



ENCOURAGING  
Environmental  
EXCELLENCE

## Encouraging Environmental Excellence Achievement Level Recognition

*October 17, 2016*

The Ohio EPA Encouraging Environmental Excellence Program targets those who reduce waste, improve efficiency and work to continuously improve as an environmental steward. The program has a four-level approach to provide recognition to Ohio businesses and other organizations completing environmentally beneficial activities. Higher levels of recognition are for those who exceed regulatory requirements or commit to future environmental stewardship efforts. The Achievement Level recognizes any applicants completing environmentally beneficial activities. Any business, trade association, professional organization or local government in Ohio may apply. Achievement Level participants must demonstrate significant progress in one of eight environmental stewardship criteria: Impact to the environment; pollution prevention; energy efficiency; renewable energy; renewable, recovered or recycled materials; green building; recycling programs or organics diversion. Achievement Level participants must also demonstrate some level of progress in at least six additional environmental stewardship criteria and indicate they are in compliance with environmental laws and regulations.

Ohio EPA is recognizing the following organizations that successfully met the criteria for the Achievement Level of the Encouraging Environmental Excellence Program. Below is a summary of their efforts.

**Akron Water Supply Plant – Akron:** The Akron Water Supply Plant (AWS), located at Lake Rockwell Reservoir is the water treatment facility for the City of Akron and surrounding communities, providing an average of 35 million gallons of water daily to approximately 280,000 customers. The plant has been in operation for 100 years and employs approximately 40 people. Over the last several years the AWS staff have invested time and resources to upgrading and improving plant operation and efficiency through capital investments and best management practices. Several of these initiatives have improved environmental performance and resource conservation.

In 2013 AWS completed a lighting upgrade project where all old fluorescent fixtures and bulbs were replaced with energy efficient lighting. Light switches were retrofitted with motion sensors in all offices and high traffic areas. AWS estimates energy usage was reduced by 276,000 KWH and saved \$20,000 annually by making these changes.

Public water treatment facilities are required to distribute an annual Consumer Confidence Report (CCR) to all customers – which is a snapshot of water quality. Previously the CCR was mailed as a 9X11 trifold document to each billing address. In 2015, AWS had the option to post the CCR on the AWS website and add a message to the bill informing customers of the availability of the report on line due to changes in reporting requirement rules. AWS chose to implement this method of distribution which resulted in a reduction in paper waste of nearly 78,000 documents annually. A press release was announced advertising this green initiative and encouraging customers to go to the website to view the report.

The process of treating surface water produces water treatment residuals (WTR) which are considered industrial waste by Ohio EPA. There are numerous restrictions associated with removing WTR from potable water treatment plants. Current Ohio EPA policy prohibits direct discharge to public waterways and direct land application. AWS implements a WTR management and beneficial reuse program which sends WTR to dewatering basins where it is allowed to decant and thicken. Once partially dewatered, WTR is mixed, aerated, and conditioned to contain 55% to 65% solids. Conditioned WTR is removed from the AWS site and sent to a topsoil blending facility where it is utilized as a topsoil material. Conditioned WTR is blended in selected ratios with other materials that maximize the beneficial properties of Conditioned WTR. It is then marketed as a landscaping product. Recently, the Ohio EPA acknowledged that Conditioned WTR is suitable for use as a topsoil material. AWS produces over 21,500 tons of Conditioned WTR per year. The beneficial reuse program costs about \$9.39 per ton. The alternative is to transport the WTR to a landfill for disposal at a cost of \$62 per ton. The beneficial reuse program saves over \$1M per year and prevents additional industrial waste from entering landfills.

AWS has been participating in First Energy's demand response program through a third party energy management company for the last several years. In the event of high electrical demand events, AWS management staff is contacted and asked to reduce utility power consumption by a predetermined amount (approximately 1,800 kW) for up to several hours. During these events, AWS staff will either shut down operations or switch to emergency generators, taking the water plant facility off the grid. AWS is compensated for the reduction in energy usage during the response periods requested throughout the year. This program also includes software provided by the energy management company allowing management staff to monitor electric consumption in real time, identifying unanticipated and unusual energy usage and taking corrective actions should the need arise.

**City of Lima Wastewater Treatment Plant:** First constructed in 1930, the Lima Wastewater Treatment Plant (WWTP) consisted of screening, grit removal, primary sedimentation, and anaerobic digestion. Throughout the years, secondary treatment, tertiary treatment and additional sludge digestion were added. In 1973, the plant was expanded to an average dry weather flow capacity of 18.5 million gallons per day (MGD), and a peak flow capacity of 53 MGD. The design concept called for secondary and advanced treatment processes of the plant to operate at a peak rate of 33 MGD, with any remaining flow receiving primary settling and chlorination. Since 1973 the plant has provided primary, secondary and tertiary treatment, as well as biosolids and digester gas recycling.

Lima WWTP is better able to control its use of iron salts to control phosphorous through the use of the peristaltic pumps. After the installation of the pumps, the iron salts feed has been reduced from 5,000 gallons every week to every 2 weeks representing a 50% reduction of iron salts use.

The use of quarter inch rather than three-quarter inch screens is a standard best management practice used by Lima WWTP for influent. The improved screening results in better removal of impurities from the system. Removing trash and non-biodegradable material from the influent waste stream results in a cleaner effluent and cleaner waste sludge generated in the anaerobic digester. The narrower screens also result in lower maintenance costs and improved energy efficiency. Fine screening is also a requirement for Class A - Exceptional Quality Sludge.

The treatment process generates a Class A - Exceptional Quality sludge that is processed into Lim-A-Soil. This material is sent to Wright Mulch for various land application purposes.

A variety of energy efficiency activities have been implemented by Lima WWTP including SCADA motor controls; high efficiency boilers; variable frequency drive motors on waste pumps, filter building sludge pumps, and final lift pumps; LED based lighting upgrades; and motion sensors.

The Lima WWTP generates approximately 120,000 cubic feet of methane annually as a byproduct of its anaerobic digester. It uses the methane to run two micro-turbines. The micro-turbines generate electricity to help run the plant and the exhaust heat is used to help condition (dry) the digester gas. In 2014 the combined heat and power system achieved a \$46,000 savings and had a 4.6-year simple payback. The facility is investing in a third turbine that will further increase kilowatt hours of electricity generated.

The facility uses coal fly ash and cement kiln dust in the lime stabilization process. These materials are (waste) byproducts of other industries. Use of these byproducts reduce the amount of materials going to landfill and provide cost savings by reducing the need to purchase other stabilization agents.

The WWTP operates more efficiently when additional sludge is added. Other WWTPs in Allen County have been shipping their waste activated sludge or biosolids to the Lima WWTP resulting in higher efficiency of treating the solids. This results in a 1.5 cents/gallon savings to the county over sending the material offsite for anaerobic digestion. The material is sent through the anaerobic digester to produce additional methane for power generation resulting in additional reduction of electricity purchased. There are additional environmental benefits as the county does not need to ship its sludge as far which conserves fuel.

Additionally, Lima WWTP office and lab facilities recycle lab plastics, beverage bottle plastics, aluminum, paper, magazines and industrial steel. Used pallets are sent to Wright Mulch to be turned into mulch.

For more information about the Encouraging Environmental Excellence Program and the four levels of recognition, visit [www.epa.ohio.gov/ohioE3.aspx](http://www.epa.ohio.gov/ohioE3.aspx) or call (800) 329-7518.