniques. With public input and the cooperation of local and state officials, the 118-acre composting facility in Auburn was situated in a rural area, with only two residences within one-half mile of the facility. By continuing to acquire land around the facility, Richardson hopes eventually to have just three or four residences within a mile of the facility. In addition to the large buffer zone, the facility also uses an on-site biofilter, which involves pumping the air from the enclosed facility through a three-foot bed of wood chips that absorb odors generated during the composting process.

How a Biofilter Works

The bed of wood chips provides a surface on which microbes can grow. Microbes feed on the relatively large and complex organic molecules that cause odors, breaking them down into carbon dioxide or ammonia, which, because of their lower molecular weights are more easily dispersed in the air.

Odors from land applications of biosolids can also be effectively managed through best management practices, including monitoring weather conditions and applying the biosolids only during favorable conditions. In addition, Richardson says that, by avoiding land application of Class B biosolids during days when residents are more likely to be outdoors, they have eliminated almost all odor complaints.

Impact on Property Values

During the permitting process for the composting facility, the public expressed great concern regarding potential odors and the effect they could have on property values near the facility. The Assessor for the City of Auburn tracked property values (calculating the assessed price versus sale price ratio) around the facility for two years prior to its operation, and then compared that data to property values almost ten years later. He found that sale prices of property around the facility had increased more than the assessed values since the facility's inception. In addition, the values in the area around the composting facility improved more, over a ten-year span, than comparable rural areas in Auburn without facilities nearby!

Richardson says that the biosolids recycling program at the Lewiston-Auburn facility is well accepted by the community. The Class A compost product has gained visibility through giveaway programs to community beautification projects. And its sale at nominal fees to local residents, nurseries, and landscapers has created a following. With a smaller group that benefits - just farmers on the permitted fields - the Class B product is not as widely appreciated, but the ability to produce it affords the maximum flexibility and efficiency for the processing facility. The Lewiston-Auburn facility is continually working to be a local asset.



*NEBRA Biosolids Case Study #4: Lewiston-Auburn, ME
May, 2001 by EFI. Assistance from Mac Richardson.*

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