

## New wave of tech for Oakland County sewage treatment

**Thermal-hydrolysis process harvests products, reduces landfill load**

By PEG MCNICHOL | June 19, 2022



Ottawa County's wastewater treatment plants are shifting toward environmentally friendly practices. The largest is the Clinton River Water Resource Recovery Facility, now using a state-of-the-art thermal-hydrolysis processing system. In Commerce Township, plans are underway for a similar conversion.

Assistant Water Resources Division Director, Phil Argiroff, EGLE's assistant water resources division director for the last six years, has been with the state for nearly 35 years, from the SNR and DEQ days to his current position. Argiroff is a former Southeast

# THE OAKLAND PRESS

Michigan district supervisor who reviewed wastewater treatment plant operations applying for permits.

The two operations in Oakland County, he said one two of several different ways communities around the state are using anaerobic digesters to reduce their environmental footprints.

It's an important focus as we move to the future with our wastewater treatment plants. They use a lot of energy," Argiroff said. "If anaerobic digesters can be used at wastewater treatment plants, they can supply biogas to the grid, or even create electricity from that gas. They reduce their energy use. That's a positive outcome."

These kinds of processes, he said, are called utilities of the future, because they sequester nutrients (later used for fertilizer) and reduce operation costs. That benefits both ratepayers and taxpayers, he said.

The state regulates these plants to ensure they operate properly and protect public health and the environment, he said.

The county's water resources commission operates several of these plants, as well as community septic systems designed to treat and release anywhere from 3,500 gallons of water a day to the Pontiac plant, which now has a capacity of 30 million gallons a day.

The county took over Pontiac's operations in 2016, upgrading the infrastructure and expanding the customer base, which now includes a dozen other communities, according to Jim Nash, the county's water resources commissioner.

Southeast Michigan Council of Governments (SEMCOG) showcased the Pontiac operation in a video produced last year, online at <https://www.youtube.com/watch?v=vcu8TuKyU7U>.

Among the many tasks related to treating sewage is a full-time in-house lab, certified by Michigan's Environment, Great Lakes, and Energy department, for analyzing wastewater and drinking water samples..

"Technology is always advancing," Nash said. "We can pull phosphorus out and there are other things that can be used, resources to be harvested."

# THE OAKLAND PRESS

Methane is a key resource. While Nash jokes when saying it's the same stuff as cow farts, because it is, he's absolutely serious about the potential for this gas to significantly reduce the cost of plant operations and potentially become a retail product.

The methane is extracted by sending sewer water through an anaerobic digester. This effectively extracts a significant amount of liquid, reducing the weight of the sludge that gets trucks to landfills by 50 percent, he said.

The water from this process gets treated so that it's cleaner than the water running in the Clinton River Watershed. The remaining methane is stored in airtight tanks. It will eventually be used as fuel that replaces fossil fuel currently used.

The Pontiac plant produces so much methane, "we're having to flare it off," Nash said, referring to the controlled burn that leaves behind traces amounts of carbon.

"Eventually we'll have a pipeline," Nash said. "We can put it on the grid."

While natural gas from fossil fuel and the gas the Pontiac plant produces are both forms of methane, Nash said, the manufactured methane is cleaner, and burns more efficiently.

Switching from natural gas to produced methane will save the county money over the long run," he said, because water treatment uses 4% of all energy.

"We're thinking over time, we might be able to create 4% for the county," he said. "Humans can do great things when they put their minds to it."

Normal capacity at the Pontiac plant is 20 to 22 million gallons a day. The plant has a larger capacity, 30 million gallons, with the extra reserved for big rain events.

"The process we're using is common in Europe," Nash said. Oakland County's operation in Pontiac is the first in Michigan and the third in the U.S. In May, Nash hosted a tour of the Pontiac facility for two visitors from Canadian cities and one from New Zealand. It's not the first tour for out-of-state officials and he indicated he expects future visitors.

They wanted to see how the plant worked, as they considered making changes in their own communities.

# THE OAKLAND PRESS

The Pontiac plant has been using the thermal process for two years now. Next year, Nash said, he expects to transition the plant to one that supplies its own fuel.

The material leftover after the digester process is a form of fertilizer – not the kind that farmers can use, but perfect for landscaping around county buildings and in county parks, Nash said. He envisions a day when the county can give away the fertilizer to residents.

Some still goes to landfills, he said, but that won't be producing methane. The new process has saved an estimated \$2 million a year in landfill tipping fees.

Nash sees the thermal process being useful for decades into the future.

"We can help mitigate climate change and save money at the same time," he said, adding that he expects newer technology to come from young people currently studying to be environmental engineers.

Jason Mayer worked as a consultant for the township on the upgrade. He's an engineer with Giffels Webster, an engineering firm specializing in infrastructure projects.

To a much smaller extent, the Commerce Township wastewater treatment plant will be converted to a system that also reduces liquids in the sludge and reduces operations costs.

The township owns the plant, but contracted the WRC to operate the plant, which processes 8.5 million gallons of sewage a day and has a capacity for 12 million gallons.

Mayer said his firm worked with township and the equipment manufacturer, Lystek, to help get low-interest government loans for the project which will cost just under \$7 million.

Until last year, landfill costs had gone up by 50 percent for eight years, Mayer said.

"They went down this year, but in general, the long term trend is that they'll continue going up," he said. "We're kind of at the mercy of haulers, too."

The transition to a low-heat treatment of the sewage will reduce landfill costs, as well as create fertilizer.

# THE OAKLAND PRESS

Mayer said the Lystek process produces a gel-like substance that is free of pathogens and can be used by farmers.

The farmers will need a piece of equipment to inject the gel-like fertilizer into the ground, he said. Only one other Michigan wastewater treatment plant, the South Huron Valley plant in Wayne County, is using the Lystek system.

Mayer said Commerce Township's plant should be fully upgraded by the end of next year.

This project includes renovating two unused storage tanks to hold the Lystek system.

The remaining storage tanks, which are concrete vaults built partially underground, can hold up to two years' worth of the fertilizer. The fertilizer will be sold through Lystek to area farmers, he said, with the township getting a portion of the proceeds, further reducing operating costs.

"I think the environmental aspect is cool," Mayer said. "I think about how much of this product is going into a landfill now. You can't calculate exact payback on hauling costs (because of market fluctuations), but this could really be beneficial."

<https://www.theoaklandpress.com/2022/06/19/new-wave-of-tech-for-oakland-county-sewage-treatment/>