Tertiary Treatment
Meeting Permit is Just the Beginning

By: Joshua Gad

Mankato Wastewater Treatment Plant
Mankato Wastewater Treatment Plant

- Design Average Flow - 9.38 MGD
- Maximum Monthly - 11.25 MGD
- Max Hydraulic - 22.5 MGD
- Current Yearly Average - 7.5 MGD
- Current Influent cBOD - 225 mg/l
- Current Influent TSS - 245 mg/l
- Current Influent Phos - 6 mg/l
- Current Influent pH - 7.2

Mankato’s Water Reclamation Facility
Mankato’s Water Reclamation Facility

- Secondary Pumps
  - 4 6.5 MGD Pumps
- Actiflo System
  - Ferric Chloride
  - Anionic Polymer
  - Silica Sand
- Hydrotech Disk filters
  - 15 Micron Mesh
- Chlorine Contact Tank
- High Service Lift Pumps

Actiflo System
Actiflo System
Disk Filters

Disk Filters
Disk Filters

Chlorine Contact
High Lift Pumps

The Results
Turbidity - < 2

Total Coliforms - < 2.2
Effects on Effluent pH – 6 - 9

Effects on Effluent TSS - < 30
Effects on Effluent cBOD - < 22

Effects on Effluent Ortho Phosphate
Effects on Effluent Phosphorous

Effects on Effluent Total Phosphorous
Uses

- Irrigation
- Landscaping
- Vehicle Washing
- Internal Equipment Cooling
- Cooling Towers
- Industrial Uses
- Pipeline Testing
- Air Conditioning
- Recreational Impoundments
- Groundwater Recharge
- Flushing toilets and urinals
- Priming Drain Traps
- Cleaning Roads, sidewalks, outdoor work areas

- Structural Firefighting
- Decorative fountains
- Commercial Laundries
- Consolidation of Backfill Around Water Pipelines
- Artificial Snow Making
- Commercial Care Washes, including unheated hand washing
- Industrial Boiler Feed
- Soil Compaction
- Mixing Concrete
- Dust Control on Roads and Streets
- Flushing Sanitary Sewers
Inform the Public

What is it?
"The 22 Focus Water is non-potable water resource which is produced through tertiary treatment of wastewater. The water is treated, filtered, and treated to meet local and state discharge standards under the Minnesota Pollution Control Agency (MPCA).

Uses for Title 22 Reuse Water
Title 22 Reuse Water is an alternative water resource approved by the MPCA for dry use, including the following:
- Irrigation
- Golf Courses
- Fertilizer
- Watering Lawns
- Power Boats
- Gardens
- DISHWASHING

Use Tips:
- Always use water efficiently
- Water plants only when necessary
- Use water for other purposes
- Watering lawns efficiently

WATER IS Precious RE-USE IT

Looking the way...
Reuse Water Available
April 13 – October 15
Mon. 8-9AM, Thurs. 1-2PM, Tues. 8-9AM
www.mankato.org/22

Questions?
MPCA 800-637-3517
MPCA 507-382-2200
MPCA 507-382-2222

From the Mankato wastewater Treatment Facility
Phone 507-827-3500

Inform the Public

History in Mankato
In 1986, Mankato was approached to build a potable water plant by the city. The city chose to expand their existing facility to supply the city's water for 60 years. This would meet the population's demand on local water supplies. Capillary was familiar with reuse water, as many of their plants were located in California, which require water reuse for residential and industrial uses.

The proponents came to the Water Resources Board, which at the time, was the wastewater Treatment facility. This was designed to supply the water recycling center with 2 million gallons of water each week.

Currently, there is a number of residents who are looking forward to the new facility.

The water plant has several benefits:
- Water recycling centers are created to control the quality of water.
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Facts
Mankato workers are aware of the 22 focus water. It is a non-potable water resource. This water is produced through tertiary treatment of wastewater. The water is treated, filtered, and treated to meet local and state discharge standards under the Minnesota Pollution Control Agency (MPCA).

Warning: Not Drinking Water

While this water is used in a similar fashion, due to its improved quality, it does not meet the standards for drinking water. It is not intended for drinking or bathing. This water is treated to meet the standards for reuse water. Do not use it for drinking water. Use it for irrigation or for other outdoor activities. This water is treated to meet the standards for reuse water. Do not use it for drinking water.
Inform the Public

We’re doing our part to conserve... we flood our skating rinks with reclaimed water

Award Winning Water Reclamation Facility

Riverfront Park
What is saved?

- Since 2006 – > 3 billion gallons of water
- Yearly to MEC – 178 MG
- Yearly to WWTP – 205 MG
- Yearly to Riverfront Park - 0.75 MG
- Yearly to Contractors – 0.6 MG
- Current Price for Contractors - $2.50 / 750 gals
- Drinking Water Rate - $3.36 / 750 gals

Questions?