



## 2018 Annual Summary

### Fond du Lac Regional Wastewater Treatment & Resource Recovery Facility

The professionals at the Fond du Lac Regional Wastewater Treatment & Resource Recovery Facility (WTRRF) are working around the clock to achieve our mission—to protect the region's health and environment by cleaning water and recovering resources. As Superintendent, I am honored to lead a staff dedicated to sustaining the high quality of life we enjoy.

Clean water is a foundation of health and life in our region, and we are committed to tackling the never-ending challenge of managing our precious water resources. The water we receive and renew is returned to Lake Winnebago to replenish the watershed. It sustains aquatic life and is used for drinking water, agriculture, and recreation. The resources we recover from the renewal process are used in agriculture and to power our operations.

The need for clean water has never been more critical. Recognizing the changing landscape ahead of us, in 2020 and beyond, our City Council approved a Capital Improvement Plan, which will help us adapt, innovate, and collaborate to ensure that future generations can rely on the essential public service we provide. Even as we prepare for the future, we focus on the critical work at hand. Our staff ensures the daily treatment of 8 million gallons of water that is returned to Lake Winnebago, ready for the next user.

Phosphorus removal is an important part of that daily treatment. Through optimization of our treatment process we have been able to achieve more consistent Biological Phosphorus Removal (BPR). BPR consists of creating an environment for specific bacteria to thrive and consume the phosphorus. The ability to regularly perform this type of phosphorus removal saves costs on chemicals that would otherwise be used to remove it. We receive hauled in waste via tanker truck which is used as a supplemental food source for the bacteria to help maintain maximum removal.

A new innovation, Deammonification, was installed earlier this year. This system uses specific naturally occurring bacteria (Anammox) to remove up to 90% of our side-stream contribution of ammonia to the treatment plant which previously was 40% of the total plant ammonia. Anammox live and work in a controlled environment where the conditions are just right for optimum efficiency. The Anammox are slow growing, but do reproduce which allows some to be harvested and used for other plant startups. While we aren't the first to have the process we are the first in the nation to have the PAQUES AnammoPac system which is based in the Netherlands.

#### Anammox Bacteria



- ❖ 1st U.S. Install
- ❖ 90% Ammonia Removal on Sidestream
- ❖ 100% Reduction in Carbon Use – Saves Carbon for BPR

#### Fond du Lac Deammonification System



- ❖ >60% Reduction in Oxygen – Energy Savings
- ❖ Reduces Nitrate Recycle Loadings – Improves BPR Efficiency

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Take A Virtual Drone Tour of Our Facility  
[www.fdl.wi.gov](http://www.fdl.wi.gov)



Storm drains and roadside ditches lead to our lakes and streams. So, any oil, pet waste, leaves, or dirty water from washing your car or other outside activities that enters a storm drain gets into our lakes and streams.

Leaves are full of organic matter and nutrients like phosphorus. When they end up in a city storm drain, those nutrients get carried to a river or lake. When they wash in such a large volume in our local waterways and then decompose, they actually feed the algae, releasing nutrients that contribute to the accelerated growth of algae. Fallen leaves and grass clippings can plug storm drains, flooding our roads and harming our creeks. When grass clippings and too many decomposing leaves are put in our streams, unnaturally high levels of nutrients can harm aquatic wildlife.



#### Did you know...

- Grass clipping and other yard waste blown and left in the street are a flooding and water quality concern?

#### Localized Flooding:

- Grass clipping and other yard waste blown in the street can cause localized flooding by clogging curb inlets and pipes.

#### Water Quality:

- Grass clipping and other yard waste in the streets can cause high levels of nutrients in local creeks and streams, which can result in algae blooms.
  - Keeping grass clippings on your yard can save money on fertilizer by returning nutrients back into the soil and save money on watering by building organic matter in your soil.



**The problem:** Phosphorus has long been recognized as the controlling factor in plant and algae growth in Wisconsin lakes and streams. Small increases in phosphorus can fuel substantial increases in aquatic plant and algae growth, which in turn can reduce recreational use, property values, and public health.

**Sources of excess phosphorus:** Phosphorus entering our lakes and streams comes from “point sources” - piped wastes such as municipal and industrial wastewater treatment plants that release liquid effluent to lakes and rivers or spread sludge on fields; and from natural sources, including past phosphorus loads that build up in lake bottom sediments. Phosphorus also comes from “nonpoint” or “runoff” pollution. Such pollution occurs when heavy rains and melting snow wash over farm fields and feedlots and carry fertilizer, manure and soil into lakes and streams, construction sites or carry phosphorus-containing contaminants from urban streets and parking lots.

**Protecting human health and welfare:** To protect human health and welfare, revisions to Wisconsin’s Phosphorus Water Quality Standards for surface waters were adopted on December 1, 2010. These revisions:

- Created water quality standards for phosphorus in surface waters. These standards set maximum thresholds for phosphorus in Wisconsin’s surface waters.
- Set procedures to implement these phosphorus standards in Stormwater permits issued to point sources discharging to surface waters of the state.
- Helped to curb nonpoint sources of excess phosphorus by tightening agricultural performance standards.
- **Contact information:** If you have questions, please email [DNRPhosphorus@Wisconsin.gov](mailto:DNRPhosphorus@Wisconsin.gov)