The threat of terrorism, specifically large bomb explosions, has created a challenge for law enforcement and the military: reconstructing blast scenes characterized by widespread devastation.

A NEW Defense Application FOR Satellite Technology

>> By Don Talend

All photos by Duke Dutch

An FBI training course that covers reconstruction of these scenes relies upon the use of Global Navigation Satellite Systems to locate evidence. A Sokkia LEA RTK Mapper and Pocket PC Data Logger are used to locate evidence on the vast scenes of explosions.

It would not be accurate to state that the world changed on September 11, 2001–terrorist attacks on civilians had taken place in troubled areas of the world for many years prior. At the time, the attacks weren't even the first to occur in the United States in many years. But the widespread scale of the attacks did reveal that the United States and the West had some catching up to do in combating international terrorism. The truth is, a few years earlier the Federal Bureau of Investigation began working on improving the effectiveness and efficiency of investigating a common type of attack: bombings that utilized large vehicles as a delivery method.

The FBI's Large Vehicle Bomb (LVB) Post Blast Investigation Course has been developed with the realization that, unfortunately, great potential for large-scale terrorist attacks against Western interests will exist for the foreseeable future. A key element of the course is a reliance on Global Navigation Satellite System [GNSS] technology, which can help law enforcement precisely and efficiently reconstruct bombings and better deal with a highly chaotic, metastatic threat.

Unique Logistical Challenges

Two attacks on U.S. soil that preceded 9/11 involving truck bombs, one built and detonated by foreign terrorists (first World Trade Center attack, 1993) and another by domestic ones (Oklahoma City, 1995) introduced the need for more specialized training to augment the law-enforcement community's existing expertise with explosives. The sheer scale of an LVB scene investigation presents unique logistical challenges, according to FBI Special Agent Bomb Technician Kevin Miles, who teaches the courses around the world.

Oklahoma City was the first instance of a modern terrorist attack on U.S. soil that underscored the need for intelligence and law enforcement to adapt to a new reality. Unlike the device used beneath the World Trade Center, the Oklahoma City bomb was detonated in an open space, leaving behind a large-scale LVB scene characterized by widespread destruction. Miles argues that co-conspirator Terry Nichols was tried after Timothy McVeigh, giving Nichols' defense team a preview of the prosecution's trial strategy and the defense attacked investigators' evidence-gathering and recording techniques.

Course attendees gather evidence and reconstruct the blast scene for display, as if in an actual courtroom trial.

"These weren't glaring mistakes that cost us the case, obviously, but you have students in the course think about attention to detail and make sure they have trained people on the crime scene," says Miles, a team leader in the Oklahoma City investigation who previously had been on the Tulsa, Oklahoma Police Department's bomb squad before joining the FBI in 1990.

The FBI had developed a post-blast crime-scene investigation (CSI) course that was suitable for incidents such as car bombings. The basic course was developed for the FBI's evidence response teams, all of which have responsibility for gathering and preserving evidence in some capacity. In 1998, an attendee recommended in a course evaluation that the bureau develop an advanced course to prepare attendees for extreme cases such as Oklahoma City. Miles and two now-retired explosives experts from the Los Angeles County Sheriff's Department, George Gomez and Sgt. Howard Rechtschaffen, then developed the LVB course. Gomez, a now-retired sergeant and training coordinator with the arson and explosives detail who had a 35-year career with the sheriff's department, recalls how he and Miles got acquainted. Miles had been transferred to the Los Angeles Division of the FBI (FBILA) early in his bureau career and immediately reached out to local law-enforcement organizations regarding their LVB investigation training needs.

Miles notes that the primary thrust of the course is managing a vast, complex site and organizing its details. As of spring 2009, more than 100 courses had been held for more than 5,900 students from all 50 states and 16 foreign countries and several sessions had been conducted in foreign countries. Attendees' backgrounds have included civilian or military bomb technicians, post-blast investigators and CSI personnel. In recent years, bomb technicians deploying to Iraq and Afghanistan have gotten priority in filling seats. Another sign of the dynamic nature of counter-terrorism is the fact that the FBI has also continually updated its database with advancements in improvised explosive devices used in these countries.

The courses are usually held on large military bases with plenty of room for LVB simulations, such as the China Lake Naval Air Weapons Station in California. Attendees learn about management of a large blast scene, team configurations, explosive physics, contamination avoidance, chain of custody and residue analysis, among other concepts. Miles asserts that the training has applicability to non-terrorism CSIs such as traffic accidents, homicide investigations, plane crashes and train crashes.