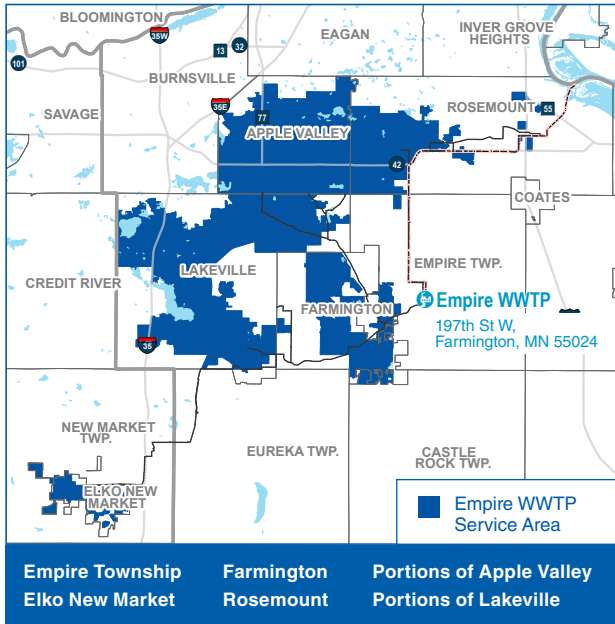


EMPIRE WASTEWATER TREATMENT PLANT

Land Application Program



Biosolids produced at the Empire Wastewater Treatment Plant can be used by local farmers to improve soil health and promote plant growth. Land application services are free to farmers enrolled in the program.



"We've used the product as the first-year treatment and utilized the nitrogen value, which reduces our costs. And in the fall [application] years, it's helped raise our phosphorous levels. So, it's been a cost value for us."

— Paul Beskau, Marshan Township



Biosolids land application is a common practice. Nationwide, over 50% of **biosolids** are land applied¹ and more than 98% of Minnesota's wastewater treatment plants land apply².

Learn more:

epa.gov/biosolids pca.state.mn.us/water/biosolids

¹ USEPA, 2019, ² MPCA, 2014



Biosolids are stored onsite until they can be land applied spring or fall.

Key Steps

- ✓ Test **biosolids** before application
- ✓ Select farm fields and determine application rate
- ✓ Notify neighbors and community leaders



MCES works with farmers and community leaders to deliver **biosolids** to MPCA approved fields in Dakota County.

Key Steps

- ✓ Control dust on delivery routes
- ✓ Repair and level roads



MCES applies **biosolids** before planting (spring) or after harvest (fall), and farmers incorporate **biosolids** into the soil.

Key Steps

- ✓ Submit annual reports to MPCA to confirm best management practices are followed.

What is in **biosolids**?

Beneficial elements in **biosolids** increase crop yield, improve drought tolerance, and reduce the need for commercial fertilizers:

- Carbon**
- ✓ Holds nutrients near the soil surface
 - ✓ Improves overall soil health
 - ✓ Retains water, reduces runoff, and prevents erosion

- Nitrogen Phosphorus Potassium**
- ✓ Slow-release organic nitrogen, phosphorus, and potassium are fertilizers

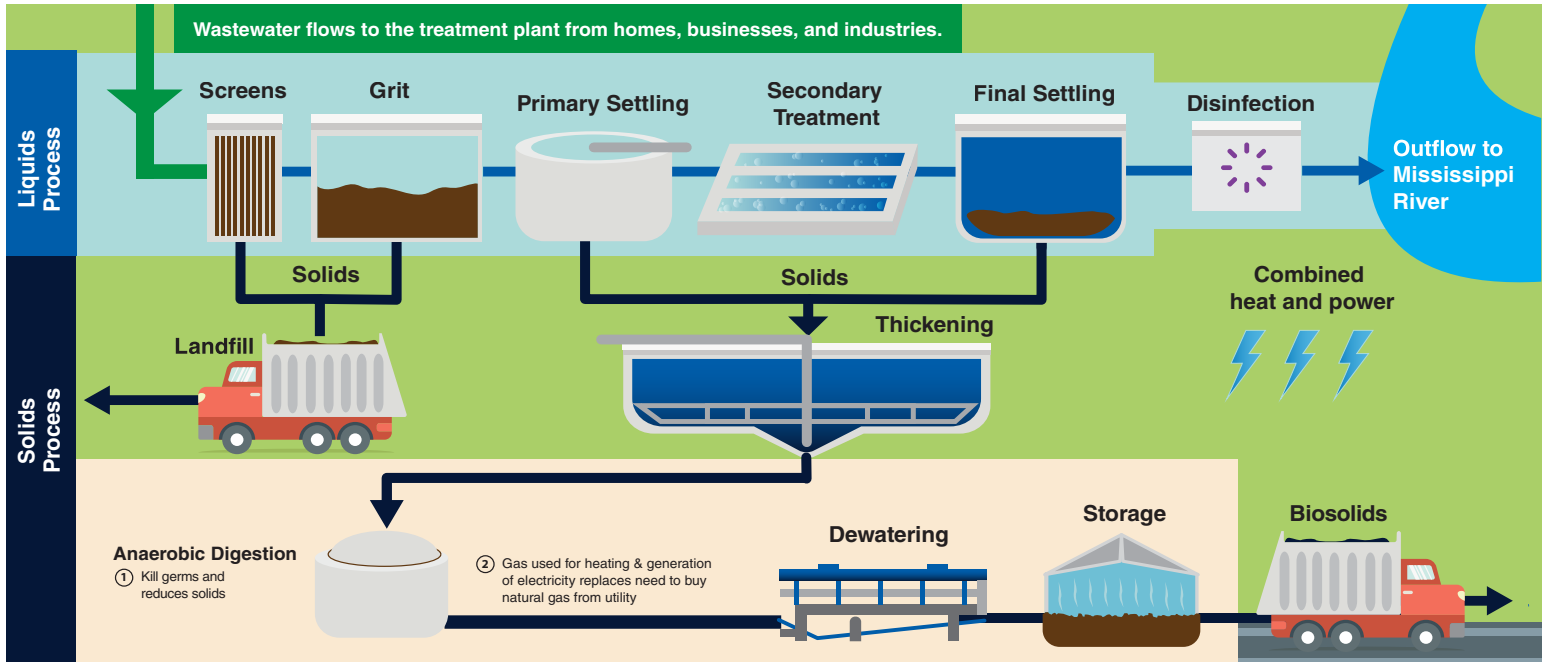
- Copper Nickel Zinc**
- ✓ Trace elements essential for plant growth and development

Throughout this process MCES:

- » Manages odors associated with **biosolids** to be a good neighbor
- » Works with farmers to minimize compaction
- » Monitors weather conditions

Production

The Empire Wastewater Treatment Plant produces **biosolids** through natural biological processes that break down pollutants, kill germs, and generate biogas, a renewable fuel. Biogas is used as fuel to produce heat and electricity for use at the wastewater treatment plant. **Biosolids** are stored at the plant and land applied in the spring and fall when farmers need them.



Quality Control and Best Management Practices

Quality standards and best management practices established and overseen by the EPA and MPCA are protective of public health and the environment. The MPCA approves sites for **biosolids** land application and trains and certifies operators who oversee the use of **biosolids**.



MPCA Site Approval Process:

- A certified operator prepares an application including:
 - » Where, how much, and when **biosolids** will be applied
 - » Soil conditions
 - » How surface and ground waters are protected
- Interested parties review and comment on the application
- MPCA reviews the application and approves, if appropriate
- Changes from the approved application require new MPCA approval



Before each land application season:

- **Biosolids** are tested for solids content, pH, nitrogen, phosphorus, potassium, and trace metals
- Application rates are determined based on current and past farming practices, specific crops, and soil health



Annually:

- Submit annual reports to the MPCA to confirm best management practices are followed

For more information, visit metro council.org/landapp

MCES is committed to investing in and improving the land application program.



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