Case Study
Power and Light Utility Company
Power Quality Monitoring

The City of Kansas City Missouri hosted Major League Baseball's All Star Game in the summer of 2012. Part of requirement for the City was for the primary fresh water pumping stations that fed the Stadium to be 100% available during All Star Week. The All Star game went off without a hitch and was a Showcase for the City. However, preparing for this event revealed potential Power Quality issues that needed to be addressed at eight electrical, medium voltage pumping stations through-out the Metropolitan Area.

The Kansas City Missouri Water District (KCMO) asked the Utility Company to provide a third-party non-biased company to provide 30 days of power quality monitoring as well as to provide a detailed and comprehensive report for each electrical service. This report was to be presented to the City Council at a Special meeting specifically addressing the electrical infrastructure at these facilities, Both the Utility Company and Kansas City Missouri Water District agreed the Power Protection Products, Inc. (P3) was the best company to provide this service.

P3 began a power quality at four water pumping stations (two medium voltage electrical services per station) for the Water Services District of KCMO. The intent was to monitor the eight main services for approximately 30 days and look for any power quality anomalies (Voltage, Current, Voltage Sags, Voltage Swells, Over Voltage, Under Voltage, Harmonic, Noise, Power Factor, and Loading) and confirm facility electrical operations and methods. After the first two weeks of monitoring we stopped recording momentarily to extract the data from the eight meters and then began recording for another two weeks. Once we had the first two weeks of data we were able to confirm all of the recorded results (anomalies) that were found. We matched the recorded data to their SCADA data to confirm all operations were being recorded. We repeated this process after the fourth week of monitoring and again we were able to confirm all of the recorded results (anomalies) that were found. Once all of the meters were removed the remaining data was collected for final analysis.

After monitoring, we were able to arrive at these general conclusions. The recorded voltage sag and voltage surge events were confirmed to be load induced as a result of normal operations at the pumping stations. These events appeared to be non-problematic and did not interrupt the normal electrical operation of these systems. On the other hand, the events noted in the following summary reports appeared to be induced from an upstream source in which the Utility Company was able to confirm to the best of their knowledge the root causes. Generally these events were short in duration which allowed the equipment to ride through these voltage sag events causing electrical miss operation or malfunction at the pump stations. We provided a comprehensive, graphical report detailing these issues identified and provided detailed solutions to the issues identified.

Power Protection Products, Inc. specializes in products, services and software that will enhance power quality, energy efficiency and data center optimization. The Company also provides turnkey data center solutions and power quality studies. We focus on reliability, understanding and optimization of your critical power and cooling needs.