The Magazine for ENERGY EFFICIENCY in Blower and Vacuum Systems

BLOWER & VACUUM BEST PRACTICES

blowervacuumbestpractices.com

September 2015

Aeration Blowers & Industrial Vacuum

APG-Neuros Retrofits San Bruno Aeration System with New Turbo Blowers

By APG-Neuros

➤ Wastewater Plant Background

The San Bruno Water Quality Control Plant (WQCP) in South San Francisco, CA, uses primarily settling treatment followed by an aerated-activated sludge process for removal of organics and other constituents from the wastewater. The activated sludge process has two parallel trains of activated sludge treatment. Each train has multiple aeration tanks and multiple air blowers to provide air for the treatment process.

The plant has an average of 8.6 million gallons of influent wastewater per day. The daily airflow to the basins varies from as little as 35 percent to 100 percent of the maximum flow to meet the fluctuating wastewater flow rate and strength. The activated sludge process is the single largest consumer of electrical power in the treatment plant. Newer technologies, such as the APG-Neuros high-speed turbo blowers, have since been commercialized and are significantly more energy efficient than the existing blowers.

Facility Audit Identifies Opportunities for Energy Savings

A WQCP facility audit examined the plant electrical energy consumption to find ideas to reduce plant energy use while meeting the process

The APG-Neuros turbo blower installation received an incentive rebate worth $45,487.

Original multi-stage blower at the San Bruno Water Quality Control Plant

APG-Neuros turbo blower installed at the water quality control plant in South San Francisco, CA

demand. Based on discussions with plant staff and a brief review of the process, it was decided to focus the effort on reducing the electrical energy required to provide aeration air to the secondary activated sludge process. The aeration air blowers were the largest consumers of electrical power in the plant and significantly less efficient than the newer blowers that have been introduced to the marketplace in the recent years.

The project replaced one 300-hp blower with an APG-Neuros NX300M-C070 for aeration basins 5 through 7. To achieve the largest power reduction required, the new APG-Neuros blower operates in a permanent lead position.

Quantifying the Project's Results

The California Wastewater Process Optimization Program (CalPOP) and the WQCP confirmed that the replacement of the first blower with the APG-Neuros NX300M-C070 saves the city $55,673 annually, reducing power consumption by 448,525 kilowatt-hours (kWh) per year. The total project implementation cost was $302,343. With the CalPOP incentive rebate of $45,487 for the upgrade, the net cost of the project was $256,856, representing a 4-year payback period.

The WQCP has recently purchased an additional APG-Neuros NX350-C080 turbo blower for aeration basins 8 and 9 to replace the existing multi-stage blower. The new APG-Neuros blower is scheduled to be commissioned by the end of 2015. BP

For more information, contact Elana Podvalniuk, tel: (866) 592-9482 ext. 2117, email: epodvalniuk@apg-neuros.com, or visit www.apg-neuros.com.

To read more about ***Blower Systems,*** please visit www.blowervacuumbestpractices.com/system-assessments/blower-systems.