



BREAKING NEWS

HUGE TOXIC SPILL CREATES
PANIC ON MAIN STREET

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UCCESSFUL MISSILE TEST :: OIL SPIKES ABOVE \$70 A BARREL :: SCIENTISTS SWAP GEN

Home, Sweet Homeland

The term “Homeland Security” is readily associated with the United States for the omnibus department of the same name formed in the aftermath of 9-11. But when it comes to training, there are several new initiatives on both sides of the 49th Parallel. **Rick Adams** reports.

In forums discussing preparedness for the unpredictable furies of natural disasters or human-induced catastrophes, government agencies often talk of their highly detailed, cover-every-contingency, ‘plans.’ “But it’s not the plan; it’s the act of planning that matters,” suggest Chris Pogue, president of CAE’s Professional Services Division. “You’re not going to pull out ‘Plan 5.’ What’s more important is how rapidly you can adapt to the changing nature of the event.”

Emergency response is more a human factors challenge than something that can be solved solely by technology. Many of the local, state, and federal fire, police, paramedics, and national guard troops who are expected to coalesce in a crisis have never or rarely worked with each other, certainly not on the scale of a massive calamity. “They’re not funded that way, so they haven’t trained that way,” notes Pogue.

“We need to form a connective tis-

sue, create linkages between those organizations. Modeling and simulation increasingly connects people, and allows organizations to explore how to collaborate. If the stovepipes are sharing the mission space instead of fighting one another, they have a much greater ability to respond.”

CAE’s highest-profile project in the homeland sector is a chemical, biological, radiological, nuclear, and explosive (CBRNE) training simulation at the Justice Institute of British Columbia’s Center for Exercise Design & Simulation. Imagine, if you can, a deliberately dispersed chemical agent drifting through downtown Vancouver, enveloping the luxurious Pan Pacific hotel and the waterfront area packed with tourists. “This is obviously not something you practice live,” Pogue says.

The immersive visual environment can provide detail “right down to the street level, the vehicle and person level” if desired. For example, a hazmat team

Ground Truth provides a virtual environment where users can see the effects of their decisions.

Image credit: Sandia National Laboratories.

could be depicted treating victims in front of the hotel. Computer-generated virtual crowds can be triggered to interact with responders or to flee the area using artificial intelligence software.

At the Justice Institute, the PC-based simulation is set up in a large meeting room to hold 30-40 participants. ‘Pods’ are used to represent police, fire, ambulance, and so forth from city or provincial agencies. “The simulation accommodates multiple players and multiple levels, from national entities down to a small town,” Pogue explains. The environment is designed to reflect the realistic tempo of an emergency event, the processes and decisions of the participants, and the consequences of communications and actions.

The simulation will be used, in part, to train all first responders for the Vancouver Winter Olympic Games in 2010. But as deputy chief constable Steve Sweeney of the Vancouver police says, “That’s only two weeks. I also have to be prepared for emergency situations the rest of the year.” Other exercises may focus on major events such as a Formula 1 auto race or a meeting of national leaders, Pogue adds, “events that draw attention and resources. They’re building something that will have long-term sustainability.”

The Montreal company last year unveiled a sort of ‘responder in a box’ commercial product called CAE Deploy that will enable EMS personnel to more effectively apply people and equipment resources using simulation-based visualization tools running on top of a familiar GIS decision-making environment. “It’s like Socrates sitting on your shoulder,” suggests Pogue. The simulation can be integrated with existing operational systems – for example, providing road conditions and live feeds from GPS-equipped vehicles, for real-time positioning data and enhanced situational awareness. Prediction and scheduling algorithms are from partner Actenum.

This Game’s a Gas

Toxic gas is also the scenario of choice for an emergency response game in development through Lockheed Martin’s Sandia

National Laboratories. The Game Technology-Enhanced Simulation for Homeland Security project, otherwise known as "Ground Truth," is currently designed for high-level incident commanders who need to understand how to allocate their resources during weapons of mass destruction threat situations. Future enhancements might engage the front-line responders who are deployed to the scene.

Looking much like a "Sim City" urban environment, the Ground Truth game enables commanders to move firefighter, police, hazmat, and medical 'pieces' around the scene. If there's an accident, send police pieces to set up a roadblock. If a wind shift endangers a victim staging area, move those pieces to safety. Players can view the action from several vantage points, including street level or an aerial, helicopter-type view.

A game scenario lasts about 20 minutes; developers concluded that busy emergency responders don't have hours available so they're hoping users will play nearly every day over several weeks or months.

"Video games are progressive, intuitive, accessible, and immersive," says Donna Djordjevich, principal investigator

for Ground Truth. "Firemen, police officers, and other first responders are used to being 'on the scene' of an incident, so gaming mechanisms that thrust users into a 'real' environment are a great fit for training and education purposes."

WMD in NH

Researchers at Dartmouth College in New Hampshire have also developed a CBRNE videogame-based training program, Ops-Plus for WMD Hazmat. Interactive Media Laboratory director Joseph Henderson says, "We blend video of real humans who are expert hazmat trainers into the gaming environment."

The 16-hour course begins in a simulated hazardous materials learning lab, then progresses to interactive simulated emergency situations.

"The trainee faces a series of increasingly challenging tactical situations involving life-and-death consequences," explains Henderson. In one scenario, trainees must consider the time of day, temperature, and weather conditions to determine what personal protective gear and special radiation detection instruments are required to investigate a 'dirty bomb' site. The IML director claims that issuing equipment and instruments to public

safety personnel not properly trained to use them is a "national problem."

The Ops-Plus simulation runs on Windows computers, including the older models still booting up in many fire and police stations. The cost? US \$35 through the not-for-profit National Fire Protection Association.

Hot Stuff

The New York City fire department is building a \$4.5-million high-rise simulator at their academy on Randall's Island. The intent is to provide training in real-world fire conditions such as the event that killed two firefighters on the 17th floor of the Deutsche Bank building last year.

The trainer will recreate unique high-rise hazardous conditions, such as the manner in which heat and gases are retained and can quickly spread. For example, the training area will be able to simulate a fire and 'flashover,' the moment when everything combustible in a space goes up in flames. "Fires in high-rise buildings are among the most complex and dangerous that a firefighter can face," says Fire Commissioner Nicholas Scopetta.

Elsewhere in the States, firefighters



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