

The Hidden Costs of Isolated Fire Protection Systems

The fire protection schemes in today's power plants have evolved to include elements such as fire sprinkler, deluge, foam, and gas suppression systems. When functioning optimally, these systems provide a plant with comprehensive fire protection that safeguards lives and protects valuable assets. However, the cost-effectiveness of a complete fire protection system relies on the plant's ability to properly assess and respond to the potential threat. It is a challenge to adequately monitor these systems when alerts are annunciated exclusively on a local level. The time required to respond to remote alerts can have a tremendous impact on the plant's ability to properly respond to the potential threat without impacting plant productivity. Centralizing the monitoring of isolated systems through a wireless Fire Detection and Alarm System (FDAS) is one way to provide plant operations with the real time information needed to make the best decisions.



Isolated Fire Protection Systems Means Neglected Alarms

Plants rely on system alarms to notify them of potential safety threats so that they can take the appropriate action to respond to a dangerous situation. When systems only alarm at a local level, the likelihood increases that alarms will not be recognized quickly enough to take the appropriate action. This especially holds true in areas that are infrequently manned, where the alarm could go unacknowledged for extended periods of time. Essentially, when these isolated fire protection systems activate (trip) due to a fire condition, they do not perform the critically important function of immediately communicating their status to emergency response personnel.

Although it is commonplace for today's plant to have an FDAS that connects to many of the fire protection systems, a problem arises when new facilities or structures with their own separate systems are added to the site. Frequently, these newer systems are not connected to the existing FDAS, either because the function was overlooked during planning or because it was difficult and expensive to install the necessary raceway and cable to allow for the connection. Systems in older plants are generally even more disconnected, often because they have FDAS's that are incapable of becoming hardwired to a centralized location or they are completely lacking an FDAS. In these situations, some plants compensate by monitoring the fire protection systems with their PLC/DCS system(s), but this method of monitoring does not comply with fire codes and typically only provides local alarms as well.

The Costs and Issues Associated with Hardwired FDAS

From both a fire code compliance and technical standpoint, the best solution for monitoring fire protection systems is to connect them to a plant site FDAS with a control panel or remote annunciator that is located where emergency response personnel can quickly receive and respond to activity. However, when hardwiring the system, plants encounter an obstacle in that almost all FDAS's need cable and associated conduit or raceway between the control panel

and monitored points. The cost of installing cable is significant even in new installations and may not be cost effective or even possible when adding units or retrofitting older ones on an existing site. Another associated issue is that exposed cable and raceway infrastructures degrade over time, causing significant maintenance problems. In some older facilities, a degraded cable system has caused plants to abandon the circuits due to the cost to maintain or replace them, subsequently isolating fire protection systems that were previously monitored.

Wireless FDAS to Achieve Simplified, Cost-Effective and Comprehensive Alarm Monitoring

Facilities that do not want the encumbrance or extra cost of installing and maintaining FDAS circuit cable between a control panel and remote locations now have an alternative with wireless FDAS. A control panel, that is also a transmitter/receiver, can be placed in a central location in the plant where it is easily accessible to emergency personnel. Wireless transmitters are connected to formerly isolated fire protection systems to communicate the status of these systems on a point basis via the wireless network. Supplementary repeaters can then be installed in strategic locations throughout the site to create a secure and reliable wireless communication network.

These wireless systems are not only easier to install than a wired FDAS, they are also far more economical since hefty cable and raceway costs are eliminated. Other substantial benefits are that future circuit maintenance costs are largely eliminated and additions to the system are typically less costly and easier to implement. For the growing number of plants that are faced with the challenges associated with isolated fire protection systems, a wireless FDAS is often the best solution to integrate all of their systems.

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