THE METROPOLITAN DISTRICT

WATER POLLUTION CONTROL FACILITIES

HOW IT WORKS: WASTEWATER 101

- **Wastewater treatment plants receive all used water that enters the sewer system. This water comes from homes, hospitals, manufacturing facilities, restaurants, etc.**
- **The ultimate goal of a wastewater treatment plant is to make clean water by:**
  - » Separating pollutants (solids) from wastewater
  - » Treat the water to a high level safe for discharge back to the environment
  - » Treat the solids to a high level
- **A modern treatment facility mimics nature to clean up the region's sanitary waste stream - and the Connecticut River. Most municipalities in America treat their wastewater using two basic processes:**
  - » Primary treatment (a physical process)
  - » Secondary treatment (a biological process)
- **It is foremost a Public Safety & Health mission, combined with a critical environmental enhancement mission.**
- **It is an important part of water recycling & the water cycle.**

HARTFORD WATER POLLUTION CONTROL FACILITY

LOCATION:
240 Brainard Road
Hartford, CT

SIZE:
85 Acres

BEGAN OPERATION:
1938

The Hartford WPCF is the largest wastewater treatment plant in Connecticut, and can treat up to 200 million gallons of wastewater each day.

UPGRADES AT THE HARTFORD WPCF

Aeration and Settling Tanks (Secondary)

The main driver behind expanding the plant's aeration and settling tanks was to provide more capacity to remove nitrogen. Nitrogen was not originally a concern when the plant was expanded in the 1970's, but over time, the health of the Connecticut River and the Long Island Sound drove the need to remove nitrogen. Having more tanks means we can have more microorganisms. More microorganisms translates into more nitrogen removed, providing a cleaner and healthier Connecticut River and Long Island Sound. Each aeration tank contains approximately 2 million gallons of activated sludge (microorganisms, a.k.a. bugs) The settling tanks are 125 feet in diameter. These large tanks allow the microorganisms to "rest" and build up their appetites for more nitrogen, getting a "ride" through very large return pumps back to the aeration tanks. The process goes on 24/7, with better performance in the warmer months.

Aeration and Settling Tanks

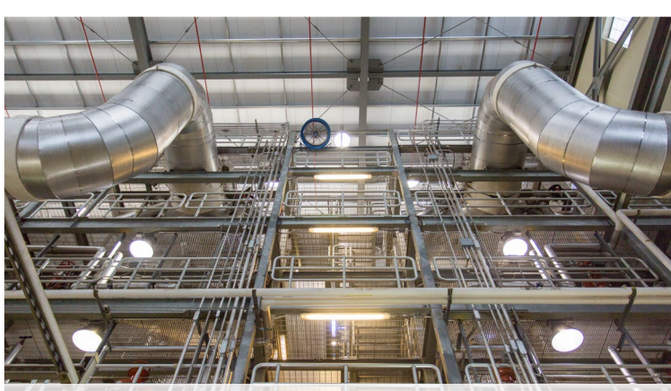
Ultraviolet Light Disinfection

A key element of wastewater treatment is to disinfect the treated wastewater as it exits the plant. This is done during May through September, times when people may likely be out enjoying the Connecticut River boating, fishing, etc. Properly disinfecting the wastewater ensures that no one should get ill from direct contact with the water in the Connecticut River. For wastewater disinfection at the Hartford WPCF, light in the ultraviolet (UV) spectrum is used. Treated wastewater from the secondary process flows through one (or more) of the three channels. These channels are full of banks of specially engineered light bulbs that give off UV light. The UV light provides the disinfection mechanism. The Hartford UV disinfection system has 1,728 UV light bulbs that provide disinfection. Only a portion of these are in use at a given time. A highly sophisticated computerized control system allows operational staff to vary the number of bulbs in service to meet disinfection limits while minimizing energy use.

Ultraviolet Light Disinfection

Electrical Production Facility

As part of the wastewater treatment process, solids removed from the water are incinerated at a very high temperature to reduce volume and produce inert ash. MDC's Electrical Production Facility takes that heat and uses it to produce electricity – nearly 40% of the facility's total needs! This is an extremely green and sustainable process that helps lower operating costs while benefiting the environment. The heat from the top of the incinerators travels through large boilers where steam is produced. The steam then travels to a turbine, spinning it at a high rate of speed. The turbine is connected to an electrical generator, creating electricity!



Electrical Production Facility

SATELLITE TREATMENT FACILITIES

The MDC operates three satellite water pollution control plants – the East Hartford WPCF, the Rocky Hill WPCF and the Poquonock (Windsor) WPCF – in addition to its main plant in Hartford's South Meadows. Each of these satellite facilities provides full secondary treatment of the used water it receives from its service area, just like the Hartford facility. However, unlike Hartford, these smaller plants do not have sludge processing capabilities. As a result, the sludge at these plants is delivered to Hartford where it is processed and disposed of in a safe manner.

A CLEANER CONNECTICUT RIVER

For over 80 years the MDC has led the way in efforts to clean up the Connecticut River. As a result, the Connecticut River is cleaner and healthier than it has been in decades. The latest effort, MDC's Clean Water Project, a massive wastewater infrastructure upgrade, dramatically reduces combined sewer overflows to the river, resulting in significant public health and environmental benefits. As a result, a cleaner, healthier Connecticut River is better for our local economy, creating a better overall quality of life for the region.

The Metropolitan District
555 Main Street
Hartford, CT 06142-800
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ENSURING THE QUALITY OF THE CT RIVER

MDC wastewater is thoroughly tested to make sure it meets or surpasses the high standards of the Connecticut Department of Energy & Environmental Protection (CT DEEP) and the U.S. Environmental Protection Agency (US EPA).

At our State-certified laboratory at the Hartford WPCF, our experts annually conduct over 6,000 physical, chemical and bacteriological tests to ensure permit compliance is achieved.

Clean Water Project
the choice is clear

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