Communication breakdown among culprits in mishaps

Below, Ulmer answers some commonly asked questions regarding industrial accidents, what can be learned from the past and how to be prepared for the worst:

Q: What is the most common cause of industrial accidents?

A: While a specific event such as an explosion, chemical spill, mechanical failure, human error, defective equipment or fire always immediately precedes an industrial accident, such events alone will not in and of themselves cause the accident to happen. In reality, rarely are industrial accidents caused by one single event.

Instead, they are often the result of multiple failures or breakdowns within an industrial facility’s operations or processes. Those breakdowns include: Failure to fully understand the nature and properties of chemicals used at an industrial facility; failure to understand the process hazards associated with plant operations; failure to communicate all known chemical and process hazards to all employees; failure to develop and maintain adequate operating procedures; failure to train all employees on relevant operating procedures; and failure to retrain and reassess process hazards following modifications to operational processes and procedures. Dereliction of any one of these crucial issues may result in an industrial accident.

The federal government enacted the Occupational Safety and Health Act, or OSHA, in 1970. OSHA’s primary purpose was to establish federal safety and training standards to minimize workplace hazards and promote safer working environments. Although OSHA has had its intended effect, despite the best efforts of owners and operators of industrial facilities, industrial accidents still occur.

Q: Has the current state of the economy impacted the rate of accidents?

A: Some of the largest petrochemical plants, chemical manufacturing facilities and refineries in the world are located in the United States along the Gulf Coast. The economic downturn and weakened economy have affected these industries, just as they have most other industries. Decreased consumer consumption and demand result in falling profits, which force companies to make tough decisions regarding the allocation of resources, including capital, equipment and personnel. Challenging economic times, however, do not necessarily correlate with the number of industrial accidents. Instead of using the economic downturn as an excuse to divert resources away from safety, companies can use this time to elevate the role of safety by placing a greater focus on overall operational efficiency and reliability. The easiest way to achieve this goal is to make physical and systemic changes aimed at making the best use of available resources while directly addressing the company’s safety culture.

Q: What can companies learn from recent industrial accidents?

A: As tragic and unfortunate as industrial accidents may potentially be, they can also serve as important learning opportunities. Oftentimes following significant events, organizations such as OSHA and the U.S. Chemical Safety and Hazard Investigation Board investigate the accidents and determine their causes.
The results of these investigations are published and allow other companies in the industry an opportunity to review and reassess their own systems, policies and procedures.

**Q** What can companies do to minimize the impact of an industrial accident?

**A** Industrial accidents can cause catastrophic results, including serious injury or death to employees and members of the surrounding community, severe property damage, environmental contamination and business interruption.

Although some accidents may be preventable, there are certain catastrophic events that cannot be anticipated. Companies can employ specific safety measures, such as emergency action plans, in an attempt to prevent and minimize industrial accidents.

When an industrial accident occurs, a company should have a comprehensive well-developed emergency action plan in place tailored to the company’s specific operations. The emergency action plan should be a written document that organizes the actions of all of the company’s employees, both management and operations, in the event of an emergency.

The plan should specifically establish emergency response teams, employee and contractor escape routes, safety shelters, command centers (either within or away from the facility), a chain of command and a communication system. Having an organized plan dramatically increases the chances of minimizing injuries, loss of life and property damage.

**Q** What are currently the most significant threats to chemical plants and refineries?

**A** Foreign and domestic terrorism is one of the threats of greatest concern among plant owners and operators and state and federal officials. The United States Department of Homeland Security has identified more than 6,000 high-risk chemical facilities across the United States. These facilities are attractive targets and may be vulnerable to terrorist attacks. Accordingly, the federal government has proposed and enacted several bills aimed at lessening the threat and related exposure, including the Chemical & Water Security Act.

Among other things, one of the goals is to reduce the attractiveness of chemical plants as targets by analyzing how those facilities can reduce the consequences of a terrorist attack through the use of available, cost-effective, safer and more secure chemicals and processes. Not only do these measures reduce terrorist threats, but they also help minimize the risk of nonterrorist-related industrial accidents.

**Q** What can companies do to prevent or minimize industrial accidents?

**A** Companies have to make safety a top priority. Periodic and systematic reviews of a company’s current emergency response plan, operating procedures and training programs are necessary steps.

In addition, continued enforcement and compliance with existing policies and procedures will help minimize the risk of industrial accidents.

Lastly, implementation of the following preventative steps will go a long way in crisis management and accident prevention:

1. Fully understand the nature and properties of chemicals used at an industrial facility.
2. Understand the process hazards associated with plant operations.
3. Communicate all known chemical and process hazards to all employees.
4. Develop and maintain adequate operating procedures.
5. Train all employees on relevant operating procedures.
6. Retrain and reassess process hazards following modifications to operational processes and procedures.
7. Consult with a crisis management professional for periodic evaluations of emergency action plans and safety policies and procedures.