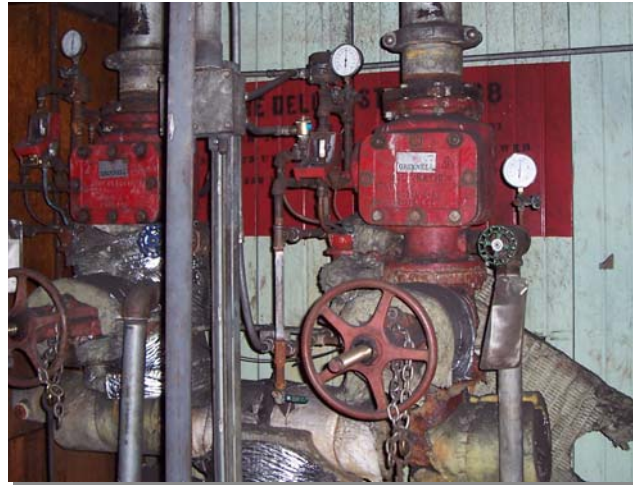


Working with Old Fire Alarm Systems

Even in the best economic climates, many power generating and chemical processing plants struggle to find the capital resources to invest in new fire alarm and detection systems. Times like these make it difficult to see beyond just operating and maintaining the plant production equipment. However, if a fire occurs on a piece of critical path equipment and the fire alarm or detection system's functionality is inadequate, the financial consequences associated with interrupted business can be devastating. It is imperative that the functional state of a facility's aging alarm and detection systems is not eclipsed by day to day operations because of the gravity of the consequences of substandard alarm and detection.



Maintaining aging fire alarm systems is often not a top priority for power generating facilities, however functional alarm systems are a critical component in ensuring the protection of lives and valuable assets.

Why Do Aging Fire Alarm and Detection Systems Become Unreliable?

The basic precepts of any fire alarm system are that it 1) warns occupants and plant operations of abnormal conditions, 2) alerts the appropriate first responders and 3) initiates fire protection systems and facility operations to enhance the protection of people, plant and production.

There are many reasons why an aged fire alarm or detection system's functionality can be compromised, from environmental factors to problems dating back to initial installation or imperfect design practices. A deficient inspection, testing and maintenance program will also take its toll on equipment, accelerating its deterioration. As systems reach the concluding years of their life cycle,

finding sufficient support and replacement parts can become a challenge. Collectively, these issues undermine the effectiveness of the systems, create headaches for plant staff and jeopardize the reliability of the plant.

Many areas within power generating plants and chemical process facilities have extreme conditions that put stress on all of the equipment within the vicinity. Factors such as high temperatures, corrosive elements, vibration and dusty atmospheres can all be detrimental to the effectiveness of an alarm and detection system that is not properly maintained. Even in applications where systems are not regularly exposed to harsh conditions, the typical life span of control equipment and smoke detectors is approximately ten years, due to natural deterioration.

New Technology Makes for Obsolete Equipment

While new fire alarm technology means more sensitive detection, advanced warning and mitigated risk, it also equates obstacles for plants with older systems. Manufacturers are continuously developing technology to leverage their systems over competitors and present the most advanced product that they can to the market. As this technology eventually prevails, updates are introduced into UL and NFPA standards, requiring facilities to either replace their systems or make amendments to their existing equipment in order to remain compliant.



It can be challenging to find replacement parts and manuals for antiquated fire alarm systems as technology continues to develop and older systems become obsolete.

A prime example of an update to these standards is the UL864, 9th edition, which went into effect at the end of 2008 and forced wholesale changes to all manufacturer control panels. An overwhelming

portion of the panels that predate the update are now considered obsolete and are unsupported. From the manufacturer's perspective, resources must be refocused on new product development rather than supporting antiquated equipment, meaning older systems will no longer be supported and replacement parts will cease to be manufactured.

Surpassing Projected Life Cycles

Despite the extreme environments found in power generating plants, many alarm and detection systems do surpass their projected life cycle. Whether through robust engineering and development of the product, smart design and installation, aggressive inspection, testing and maintenance or a combination of all of these factors, many of the original fire alarm systems found in power generating facilities are still meeting their intended function. However, the longer these aging systems are in service, the more problematic they generally become.

If a facility opts to try to extend the lifespan of their system, one of the most primary issues they will face is correctly identifying the existing problems that may not be overtly evident. Thorough, comprehensive inspection and testing must be performed in calculated intervals by a party who is knowledgeable about older systems. The nuances associated with particular equipment and the proper solution to problems inherent to decades-old systems can be very particular, requiring a seasoned professional with a wide breadth of expertise.

Once system issues are identified, it can be even more challenging to find resources for replacement parts and system manuals. The process of locating antiquated parts for deficient systems, or finding supplementary parts that will mesh with old systems to bring them up to standard, can be extremely time consuming and can distract plant staff from their principal duties. If the facility does not have a broad network for obtaining obsolete parts, they will quickly find that it is extremely difficult to obtain critical parts in a timely fashion, potentially taking fire protection systems out of service until parts can be acquired.

Evaluating Return on Investment

As a facility comes to a crossroads about whether to repair/update aging systems or replace them, a number of factors must be taken into consideration. Time, cost and effectiveness of the system are all decisive aspects of the decision making process and must be carefully evaluated before investing money into either option.

Consideration of the time, effort and cost of locating and procuring parts and reference materials for an old system should be evaluated before investing additional funds and time in a system that is nearing or has surpassed its expected life cycle. Creating an accurate analysis and projecting costs can be a difficult exercise for someone who does not have a great deal of experience with antiquated replacement parts and may require the assistance of someone working with such systems on a regular basis who has access to parts lists and estimating methods.

Regardless of the course that a facility takes, managing old fire alarm systems is a substantial undertaking that requires careful planning and deliberation. Plant staff often find themselves overwhelmed with the complexity of the issues and lacking the information needed to make significant decisions about the future of their aging alarm systems. The best way to approach the management of old systems is to tap into resources that have the knowledge and experience to inspect and test the systems, can conduct a comprehensive analysis about the condition of the system and can provide all of the relevant details in a succinct manner so that plant staff can make informed decisions about the future of their systems.