

Don't Gamble With Mother Nature - Go UPS

El Paso Water Utilities (EPWU) provides water, wastewater, and reclaimed water service to one of the region's fastest growing areas — the greater metropolitan area of El Paso, Texas. The utility analyzes water samples with sophisticated, computer-controlled systems and gas chromatography/mass spectrometry (GC/MS) instruments to assure the sanitation and safety of the potable water supply.



The new EPWU International Water Quality Laboratory was built to withstand environmental disasters and emergencies. The building and infrastructure, including the electrical and plumbing systems, comply with EPA standards, as well as the more stringent federal and Department of Homeland Security-implemented criteria. The lab's equipment, which ranges from sophisticated GC/MS to high-end microscopy instruments, as well as sensitive measuring devices, serves a vital function, and ensuring test and equipment accuracy is paramount to the laboratory's success. Any malfunction or downtime creates a bottleneck for the entire facility.

Senior Chemist Miguel Venegas and his team found that the laboratory instruments were being adversely affected by power problems. Venegas explains, "In spite of the investment and detailed plans that were implemented in constructing the new facility, there is one area that, until recently, had us confused — the frequent dips and overall unpredictable AC power. We knew that power outages were a reality and that is why we installed Smart-UPS units for a few instruments. Also, the site-prep guide made it clear that we needed regulated and uninterrupted power for the GC/MS and other sensitive instruments to operate with accuracy and reliability."

Venegas adds, "What we didn't know was we needed a true online uninterruptible power supply (UPS) for these devices. Even though the Smart-UPS turns on instantly, it actually takes about a fraction of a second to come online, and that is where we thought the Smart-UPS units we previously bought would do the job. This again was a hit-and-miss proposition. At times it seemed like the UPS protected the

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electrical load and at others we were still seeing aborted tests.”

Case in point: During a recent review of their fresh water tests, Venegas’ team noticed the GC/MS equipment was not performing accurately. The equipment was suffering from poor power, a conclusion reached after several incidents of mysterious aborted tests with “no-fault” errors. Like most lab users, the team did some preliminary research and discovered that their equipment site-prep documents clearly stated they needed a power conditioner or uninterruptible power supply to address the issue of unstable power.



They installed several commercial-grade “Smart-UPS” units and plugged in their GC/MS equipment, hoping this would solve the problem. They knew very little about power problems or the solutions, so they went with the “off-the-shelf” brand. What they didn’t know was the units they were relying on were actually “offline” UPS units, which cannot give the level of protection needed for sensitive laboratory equipment. While this type of inexpensive UPS is better than no UPS at all, using this device gave the staff a first-hand lesson in “caveat emptor.” Calling a unit a UPS does not ensure that instruments will be protected. Only a small percentage of them provide true uninterrupted power.

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“We contacted a number of UPS companies and it became clear that most of the large manufacturers focus on IT and communications,” Venegas says. “Also, it was almost impossible to get technical help at these large companies. Their salespeople had never heard of a mass spectrometer or, even worse, when I tried to speak with a technical sales person, I was told they would get back with me. As we continued our search on the internet, we found Falcon Electric’s website (www.falconups.com [1]). Falcon Electric had specialized information about laboratory applications. I found a case study on a GC/MS user suffering the same problems we were having with the commercial-grade Smart-UPS. When I called Falcon, the salesperson was very knowledgeable and guided me through sizing the SG 3K-1T, a 3000VA laboratory-grade, online UPS. We installed the UPS on our most critical GC/MS system and waited.”

“The true test occurred a few months later,” Venegas says. “We had a power outage during the evening and I saw flashing consoles on most of the GC/MS equipment when I came into the lab the next morning. It was clear that another power event had taken place. When we looked closer, the only GC/MS completely unaffected by the power event was the instrument plugged into the Falcon SG3K-1T UPS. The other instruments suffered damage due to the tremendous surge that occurred when the power returned. Of course, the instruments that were plugged into the Smart-UPS failed the test run — however, they didn’t suffer physical damage from the surges, which was a relief. The instruments that were plugged directly into the wall outlets took the worst beating. At least a few needed expensive repairs that also required costly downtime. This experience showed us that the extra money we spent on the Falcon SG Series was and continues to be an outstanding investment.”

Venegas concludes: “When discussing this incident with my superiors, it was nice to have this solid data to prove we made the right decision and that the UPS more than paid for itself in terms of downtime, costly reagents and damaged components, which were all saved. We are true believers of the right tool for the right job.”

Headquartered in Irwindale, Calif., Falcon Electric, Inc. is a manufacturer of award-winning power protection and conversion solutions. Find them online at www.falconups.com [1].

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