

Upgrade of Wastewater Sistema Central in Havana, Cuba

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Abstract: *Sistema Central is the system that collects and disposes of most of the domestic wastewater in the city of Havana, Cuba. This system is currently in a state of disrepair and is a major source of pollution to the coastal waters of Cuba. A team at the University of Miami (UM) developed preliminary-level engineering designs to upgrade the key components of Sistema Central, including: a new ocean outfall with a multi-port diffuser, design of preliminary treatment, the system curve for selection of new pumps at the Casablanca pump station, and a disinfection system to reduce bacteria levels in the wastewater discharge. The ocean outfall was designed such that all ambient water-quality standards in the vicinity of the new outfall will be met. Parameters considered in designing the outfall included the coastal bathymetry, wind and current velocities, water-quality standards in the coastal waters, and flow rate to be handled by the system. In order to meet the water-quality standards, preliminary treatment, chlorination, and disposal through a multi-port diffuser was determined to be the best option.*

Keywords: *Cuba, infrastructure, ocean outfall, Sistema Central, wastewater*