

Laboratory Risk Management

Electrical Power as an Economic Hazard: Operating Hazards, Risk and Insight

**PPI laboratory
Instrumentation
Power Protection
Systems
(IPPS)
deliver smooth,
conditioned power
to protect your sensitive
analytical
instrumentation 24/7**



As a global supplier of energy and power quality products, Precision Power International (PPI) helps laboratories protect their sensitive and costly instrumentation and equipment to create energy efficiencies.

Precision Power International has over 35 years experience in clinical, biotechnology, pharmaceutical, and scientific research instrumentation development meeting 21 CFR (Code of Federal Regulation) Part 860, FDA section 510 (k) (CDRH medical devices), and 21 CFR part 11 (electronic records reporting) regulations.

Our instrument power protection systems (IPPS) and "smart reporting" technology assure constant monitoring and reporting of electrical power providing the basis for managing all critical utilities. Management of critical utilities is

Laboratory managers who operate with an incomplete understanding of their environment and hazards associated with key utilities are missing important elements that affect business decision-making, risk analysis and bottom line performance. **The consequences of omission of electrical power as a fundamental utility hazard are:**

- Instrumentation failures
- Data outliers
- Higher cost per reportable result
- Outright data destruction and
- Business productivity loss

The terms hazard and risk are often used interchangeably in daily conversation, however the terms have very specific meaning. A hazard is not synonymous with risk; it can be an important element in the determination of risk. **HAZARD** is the potential to cause harm. **RISK** is the likelihood or probability of harm affecting you. All factors being equal, especially operational exposures and the people subject to them, risk is directly proportional to the hazard.

Hazards and the risks associated with them are everywhere, but when known measures are taken to mitigate them, we eliminate or reduce risk. For example, when we go up or down stairs, it is possible that we will fall; the likelihood is that we will not. Stairs are a hazard; the probability of injury is the risk.

In the laboratory, we usually associate a hazard with direct personal injury, such as a chemical burn, which results in a loss or accident. Electrical power is a hazard to the laboratory's operation not in the sense of a safety hazard but as an operational productivity hazard. The National Electrical Code (NEC), local construction codes, ordinances, permitting processes and national electrical (safety) testing laboratories/agencies (NETL), UL as an example, mitigate electrical safety hazards, risk of fire and personal injury by enforcement of strict codes and standards.

All electrical products purchased for the laboratory are specified as NETL tested and labeled. We mitigate the lab's safety hazard associated with electrical power by acquiring appropriately tested and labeled products. **Electrical power QUALITY is an operational hazard affecting productivity that is not addressed by safety testing.** Power quality (voltage,



Don't Operate Your Power As
An Economic Hazard!

fundamental to meeting 21 CFR part 11 requirements.

Additionally, Precision Power International's IPPS laboratory power solution (LPS) products form a power bridge that safeguards the GxP organization against lost personnel productivity, adulterated test results, and instrument damage.

"At PPI, our power protection application engineers have the right IPPS calibrated and certified to each of your laboratory instruments," says Ray Hecker, COO and company principal.

"We are here to answer your questions and apply the perfect power and backup solution to meet all of your requirements."



Raymond L. Hecker, AE, MBA is a principal of PPI and personally assures the most rigorous standards of applications engineering of all PPI power protection solutions as well as the highest customer satisfaction

frequency, waveform, harmonics and availability) is a critical operational hazard, with high risk of loss for the laboratory.

Experience + Analysis = Insight

Insight + Business Decision-Making = Risk Management

Publilius Syrus quoted in the first century, *"It is a good thing to learn caution from the misfortunes of others."* Hazard and risk are relative; inexperience is a magnifier for both. W. H. Auden is quoted regarding insight and talent: *"It takes little talent to see clearly what lies under one's nose, a good deal of it to know in which direction to point that organ."*

Anyone who has been involved in troubleshooting an instrument or business problem knows that insight and sound decision-making are key elements to solving the problem quickly. A manager who understands that electrical power is much more than "the lights are on" and the equipment "appears" to be operating goes a long way to reducing risk associated with electrical power as an economic hazard.

By eliminating omissions in our thinking about laboratory operation, such as electrical power quality, and preparing for it, we have gone a long way to reduce our risk of economic (productivity, data and equipment) loss. David Searles once stated, "The tendency of an event to occur varies inversely with one's preparation for it." Searles must have worked in a top rated business environment to understand that contingency planning and executing a well thought out strategic plan pays big dividends.

When planning your next break-through instrument acquisition, or to eliminate a spurious instrument failure, keep in mind that local power quality is constantly being degraded with additional applications of digitally controlled (computers, variable speed drives, lighting, centrifuges, intelligent controls, ULT freezers, et al) devices. To keep from falling into the persistent downward power quality spiral consider applying a simple and cost effective solution. That solution includes low cost pristine regenerated power technology (RPT) at the point of use. Instrument Power Protection Systems (IPPS) with Smart Monitoring will give your laboratory comprehensive control over the power in your lab, allowing you to sleep at night by avoiding costly surprises.

When you need to get ahead of laboratory Risk Management issues, you need the most reliable, cost-effective instrument-specific protection solution available today. Contact Precision Power International, Inc. (PPI) for insightful keys to managing your critical utility power and risk.

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Precision Power International, Inc. (PPI) is a developer and supplier of energy and power products to protect sensitive and costly laboratory instrumentation. The company also provides engineering services to assist laboratory managers in achieving the right power solutions for their unique applications. PPI specializes in value added systems engineering (VASE), software monitoring services (SMS), and consulting engineering services (CES) for the global energy, power technology, and large end-user technology markets. PPI offers "true" turnkey systems integration with "plug and play" designs for the scientific, technology specifier, and end user applications. Precision Power International's engineers design, integrate and certify product applications utilizing the best and most robust "world-class" technology available.

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