



## The Last Word

# Safety education has no final exam

If you peruse this issue from front to back, you should be congratulated and thanked for completing another unit of “continuing education” in chemical health and safety. Did you read any articles about an area that was previously unknown to you? Did you learn anything in a subject area about which you consider yourself to be relatively knowledgeable? In 2 months, Harry Elston will send you another informative and thought-provoking issue, and you will have another opportunity to learn more about several topics.

This journal is a microcosm of the chemical health and safety world and the safety profession in general. Things are constantly changing and there is always something new to learn. If you have ever attended a graduation ceremony, at least one of the speakers reminded the audience that the word “commencement” means beginning and not the end. As people with an interest in safety, our formal education and any certification we may have received only prepare us to *begin* learning the facts and applications that we need to protect ourselves and others.

Sometimes the lesson is dramatic and shocking. In August 1996, Professor Karen Wetterhahn spilled one or two drops of dimethylmercury onto her gloved left hand. By the time she and her doctors understood what had happened, 5 months after the accident, it was too late. On June 8, 1997, this highly esteemed researcher died as a result of this exposure to a toxic mercury compound. In “The Trembling Edge of Science”<sup>1</sup> several of Professor Wetterhahn’s colleagues pondered whether they could have intervened and somehow prevented this tragedy. Most concluded sadly that what they would have said or done would not have changed the course of events. As one whose graduate research was in synthetic organometallic chemistry, I confess that I would not have given adequate warning about dimethylmercury toxicity had I been asked. This incident was a wake-up call for many of us in the field of chemical health and safety. The issues of toxicity, exposure limits, and personal protective equipment are important with potentially serious consequences.

Other lessons are beyond anything we could imagine. What would happen if a modern airplane, with filled fuel tanks, crashed into a skyscraper? Before September 11, 2001, this

question might have remained a challenging exercise or a difficult question on an engineering exam. Most people were very surprised to see the collapse of the World Trade Center towers. Not everyone was surprised, however. My metallurgy colleagues anticipated that some type of metal failure would result in severe structural damage. In the months that followed this attack, the failure of the towers was the subject of many analyses.<sup>2</sup> Wondering how a typical firefighter might have reacted to the towers’ collapse, I spoke with a member of our local fire department. Many firefighters were not surprised. In fact, building collapse is a major fear in almost every building fire, even with single family homes. When the first tower came down, an order was issued to the firefighters in the second tower to evacuate the building immediately. It is unknown how many of the firefighters received the message to evacuate. What has changed for firefighters since September 11? Their training has intensified, and the advent of terrorist activity presents more potential hazards to be considered. Biological warfare agents and explosives are two classes of hazards that were not major concerns for past office building fires. Architects and engineers must learn from this incident following their professional mission to improve building design. For all of us in safety and emergency response roles, there were numerous lessons on 9/11, far too many of them sad.

Both of these events remind us that we can never consider our safety education finished. How can we respond in the aftermath of these tragedies? Keep learning. Read the safety literature. Participate at meetings of your professional organizations. Talk with your colleagues about their safety concerns. Watch over your family and friends. Consider sharing with all of us by submitting an article describing your safety experiences, knowledge, and/or insights about issues that are important to you. Pay attention to your surroundings and be careful out there! Safety education continues.

## References

1. Endicott, K. *Dartmouth Alumni Mag.*, **1998**, 90(7), 22–31.
2. Petroski, H. *Am. Scientist*, **2002**, 90(1), 16–20. [As a good example].



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