Environmental concerns

BY PAUL J. LIOY

The attack on the World Trade Center was a horrible surprise, and America was not prepared for a disaster of this type and magnitude. The response, however, was heroic. From the beginning, the situation at ground zero was chaotic, and no emergency response guidelines/procedures were available to quickly address the issues confronting all organizations. It was simultaneously a crime scene, military operation, fire, building collapse, rescue operation and environmental/occupational health crisis.

Initially, the primary environmental and occupational concerns were the "acute effects" caused by outdoor exposures to re-suspendable dust, and particles and gases in smoke. Prior to Sept. 11, however, we rarely dealt with acute exposures caused by environmental contamination at very high levels and for very short periods of time. In fact, for many pollutants, we only were concerned with lifetime risks (70 years) derived from low-level exposure.

Unfortunately, the events of Sept. 11 now require the development of toxicant guidelines for short-term, acute exposures to protect first responders (EMS, fire, police, etc.) and local populations. From samples collected and analyzed by myself and my colleagues in the area of the World Trade Center, that list must include materials as common as disintegrated glass fibers and cement particles.

The attack also illustrated the need for real-time, continuous toxicant monitors and monitoring strategies for acute exposures. Such devices are required to determine how safe the area is before entry/re-entry by the workers and affected local population.

The rescue operations graphically illustrated to us the problems first responders have with the current designs of non-air-pack respirators — they are difficult to wear in hazardous rescue operations. Therefore, for first responders, we must develop user-friendly non-air-pack respirators to allow them to safely complete tasks. These must include built-in person-to-person communications.

The federal government must designate a lead agency for cleaning indoor locations contaminated with dust/smoke and developing clean-up strategies for rapid implementation during all types of natural/security catastrophes. Up to now, the indoor clean-up of areas around the World Trade Center site has been inconsistent. However, any new activities must be sensitive to the rights of residents, owners, etc. In May, the U.S. Environmental Protection Agency received authorization to clean up homes. They are developing approaches to remove the settled dust/smoke that remains indoors or was poorly removed post-Sept. 11 and to reduce continuing health concerns. Hopefully, the experiences learned by implementing these procedures can improve our response to future catastrophic indoor contamination events.

Unfortunately, recovery will take years, and, as with Pearl Harbor, nothing will ever be exactly the same.

Paul J. Lioy is associate director of the Environmental and Occupational Health Sciences Institute, a joint project of Rutgers and UMDNJ.