POST-BLAST EXPLOSIVES DETECTION

Real-world scenarios teach bomb dogs to sniff out secondary explosive devices.

BY MIKE HERSTIK

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Overview: A vehicle-borne improvised explosive device (VBIED) is detonated in scenario one. **Inset right:** Officers and K-9s walk to the scene of the blast. **Inset far right:** Arizona Department of Public Safety technicians examine the blast site.

An excerpt from the Arizona Department of Public Safety's (DPS's) mission statement reads: "…providing vital scientific, technical, and operational support to other criminal justice agencies…." In the spirit of that mission, Arizona DPS recently hosted a training day that offered bomb technicians and explosives detection canine teams some unconventional, yet potentially realistic, problem solving. This article is a firsthand account of the training and its results.

Training Set-Up

In February 2007, on a National Guard base near the desert town of Florence, Arizona, DPS brought together explosives detection canine teams from agencies across the state and from California. Agencies represented included police departments from Mesa, Scottsdale, Tempe, Glendale, Chandler, and Gilbert; sheriff's offices

■ **Opposite:** A K-9 checks perimeter vehicles in scenario one, searching for undetonated material. **Left:** K-9 Axel indicates on a vehicle as Instructor Mike Herstik (*left*) and handler Sergeant Martin Lepird (*right*) look on.

THE CANINE TEAMS DEPLOYED THROUGH FRESHLY DETONATED RESIDUAL MATERIAL AND ACTUAL CARNAGE.

from Mojave County, Maricopa County, Yavapai County, and Pima County; DPS; and the Corona County (CA) Sheriff's Office.

The day was overcast and rainy, but at one point a bright rainbow stretched across the dark sky. The facilitator, Lieutenant J.A. Leos of DPS, asked me to instruct the canine teams as they went through the scenarios and to provide problem-solving direction to the handlers as needed. Deployment scenarios focused on detecting secondary hazardous devices that might be intended for first responders. The canine teams deployed through freshly detonated residual material and actual carnage. In one of the scenarios, pig carcasses were detonated to simulate a post-blast bomb scene and provide serious distractors for the canine teams. Swine flesh is similar to human remains and often is used to train cadaver recovery canines when human remains are unavailable for that purpose.

In addition to the scenarios, a triacetone triperoxide (TATP) odor-recognition station was available to the canine teams. Approximately 90 grams of TATP, which constituted a threat quantity, were used for odor recognition. The material was securely set up within a small but stable structure of heavy, stacked, natural stones that blended into the setting. Because of its inherent volatility, most of the dogs had no problem learning to recognize and indicate on TATP.

Post-Blast Training

The post-blast training consisted of two scenarios. Scenario one comprised a freshly detonated, vehicle-borne improvised explosive device (VBIED) with a 15-pound ammonium nitrate–fuel oil (ANFO) main charge, plus a series of additional vehicles — some blank and some target vehicles containing undetonated ANFO and trinitrotoluene (TNT). The explosives were contained within the interior of the target vehicles. The handlers were tasked with working their dogs through the detonated residual material and the ambient vehicles to locate and indicate the undetonated VBIEDs that still posed a threat within the area.

In scenario two, a VBIED containing large sections of pig carcass was detonated using 10 pounds of C4. The resulting blast spread carnage and vehicle parts contaminated with explosive residue for more than 150 feet. Material was strewn across the ground and hanging from bushes, with remnants of flesh dangling from the twisted metal wreckage of the detonated Suburban. The resulting scene simulated the tragedy of an actual blast scene. Thirty yards away sat a large tanker trailer that had a 10-pound package of undetonated C4 lodged within its frame.

The canine teams started their search at the far edge of the blast perimeter and methodically worked their way through the carnage and explosive residue toward the source of the blast, then continued to the nearby tanker trailer to indicate on the undetonated C4.

Many of the dogs showed strong interest in the distractors — both the residual odor and the resulting strewn flesh. The handlers were instructed to motivate their dogs through the search in a positive manner until they reached the target vehicles, then to reinforce the desired indication. The concept is that the dogs are not trained to look for minute amounts of evidence, but rather to search for a device made of threat-quantity explosives. Although it is unusual here in the United States, such training is standard for law enforcement in Israel.

With good handling, virtually all the dogs quickly overcame any confusion and succeeded in searching through rather than avoiding the distractors, then identifying the undetonated explosives.

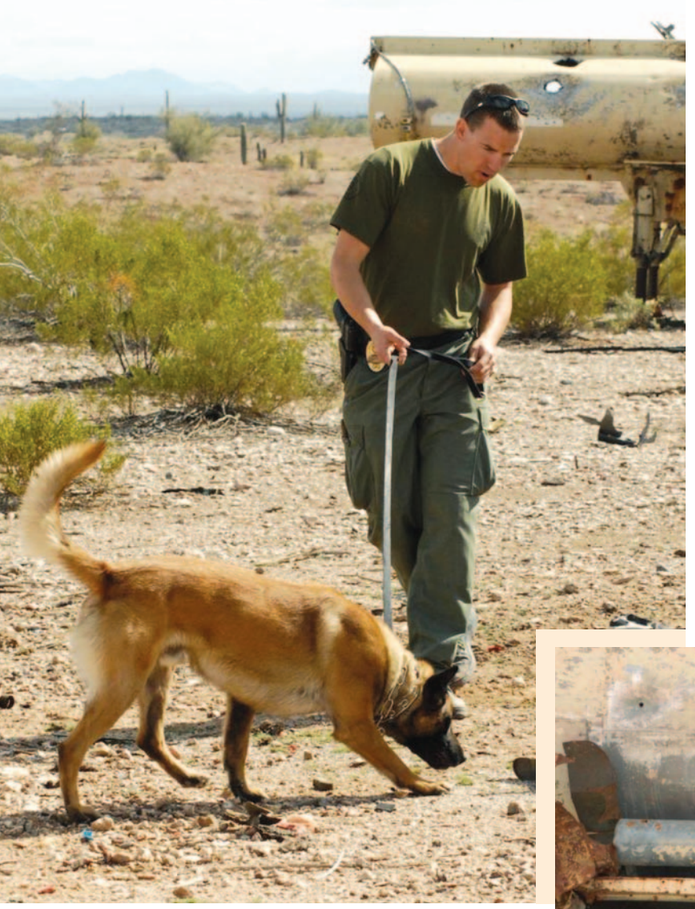
Training Protocols

Because ANFO's fuel oil component makes up the major part of the material's vapor head space, working detection dogs on ANFO creates potential concerns. Dogs that are reinforced on ANFO repeatedly, over time, tend to identify and indicate on the non-target fuel oil. To avoid inadvertently imprinting the dogs on fuel oil, it is advisable to

- imprint and train on the unmixed ammonium nitrate (preferably a reagent grade);
- test and reinforce periodically on actual ANFO to ensure recognition; and
- set up fuel oil in odor-recognition training as a distractor to extinct indication on this non-target component. That helps the dog discern and indicate the correct target signature and to search in a neutral manner through fuel oil when it is encountered in a non-threat situation.

Incorporating that protocol helps reduce the likelihood of a false alert when working around diesel. It also helps with generalized recognition of the AN component in other formulations of explosives that use AN in their makeup.

Good training involves pushing the performance envelope



GOOD TRAINING INVOLVES PUSHING THE PERFORMANCE ENVELOPE IN A CHALLENGING BUT PRODUCTIVE MANNER.

■ **Left:** A K-9 works through carnage and the distracting residual odors of pig flesh in scenario two. **Below:** A K-9 locates a secondary explosive device.

in a challenging but productive manner. Performance strengths and weaknesses can then be discovered in a controlled environment rather than in dire reality. Discovering weaknesses allows us to develop and integrate remedial protocols, provides a frame of reference, and consequently should enhance performance skills. Bomb dog handlers cannot afford the luxury of simply trusting their dogs; rather, they must *know* their dogs.

Training Results

The scenarios offered a relatively unique opportunity for post-blast secondary and third device training. The canine handlers were able to teach their dogs how to deal with a potentially problematic situation. TATP training also provided an opportunity to imprint the dogs on a realistic quantity of this hazardous explosive. The overall recognition response among the dogs was observed to be much more easily acquired and effective than when working with low-vapor-producing cotton balls or sub-gram–quantity training aids. ■

Mike Herstik is the owner/director of International K-9 and the director of explosives-detection training at Adlerhorst International Police K9 Academy. Questions can be directed to Mike at intk9@earthlink.net.

The author thanks Lieutenant Angel Leos and Gerry Diehl for facilitating this training, which encourages cooperative professional networking among agencies. The Arizona Department of Public Safety sets an example in mission-first attitude and overall professionalism.