



KENT COUNTY REGIONAL RESOURCE RECOVERY FACILITY

139 Milford Neck Rd, Milford, DE 19963
<http://www.co.kent.de.us>

BASIC INFORMATION & DESIGN



Startup Date: October 6, 1973
Employees: 50
Service Population: 130,000
Design Flow: 20.0 MGD
Average Daily Flow: 12.5 MGD
Biosolids production: 7000 tons/yr

TREATMENT EQUIPMENT INFORMATION

2	3 mm Influent Screens	2	Grit chambers
2	10 MG aeration basins with fine bubble aeration and biological nutrient removal and denitrification capabilities	6	Clarifiers
36	Severn Trent Microdynamics UV units	3	Belt filter presses
4	Mixed waste activated storage tanks	2	Natural gas-fired thermal heaters
2	Emergency sludge storage lagoons	3	Thermal biosolids dryers
1	Lime silo with pug mill	1	Geothermal HVAC for admn. bldg.
1	1.2 Mw Photovoltaic Solar Farm (6,000+ panels)	1	Biosolids storage area
66	Passive solar water heaters	3	Solar biosolids dryers
		1	Sand filter

WASTEWATER TRANSMISSION



- The collection system contains approximately 550 miles of gravity sewers and force mains with over eighty-five (85) pump and lifts stations.
- Service area includes Clayton, Smyrna, Hartly, Kenton, Dover, Camden-Wyoming, Kitts Hummock, Pickering Beach, Harrington and Milford.
- Pump stations and wastewater operations have been adapted to SCADA.
- Pretreatment is regulated for seven (7) local industries and 400 food service facilities
- Two pump stations have been fitted with septage receiving equipment

WASTEWATER TREATMENT



- The wastewater treatment system includes influent screening and grit removal
- The wastewater is then treated in two 10 MG activated sludge extended aeration basins equipped with biological nutrient removal capabilities to nitrify and denitrify with ferric chloride addition for phosphorous removal
- A sand filter helps improve water quality.
- The effluent is disinfected using UV and then discharged through a man-made ditch to the Murderkill River.
- The facility is the largest municipal operation using the Parkson Biolac[®] system and operating in the Wave-Ox[™] mode.
- The wastewater is disinfected using Severn Trent's Microdynamics UV

system which is the largest in the world.

BIOSOLIDS TREATMENT



- Biosolids are dewatered on three belt filter presses and lime is added to reach a pH of 12 for stabilization and pathogen reduction
- Stabilized biosolids are heat treated in thermal dryers to reach 50% solids for further pathogen reduction, resulting in a Class A product or in passive solar drying system.
- The resulting material is referred to as Kentorganite and is highly prized by local farmers as a soil amendment, with nutrients as a minor component.
- 50% of the Kentorganite is transported and spread on farmland by the County for a nominal fee. The remainder is spread on County-owned farmland.
- Ten to fifteen percent of the biosolids is now treated in 3 Parkson Thermo-System passive solar dryers

ENVIRONMENTAL, HEALTH AND SAFETY, ENERGY SECURITY MANAGEMENT SYSTEM



- The facility has an Environmental, Health and Safety, Energy and Security Management System (EHSES-MS) that is certified to the ISO 14001 Environmental Management System standard, the OHSAS 18001 Occupational Health and Safety standard and the National Biosolids Partnership's (NBP) program requirements and soon ISO 50001/SEP..
- The Kent County Regional Resource Recovery



Facility is currently only the one in the US to be so certified and was the first.

- The goals of the EHSES-MS are to reduce the operational environmental footprint and improve employee health and safety. The County has built a renewable energy park at the facility using PV solar and passive biosolids dryers and switched from chlorine gas to an innovative microwave-based UV system.
- The facility's EHSES-MS has been cited in a number of US EPA and NBP case studies and documents.

FAT, OIL AND GREASE (FOG) AND PRETREATMENT PROGRAMS

- The FOG permitting program has been used as a model for a number of other cities across the US.
- The program has developed a best management practice manual for local food service facilities and another for users of septic tanks, and an award-nominated cartoon about FOG in the home.
- The pretreatment program has developed the Pretreatment Environmental Excellence Program (PEEP) to reward local industries who install an ISO-style EMS. Currently six of seven SIUs are participating.

RECENT AWARD HISTORY

1997	National Association of Counties Achievement Award – Enhanced Modernization
1998	US EPA Region III Operations and Maintenance Excellence Award
2000	National Association of Counties Achievement Award – Mudmill Pond Project
2004	Facility of the Year – Environmental Protection Magazine
2004	2 nd Place, Clean Water Act Recognition Award for Pretreatment Program Excellence
2004	National Association of Counties Achievement Award – FOG Reduction Program
2005	US EPA Region III Operations and Maintenance Excellence Award
2006	National Association of Counties Achievement Award – EHS-MS Program
2006	Facility of the Year, Honorable Mention – Environmental Protection Magazine
2007	1st Place, Clean Water Act Recognition Award for Operation and Maintenance Excellence, Large Advanced Plants
2008	US EPA Region III Environmental Achievement Award
2011	US EPA Region III, Performance and Innovation in the STRF Creating Environmental Success (Pisces)
2012	DE Chapter of American Council of Engineering Companies (ACEC) “Grand Conceptor” award
2012	American Academy of Environmental Engineers, Excellence in Environmental Engineering, Small Firm Grand Award
2016	Inaugural Utility of the Future Award

