

# Keeping Your International Operations Safe

## Safety Note

As economies around the world become more closely entwined, many U.S.-owned corporations have been expanding their international presence, opening up new factories and plants in markets overseas. In some cases, these investments are key to their future and success.

But the opportunities abroad – cheaper labor, tax breaks and reduced government regulation – come with their share of challenges, particularly in nations such as India and China, with incidents hitting headlines almost every week. In the last month, a boiler explosion at an Indian bottling plant killed three workers and injured five others. An abandoned chemical factory in China, which was being torn down at the time, blew up when excavators struck a propylene pipeline. The ensuing blast killed 13 people and injured dozens more.

Earlier incidents include a textile mill in Chittagong, Bangladesh, in which 55 people were killed when the building collapsed following a boiler explosion in February 2006

Even though these incidents occurred halfway around the world, they can no longer be easily covered up by state-controlled media or public relations. Top officials are increasingly being held responsible for their actions. For example, India recently has become more sensitive to damage done by foreign factories. Three officials from the bottling plant were taken into custody by police for questioning as the cause of the explosion was investigated. Political pressure and the media are also pushing for stricter penalties for malfeasance after seven former officials of Union Carbide were recently sentenced to only two years in prison for their roles in the 1984 Bhopal gas tragedy (where thousands died and an unknown number of others suffered genetic defects and deformities).

Even in China, the breakneck pace of economic development has seemingly caught up with the country, as China has seen nearly double the number of environmental accidents in the first half of this year compared to last year, according to Bloomberg. As such, officials have called for country's the Ministry of Environmental Protection to put wider-reaching industrial protections in place.



An explosion at an abandoned chemical factory in Nanjing city in eastern China killed 13 people and injured more than 300.

If you are the Risk or Safety Manager of a U.S. company with operations in any of these high growth countries, you need to take note. Many companies with overseas facilities may not give much thought about taking precautions to address the risks that exist with fuel and combustion system equipment. They may have been lulled into a false sense of security by not having issues with equipment such as boilers, furnaces, and ovens here in the U.S. They may not realize that in these countries you are dealing with different fuels, minimal operations and maintenance skills, and a different safety culture.

Two keys to success are training and keeping things simple.

### **Simple Designs**

There are a number of risks that must be considered in the design of a new facility that will impact success in developing countries. These include choices such as type of fuels, type of safety and burner management systems, training for personnel, and the availability and stock of spare parts. Experience has proven that many designers who casually interface with this kind of equipment within the U.S. are ill-prepared for what it takes to ensure the best chances for safety and reduced risks in high growth countries.

A U.S.-owned company with facilities in these areas may not have any operating experience with propane or fuel oil. Yet these are likely the only choices for facilities in developing countries. These types of fuels may require that designers consider special accommodations, for example extra strainer capacity, special fuel valves, and burners that are of an older, but simpler technology. In these situations robustness and simplicity need to drive design, and not energy efficiency.

The developed world focuses on solutions with complex controls and delicate heat exchangers. This is all well and good unless the item needs to be transported by sea and then subjected to a 1,000 mile road trip. Where do you get parts for your new, state-of-the-art system in the middle of nowhere?

When it comes to boilers you need to be looking at fire tubes and cast iron sectionals. If you can get flame rods and thermocouples on smaller units for flame safety controls, you are better off than with optical detectors.

### **Training**

Human error is the number one cause of all accidents in the U.S. and abroad. Forward thinking design and equipment selection cannot completely solve this problem. Very often, little thought is being given to training in developing countries. Training is even more important in these countries than in the U.S. because there is little or no industrial infrastructure or knowledge of fuel-fired equipment or combustion systems. To complicate matters, technical information is often not available in local languages.

In high growth regions, there is often more operator turnover than in the U.S. Some facilities experience more than 100 percent turnover per year. If new employees cannot be trained quickly and easily, the chances of a catastrophe rise dramatically. Equipment must be simple, with few operating instructions.

When preparing combustion equipment training in developing countries, it is important to develop materials that are in the native language and at the appropriate grade level. Remember, many operators may have not attended school. The information provided must be very visual and cover only the most egregious of basic hazards. The simplest of issues that might seem obvious must be explained.

For example, one U.S.-owned facility experienced a serious explosion and fire when a process oven fired by propane exploded. Workers never knew anything was wrong before the explosion because they had never been trained to know what leaking propane smelled like, or that it was a serious problem. In fact, they smelled so much propane every day that no one thought it was abnormal.

## ABOUT US

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Honeywell Combustion Safety is a part of Honeywell Thermal Solutions, an industry leader in commercial and industrial combustion solutions. Honeywell Combustion Safety, formerly known as CEC Combustion Safety, has been in business since 1984. With engineers and staff members that sit on Code committees such as NFPA 56, NFPA 85, NFPA 86, and NFPA 87, our inside expertise is integrated within all of our practices, and our global reach ensures that customers around the world are kept safe. Honeywell offers testing and inspections, engineering & upgrades/retrofits, gas hazards management, training, and field services for all industrial facilities and different types of fuel fired equipment. By assisting organizations and their personnel with the safe maintenance and operation of their combustion equipment, Honeywell aims to save lives and prevent explosions while increasing efficiency and reliability of combustion equipment.

## **We Support the World**

In conclusion, the fuel-safety problems that high growth countries face will not be solved overnight. However, U.S. companies with facilities in these areas can help save lives by changing their group-wide combustion culture and developing maintenance and safety procedures that are embraced world-wide.

### **For more information**

Learn more about Honeywell Combustion Safety, contact [info@combustionsafety.com](mailto:info@combustionsafety.com), visit [www.combustionsafety.com](http://www.combustionsafety.com) or contact your Honeywell Sales Engineer.

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