Project Overview

This project includes renewal and improvements of three sewage sludge incinerators and associated energy recovery and air pollution control equipment including miscellaneous equipment related to processing wastewater solids.

PROJECT DRIVERS & OBJECTIVES

The primary driver of the project is to ensure reliability of existing solids processing facilities until the fourth incinerator is operational in 2024. The project scope items were selected to achieve the following objectives:

- **Preserve Wastewater Treatment Plant Infrastructure**
  - The harsh environment inside the incinerators require regular renewals

- **Optimize and Improve Performance**
  - Reduce operating costs, increase performance, and increase reliability

Metro Solids Program Schedule

The Metropolitan Wastewater Treatment Plant Solids Renewal & Improvements project is part of a larger program to increase solids processing capacity at the Metro Plant. This first renewal & improvements project will perform immediate work needed during shorter eight week incinerator shutdowns. The fourth incinerator will then be constructed from 2022-2024. The added capacity from the fourth incinerator will allow for more extensive renewal to occur on the existing incinerators from 2025-2027 as the existing incinerators will be 20 years and will need to be taken out of service for six months to one year at a time.

<table>
<thead>
<tr>
<th>Year</th>
<th>RENWAL &amp; IMPROVEMENTS PROJECT</th>
<th>FOURTH INCINERATOR</th>
<th>RENEWAL PROJECT</th>
</tr>
</thead>
<tbody>
<tr>
<td>2019</td>
<td>$20 million</td>
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<td></td>
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<tr>
<td>2021</td>
<td></td>
<td>$150 million</td>
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<td>2024</td>
<td></td>
<td></td>
<td>$30 million</td>
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<td>2027</td>
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Processing Solids at the Metro Plant

Solids collected at the bottom of settling tanks are sent to gravity thickeners and flotation thickeners. The thickened sludge is held temporarily in sludge storage tanks before being pumped to dewatering and three (3) incineration trains. Each incinerator train includes a fluidized bed incinerator, energy recovery equipment, and air pollution control equipment. The Metro Plant has an emergency backup sludge loadout and landfill system which can be used when incinerator capacity is not available.
Project Scope

The majority of the project scope items in this project will be completed at the Solids Management Building (SMB) at the Metro Plant. The schematic below outlines the major project scope items and their corresponding project objective.

1. Sludge Loadout & Landfill Odor Control Renewal
   Replace control panel, instrumentation, and provide new chemical dosing pumps.

2. Sludge Loadout & Landfill Improvements
   Install new ash and lime piping to allow for parallel operation of existing sludge loadout and landfill bays.

3. Cake Pump Piping Modifications
   Install new cake pump piping to allow cake pumps 858 and 855 greater flexibility for incinerator feed and loadout.

4. Auxiliary Condenser Improvements
   Replace existing auxiliary condenser, and install second parallel auxiliary condenser for increased steam condensing capacity.

5. Instrumentation & Controls Improvements
   Install new instrumentation for more automated controls, process optimization, and to reduce maintenance.

6. Fluid Bed Incinerator Renewal
   Renew fluid bed incinerator air distribution system to repair damage done from tuyeres moving into refractory.

7. Waste Heat Boiler Tube Replacement
   Replace waste heat boiler tubes to reduce boiler tube leaks and unplanned downtime.

8. Baghouse Rehabilitation
   Install stainless steel liner in baghouse modules to protect from dew point corrosion and reduce maintenance costs.

9. Scrubber Modifications
   Install piping and increase water flow to reduce caustic usage, increase ID fan capacity, and improve particulate removal.

10. Sludge Storage Mixing Improvements
    Install air purge blower, air flow meters, radar level transmitters, and air control valves to improve sludge mixing.

11. BF08 Vent Reroute
    Install vertical piping to vent 408 transporters above silos to reduce piping plugging and maintenance costs.

12. Roof Replacements
    Replace eight (8) roofs totaling more than 11,000 square feet with new roofs.

Learn More
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MCES Mission
Provide wastewater services and integrated planning to ensure sustainable water quality and water supply for the region.