

An aerial photograph of the Madison Metropolitan Sewerage District facility, featuring various circular and rectangular tanks, buildings, and a large rectangular aeration basin. The facility is surrounded by greenery and a road with a truck. In the background, a city skyline and a body of water are visible under a clear sky. The entire image is covered with a semi-transparent blue overlay.

Approve Transaction Amount: Engine Generator 2 Rebuild

April 24, 2025

Madison Metropolitan
Sewerage District

A white wavy line graphic, resembling a stylized wave or a decorative flourish, positioned below the text.

Engines at the District

- Engine Blower
 - Provides aeration for the east side of the plant
- Engine Generators 1 and 2
 - Provide up to 10,800 kWh each per day
 - Use ~145,000 cubic feet of biogas each per day
 - Save the district nearly \$1,000 per day each in energy cost
- Produce less GHG emissions than flaring

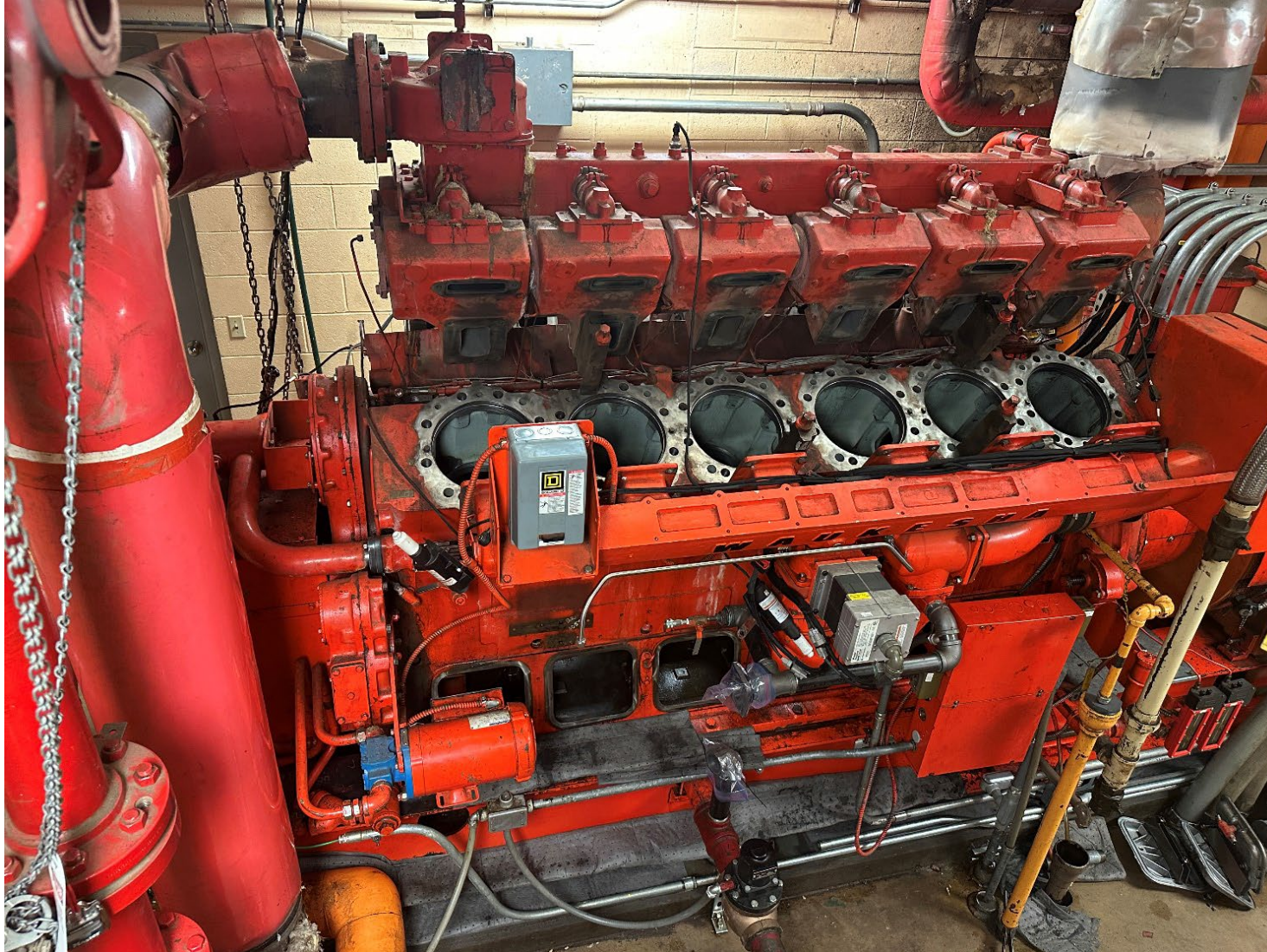
Engine Maintenance

- Routine Preventative Maintenance
 - Based on Air Permit requirements
 - Long and short PMs every 1440 hours (60 days)
- Minor Engine Overhauls
 - Occur around 40,000 hours (~4.5 years)
 - Cylinder head replacement
 - General condition assessment
- Major Engine Rebuilds
 - Occur around 80,000 hours (~9 years)
 - Removed and sent to rebuild facility
 - Replacement/rebuilding of wear components
 - Cleaning and repainting

Engine 2 Rebuild Timeline

- March 6, 2025-Opened bids for planned minor overhaul
 - Contracted with Rush Power Systems for \$44,745.80.
- April 2, 2025-Rush Power Systems began work
 - Found condition issues immediately upon cylinder head removal
 - Proceeded with disassembly to determine scope of needed repairs with MMSD approval
- April 8, 2025-Met and discussed findings and options with MMSD staff
 - Determined a full rebuild would be the best option for MMSD to prevent catastrophic failure
 - Cost of additional repairs is \$220,278.38
 - Total cost of project is \$265,024.18
 - Timeline to repair is 6 weeks from approval

Engine 2 Photos



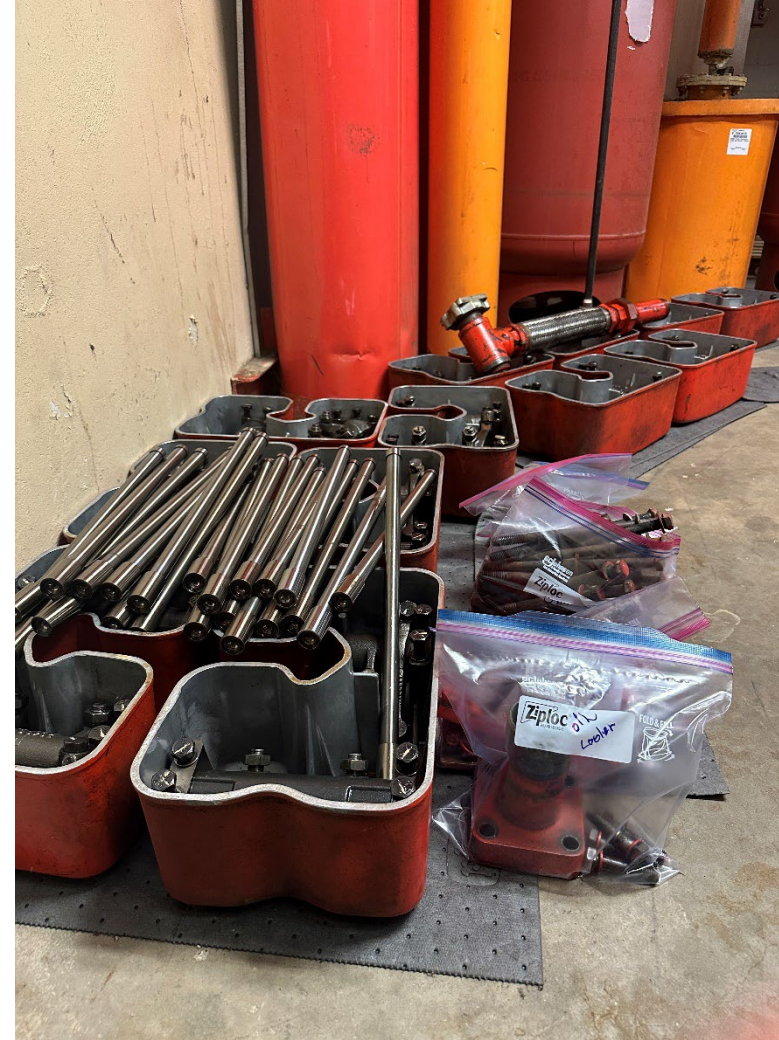
Engine 2 Photos



Engine 2 Photos



Engine 2 Photos



Future of the Engines

- Must remain operational for the immediate future
 - Production of electricity and process air
 - Critical producer of process heat
 - Consumption and beneficial use of biogas
- Liquid Process Improvements Phase 2 Project
 - No effect on engines
- Heat and Power Facility Plan
 - Future end use of biogas will be decided upon completion
 - Full implementation 5-10 years away
 - Future of current engines is unknown

Recommendation

- MMSD staff recommend a full rebuild of Engine 2
 - A full rebuild should keep engine reliable until future heat and power projects.
 - Well still require future minor overhaul and routine PMs
- Approve Resolution 2025-04-24-R6
 - Hire Rush Power Systems to complete the rebuild of Engine 2
 - Total cost of all repairs to not exceed \$300,000



Questions?

A blue-tinted photograph of a conference room. In the foreground, several gooseneck microphones are positioned on a dark table. In the background, an American flag is visible on the left, and a wooden podium with a microphone is in the center. A computer monitor is on the right. The overall scene is dimly lit, with the blue tint dominating the image.

Thank you

