

**Living Filter Fact Sheet**

**University Park Campus**

* Since 1983, Penn State has been recycling all of its treated wastewater effluent through a land application treatment system known as the Living Filter. The Living Filter is an active example of University’s long-standing commitment to sustainability.
* In the early 1960’s Penn State researchers began to investigate the land application of wastewater. At that time, the University’s treated wastewater was being directly discharged into Thompson Run, which is a tributary to Spring Creek. Land application was of interest for the following reasons:
	+ An extensive fish kill in 1956 was traced to the disposal of lab waste into Penn State’s wastewater system, which found its way into Spring Creek.
	+ Pennsylvania was experiencing severe drought conditions in the early 1960’s.
	+ The overall water quality of Spring Creek was poor due to non-point sources of pollution such as agriculture and stormwater runoff, as well as point sources such as wastewater treatment plant discharges.
* Research on the concept of the Living Filter was conducted from 1962 to 1976. During that time, treated effluent was experimentally applied to forested land and agricultural land. The multidisciplinary research team from Penn State included a soil scientist, microbiologist, geologist, agricultural engineer, sanitary engineer, forest hydrologist and wildlife specialist.
* The results of that extensive research led to the full-scale implementation of the Living Filter in 1983. Since that time all treated effluent has been recycled at the Living Filter, with no discharge to the stream.
* A thorough and detailed site investigation was completed to identify a suitable site for full-scale implementation. The Living Filter is located on areas that have deep soil profiles, some of which exceed 100 feet.
* The Living Filter provides the following benefits:
	+ Eliminates the direct discharge of treated wastewater into streams and other water bodies.
	+ Enhances the treatment of the water as it slowly percolates through the soil profile.
	+ Naturally recharges the underlying aquifer.
	+ Helps to maintain base flows in streams such as Spring Creek.
	+ Reduces the impacts of drought conditions.
* The current Living Filter system:
	+ Operates 365 days per year.
	+ On average, recycles over 500 million gallons of water each year.
	+ Consists of approximately 600 acres of agricultural and forest land.
	+ Has over 3,000 spray nozzles, and over 50 miles of piping.
	+ Provides recreational opportunities such as hunting, hiking, biking and bird watching.
	+ Is permitted to apply up to two inches of effluent per acre per week.
	+ Has 13 groundwater monitoring wells, which are used to regularly monitor water quality in the aquifer.
* Management of the Living Filter system is provided by the Wastewater Management Committee, a multidisciplinary committee made up of researchers from across the University, as well as representatives from the Pennsylvania Department of Environmental Protection and the Pennsylvania Game Commission.
* Research compiled by the Wastewater Management Committee is transmitted via trade journals and research publications to advance the knowledge base on wastewater treatment processes and land application systems.
* The Penn State Office of Physical Plant (OPP) provides annual support to researchers interested in conducting research at the Penn State Living Filter.
* OPP’s support has assisted numerous students with earning their masters or doctoral degree at Penn State.