

## Director's Corner

In the Fall 2015 issue of *Centerline*, I talked at length about the difference between “hazard” and “risk.” To summarize, when speaking about process safety, hazard is *an inherent chemical or physical characteristic that has the potential for causing damage to people, property, or the environment*. On the other hand, risk is a *measure of human injury, environmental damage, or economic loss in terms of both the incident likelihood and the magnitude of the loss or injury* (source: CCPS).



Recently, the Mary Kay O'Connor Process Safety Center conducted a study in which we used the Tier II reporting to index all the hazardous materials sites in the Houston area from the point of view of *potential to cause harm to the public* (PCHP). In other words, we created a hazard index to characterize the PCHP of each hazardous materials site in Houston. The Houston Chronicle published a series of articles based on our study. Our intent in conducting this study was to shed light on gaps in various safety issues identified time and time again in incident investigations of catastrophic incidents (e.g., West fertilizer incident, 2003; Tianjin fire and explosion, 2015). In fact, these gaps in safety issues can be traced as far back as the aftermath of the Bhopal incident in 1984. These gaps include:

- lack of hazard awareness and use of hazard information in designing plants, plant layout and plant operating procedures
- lack of land-use planning
- sharing hazard information with local emergency responders
- operational and effective local emergency planning committees
- competency in executing process safety activities.

As I said, the intent of conducting the above-mentioned PCHP study was to energize the discussion about the five issues identified above, and hopefully to engage in a multi-stakeholder dialogue about these issues with the ultimate objective being better risk management. The methodology used in the PCHP study is very robust for the purpose/objectives for which it was intended. It must be understood that the PCHP index is a **hazard** index and it does not speak to the **risk** from each of the facilities. A hazard index, as stated in the definition above, speaks to the potential to cause harm. It does not say anything about risk management and the extensive efforts directed at risk management by each of the facilities. Industry is doing a lot with regard to risk management, but we must also acknowledge that while some companies do very well with regard to risk management, some do not do well at all.

So, we hope that the PCHP study will raise the awareness level and stakeholder dialogue, which will lead to a level playing field and a quest for excellence in process safety by all facilities. We must keep in mind that the inherent properties of hazardous materials that make them hazardous are also the same inherent properties that make them useful for society (e.g., the examples of knife and gasoline given in Director's Corner, *Centerline*, Fall 2015). Because of the benefits they bring to society, we have to live with hazards on a daily basis. The fundamental issue we as stakeholders must address is, “There are hazards that we must live with because of the benefits those hazards represent, but the real question is how do we manage the risks associated with those hazards.” The first step in that direction is to understand the difference between *hazard* and *risk* and the recognition that hazard does not mean risk. Only then we can engage in a serious discussion about the risk management programs to keep the risks from those hazards at a manageable level.

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