Assuring Wastewater System Reliability:

Industrial-Grade UPS Power Protection Mitigates Costly Throughput Issues

Michael A. Stout[1]*

[1]Falcon Electric, Inc., 5116 Azusa Canyon Road, Irwindale, California, 91706, USA
(*correspondence: michael.stout@falconups.com, Tel: 800-842-6940)

FORMAT

30 minute presentation

KEYWORDS

Power Problems, Power Quality, Uninterruptible Power Supplies, Power Conditioners, Stand-By Power Systems, SCADA, GCMS

ABSTRACT:

One of the leading causes of reduced throughput in a wastewater treatment facility is the damaging and costly effects of power problems. Power anomalies typically include brownouts, sags, surges and power outages. They all adversely affect both the process and electronic equipment used in a wastewater facility. For example, automated SCADA systems throughout a facility rely on clean ac power for reliable performance. In the laboratory, the myriad of instruments, such as Gas Chromatography Mass Spectrometers (GCMS) also need clean power to operate and can end up being a bottleneck in the throughput of the plant if GCMS systems cannot produce test results due to power problems.

Of all the devices labeled “uninterruptible power system” or “UPS,” only a small fraction of them are of a true on-line design, which regenerates and regulates new AC power from incoming AC power. Office-grade off-line and line-interactive UPSs feed incoming AC, with all of its problems, directly through the UPS. They only switch to inverter back-up power after AC Power is lost, which can cause problems as there is a switching delay.

However, for critical applications a UPS that is always online is a much more robust solution. PLCs, VFDs, GCMS typically will not operate reliable from an AC power source having a +/-25% voltage swing. They, as well as other instruments in the lab will often have little built-in immunity from power problems which often disrupts their normal operation. It can also cause them to give inaccurate readings. The end results can be costly downtime, lost productivity and decreased product quality assurance.

Environmental and power problems must be eliminated in critical-applications through the use of an on-line UPS. Especially when ruggedness, durability and reliability of the process equipment is paramount. Another aspect that is equally important is to ensure that UPSes are adequately sized for not just peak loads and run-time, but also to handle the type of loads they will be powering.

This presentation will provide an overview of the various design and installation considerations that should be taken into account when specifying UPS systems for use in wastewater plants.

About the Author:

Michael A. Stout, vice president of engineering of Falcon Electric, Inc. is an authority in the computer automation, power conversion and UPS industries with nearly two decades of experience in critical power systems. Michael has been working the power reliability sector for over 20 years. In his current position, Stout specifies and designs new UPS and critical power system products and evaluates emerging technologies. Contact: michael.stout@falconups.com