



## 2021 Annual Summary Fond du Lac Regional Wastewater Treatment & Resource Recovery Facility

Interested in an in-person tour? Visit our web page for more details.


Our mission is to operate and maintain the Fond du Lac Regional Wastewater Treatment & Resource Recovery Facility in a cost effective manner, producing effluent water that achieves permit requirements and to recover valuable resources such as energy, biosolids and nutrients to be used in an environmentally beneficial manner.

As we continue to build upon our progress over the past several years, we remain focused on overall operations, while being fiscally responsive to the needs of our Fond du Lac and sanitary districts rate-payers.


### 2021 Highlights

- Continued to meet and/or exceed our DNR permit requirements
- No increase in user rates since 2009
- Installed an ortho-phosphate analyzer to optimize chemical use
- Industrial Pretreatment – The DNR completed a thorough audit of our program and found no deficiencies.
- CMAR – The purpose of the Compliance Maintenance Annual Report (CMAR) is to evaluate the wastewater treatment system for problems or deficiencies. Management, operation and maintenance activities are detailed in the report. Owners identify proposed actions to prevent violations of WPDES permits and water quality degradation. Fond du Lac WTRRF received a perfect score of 4 points.


As a resource recovery facility, WTRRF would like to share our successes in nutrient recovery, energy production and water reuse in turning waste into energy, biosolids used as fertilizer, and water that is reused for process operation and cleaning. We do this all while protecting the health of our community and reducing environmental impacts. We harness the value of materials we dispose of and return them to productive use.



Incoming  
Wastewater



Resource  
Recovery



Water, Energy,  
Nutrients

### Biosolids

- Produced 10,063 wet tons.
- 75% of our biosolids were of beneficial reuse for farmers to augment their fertilizer expense and reduce our disposal costs.

### Water Reuse

- We reused over 61 million gallons of disinfected effluent water in various processes throughout the plant.

### Phosphorus Removal

- We are removing phosphorus biologically on a more consistent basis, which has resulted in a 10% reduction in chemical use.
- We reduced our phosphorus discharge by 11% from the previous year.

### Energy Production

- Produced 30% of our power from using biogas to fuel our combined heat and power generator.
- Our biogas engine generator produced 1.98 million kWh of clean renewable energy, that's enough electricity to power nearly 171 average American homes for an entire year.
- Utilized additional biogas to fuel a boiler for process and building heat.

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



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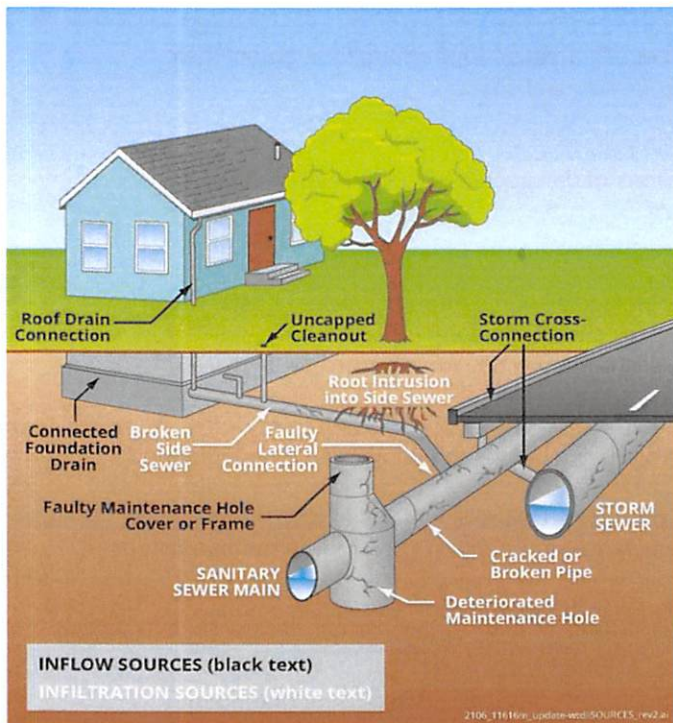
## Inflow & Infiltration

### What Is Inflow/Infiltration?

Inflow and infiltration (I/I) describes excess clear water from groundwater and stormwater sources that flows into the sanitary sewer system. Infiltration refers to groundwater that seeps into sewer pipes through holes, cracks, joint failures and faulty connections. Inflow is stormwater that quickly flows into sewers via roof drain downspouts, foundation drains, storm drain cross-connections, and through holes in manhole covers.

### Why Is I/I Problematic?

- **Takes up capacity in the collection system and treatment plant** and ends up at the regional wastewater treatment plant, where it must be treated like sewage, resulting in higher treatment costs.
- **Contributes to basement backups in homes and by-passing sanitary into the storm sewers**, negatively impacting public health and the environment.
- **Results in more energy usage** to pump the flow and the unnecessary treatment of groundwater and stormwater.
- **If left untreated, I/I could lead to funding a plant upgrade**, because influent flows are exceeding the DNR issued permit and design capacity of our plant.



### What Are We Doing About I/I?

#### Maintenance

- Clean sanitary mains and remove debris.  
\*Unobstructed mains convey more sanitary flow without restriction\*

#### Investigation

- **Televising** – Cameras are used in sewer mains and laterals to assess their condition and make necessary repairs.
- **Flow Monitoring** – During wet weather, flows are evaluated and data collected to direct resources to site specific areas.
- **Wet Weather Flow Study** – We used a contractor to install 65 sensors in various manholes to monitor increases/decreases in water levels during rain events. The results were used to focus on locations within the flow study area.
- **Clearwater Home Inspections** - Uncover any connection that allows clear water to enter into the sanitary sewer system, such as downspouts, sump pumps and yard drains.

#### Repairs/Replacement

- Main line sewer reconstruction
- Main line sewer and manhole rehabilitation by installing a liner.

**Smoke Testing** – This summer a contractor will utilize smoke to blow into the sanitary system to determine where water could leak in (infiltration) and where water flows in through direct connections of clearwater (inflow). For more information on smoke testing and to view a video on how it works, visit:

<https://www.dukes.com/solutions/sewer-evaluation-services/smoke-dye-testing>

### What Can You Do?

- Reroute sump pump discharge from sanitary sewer to lawn or storm sewer through use of rigid piping without diversion valves on interior of home.
- Redirect rain gutters and downspouts connected to the sewer to lawns or storm drains.
- Disconnect and block off foundation drains to the sanitary sewer and reroute to the installed sump pump.
- Keep all cleanouts capped, both inside and outside. This will help keep unwanted water out of the sanitary sewer system and prevent sewer gas from entering your home.
- Avoid planting trees/shrubs over your sewer lateral, as tree roots can damage sewer piping.