Chemical Emergencies: Yesterday & Tomorrow

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On Wednesday, December 9, 2009, there was an explosion at a chemical plant just outside of Houston in Pasadena, Texas, injuring two workers at the plant. You may not have heard about this because there was, very fortunately, no off-site toxic release or loss of lives from this tank explosion.

Unfortunately, catastrophic damage is usually what it takes for the dangers of a chemical release to make serious national news. Since this explosion in Pasadena, there have been others every week peppered throughout community news — a chemical leak at a natural gas-processing plant in Texas, a hazardous materials spill in North Carolina, another deadly gas leak in China. Toxic releases are an ongoing problem, whatever the magnitude.

This past December 3 marked the 25th anniversary of the tragedy in Bhopal, India, when a methyl isocyanate cloud was released from a nearby industrial site. Thousands of people and animals died from this catastrophic toxic chemical event, and 25 years later, it is remembered as one of the worst industrial disasters ever — and one that could have been avoided.

To all the victims of this tragic event and the countless others that were so tragically impacted by it, we at SAFER Systems extend our deepest sympathies on this solemn anniversary. It is this kind of disaster that puts these recent events like the one in Pasadena, Texas, in perspective — simply, that it could have been much worse.

This is both cause for relief and concern. It should not take a death toll to register in national news that emergency events, big and small, happen on a daily basis — whether we hear about them or not. Of course, one must acknowledge the positive contribution chemicals have on our way of life, but we must also be aware of the

real potential dangers they present, both to life itself and to the environment.

In the wake of these recent toxic releases and the 25th anniversary of the devastating event in Bhopal, it is important to reflect on a number of questions that should be examined from a historical perspective and for future planning …

Are we safer today in terms of not being exposed to a potential Bhopal-like event?

Yes and no. The same chemicals exist, along with similar industrial environments, so the potential for a major toxic chemical release is still present. As previously mentioned, chemical releases of one form or another occur every day, although, fortunately, they have been nowhere near the severity of the Bhopal incident. That being said, private industries, government agencies and, to a lesser extent, the general public are now more aware of the potential risks. Some corporations and government entities have taken proactive steps to improve planning and response regarding chemical events. This alone adds a certain level of safety.

But are those steps and increased awareness enough?

We at SAFER Systems believe not, for we are still at risk until every industrial facility that handles significant volumes of toxic substances invests in the three building blocks of effective emergency response: the human element, the preparedness element and the technological solutions elements. Until private sector companies and government emergency management and response organizations at all levels activate these three building blocks, the danger remains. The corporate and public sectors must work both individually and together to do a better job of protecting society from the ever-present dangers of toxic chemical releases. And one should never underestimate the scope of the risk. The job of protecting the public is certainly not easy, and must be diligently undertaken to prevent future chemical tragedies and the resulting loss of life.

And while general awareness has certainly increased in the last 25 years, the explosion in Pasadena, Texas got little national coverage — largely due to its lack of “impact” in terms of destruction. This can lead to the general public thinking that events like Bhopal are becoming less likely, which is not the whole truth.

What can we learn from each of these chemical-related events?

Chemicals can present a very real danger to life and property if they are not properly managed, and all chemical events are not created equal. With the ever-present threat of accidental and deliberate chemical releases, what we have learned from Bhopal is the need to remain vigilant and to better prepare for potential chemical events.

As for the plant explosions and releases, it points to the potential hazards faced by plants, those agencies responding to such events and the neighboring communities every day, and the value in ensuring that the general public is aware of these risks and understands what is being done to help curtail the effects of a toxic event.

What has been and continues to be done at plants, such as the one in Texas, to prevent another Bhopal incident from happening?

There are many public and private sector initiatives that have either been considered or undertaken to prevent future large-scale toxic chemical events. These include enhancing industrial facility security, using chemicals with lower levels of toxicity, storing smaller volumes of toxic chemicals and other important safety steps. Some companies and government agencies in the U.S. and internationally are adopting new or enhanced technologies to anticipate, detect and manage a chemical emergency. It's all about effective, informed decision making. It can and does save lives.

Yet we can't help but wonder why some corporations and government agencies still resist adopting the best technologies and methods to manage such events? Why is the use of such systems not mandated in situations in which a large number of people are at risk? What if the event in Pasadena, Texas had resulted in an off-site toxic release — would the facility have been prepared to respond quickly enough to protect residents, businesses and the local environment?

There are steps that still need to be taken by the industry, government and communities to properly prepare for toxic chemical events today, including:

- Know if and where a toxic chemical event could occur in their areas.
- Plan for the possibility of such an event. This planning should be done at the industrial facility, community and personal/family level, much like one would plan for a natural disaster.
- Take a proactive stance by investing in the three aforementioned building blocks of effective chemical emergency management.

We must thank the companies and organizations that understand the need to produce and/or use toxic chemicals in order to improve our daily lives, yet balance this need by taking proactive steps to address the potential dangers those chemicals present. This dichotomy dictates investment in the human resources, preparation and response procedures, and advanced technological solutions that will protect lives, property and the environment should a release occur.

In the final analysis, the saga and lessons of large-scale chemical events such as Bhopal, and the regular ongoing warning and reminder events like those hitting the small news circuits recently, allow us to be better prepared for chemical releases of all sizes. We are also reminded to use the available technology to its fullest to aid in not only that preparation for an event, but also in any required response.

These lessons must never be forgotten. Loss of life is avoidable, and we should do everything in our power to ensure that our communities and industrial settings are safe.

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