



The False Alert: Reasons and Remedies

By Mike Herstik

A number of articles have been written regarding the *false alert*, or better described, the *non-productive alert* (NPA), as this relates to detection canines, with special emphasis connected to explosive detection canines.

The consequences of a false alert by an explosive detection canine may be a very serious matter—considering we are dealing with a potential IED at an airport, large venue, or high traffic business locale. Shutting down these facilities can cost many thousands of dollars, (in some cases much more), and create a great disruption in people lives. Bearing in mind the potential costs, and the misunderstandings commonly associated with this problem, it is certainly a subject worth re-examining.

Lets us consider the various known causes for NPAs.

Handler Sensitivity

Probably the most common reason for a true false alert is the dog reading and reacting to inadvertent signals from the handler, rather than responding to target odor.

Handlers can unknowingly send cues, in the form of both body language and sounds, which can cause NPAs. As the handler reads the dog, he can markedly, or even very slightly, change his behavior when he suspects the dog is *working in odor*.

The reality is that dogs are much better at reading us, than we are at reading them. They learn to become very sensitive to our subtle, and not so subtle, changes in verbalization and body language. These changes in the handler's behavior, such as altering our praise, stopping and intensely observing the dog, etc., become cues to the dog that their reinforcement is coming. The result is that the dog may *indicate* when sensing these unintended cues, in spite of the fact that there is no target odor present.

Keep in mind this usually happens

without the handler being aware, because he is so focused on the dog, and not on his own behavior.

During training, the foremost cause of false alerts is the handler knows where the training aids are hidden. Teams with this problem should be doing blind searches, where they don't know where training aids are hidden.



Handlers should regularly attend training sessions supervised by an experienced and skilled handler, who can observe and identify the inadvertent cues the handler is sending the dog. It is important the trainer understands they are not there to test the handler. They are there to enable a productive learning session.

Videotaping the training is a good tool. It allows the handler to observe himself in a more objective manner. Handlers will see if they are prematurely reaching for the reward, changing their behavior by stopping and intently staring at the dog, or doing a back and forth dance when the dog shows heightened interest.

Handlers must be able to continue presenting without changing their be-

havior, even while the dog responds to the target odor. *Indicating* on the target odor should be the dog's primary focus.

Time Pattern-Stress Response

Most handlers train their dogs on short searches for relatively consistent time periods. The dogs are usually set up to find multiple aids within a 15-minute training session. Some training involves having the dog *indicate* on numerous training aids within a brief period of time, so that the handler can frequently offer reinforcement. This type of training results in the dogs becoming habituated to repeated reinforcement within a short period of time. This short time frame is not based on the dog's physical stamina. As a result, the dog becomes conditioned to expect reinforcement within those time parameters.

The NPA occurs when a search is extended to a time frame that is beyond the dog's familiar comfort zone. At that point, we begin to see the dog exhibiting stress. Understand that the indication represents a place of safety for the dog, a place where they receive positive reinforcement. Dogs can *false indicate* out of sheer anxiety, seeking the safe position of the trained indication.

Detection canines are also more likely to false alert on a novel odor when they are stressed. Stress is a common factor in most forms of NPA.

Developing the physical and psychological stamina to search for a relatively long period of time is desirable for detection canines. The psychological demand on the dog, and the handler, produces stress, which results in fatigue. The recommended remedy is to apply an intermittent reinforcement protocol. Mix up long and short search exercises, in a manner that does not allow the dog to become accustomed to a predictable pattern. At times they will find a training aid quickly, and at other times they must

search at least 20 minutes before finding one. Remember, they should not consistently train in either long or short searches.

This remedial concept of *unpredictability* also applies to placement training aids. When aids are regularly placed in the same locations, canines will sometimes perform an NPA as a result of consistently finding aids in a specific location.

Target Odor Contamination

This form of contamination occurs when target material comes in contact with non-target material. The target material may no longer be present, but the residual odor of the material remains. In scent matching experiments, conducted in the Netherlands, scientists showed that canines were able to detect residual odors weeks after the odor had come in casual contact with an object. Therefore, trainers need to avoid areas that are heavily used for scent training, and may be contaminated.

Fringing

Closely related to NPAs, is the issue of fringing. Fringing occurs when a dog has access to *indicate* the source, but instead *indicates* a distance from the source, thereby causing confusion about its location. Fringing results when the dog encounters the vapor plume, but does not follow it to its closest available starting place. Air currents can transport a vapor plume a great distance, and this may cause the dog to *indicate* "down wind."

Fringing behavior may result from the dog *indicating* at short distances from the target, and then being consistently reinforced, rather than encouraged to work to source. The dog then learns is acceptable to *indicate* far from source. This behavior is less than the optimal response to the presence of target odor. It



may be viewed as a premature indication, caused by premature reinforcement.

It is important not to correct the dog for this behavior. The dog is actually *indicating* on target odor. He needs to be encouraged, in a positive manner, to follow the scent to the source, and then he should be clearly reinforced. The dog quickly learns to move closer to source, in order to receive his reward.

Novel odors

Objects that were freshly introduced into the scenario.

Items that are innately more volatile—cleaning fluids, paint containers, etc.—than their ambient surroundings.

It is inherent in a dog's nature to investigate odors that stand out. Take an item with your scent on it, such as your keys, and toss them into a field of grass. Even the average pet dog will go and investigate the odor they produce.

Distinctive odors tend to capture the attention of the canine, and may result in an NPA, especially when the dog is under stress. I find this more commonly occurs in younger, less experienced dogs.

Common Odor Signature with Explosive Compounds

The material the dog has *indicated* on may share a common, but innocuous, component characteristic to an explosive compound.

Most explosive materials consist of a combination of inert and active explosive ingredients. A common example of this would be C4. A portion of C4's makeup is an active explosive compound, RDX (91%), and the balance is an inert petroleum-based stabilizer. Petroleum-based materials carry common ingredients that may be innocently encountered in ambient settings. Since this represents part of the odor picture the dog has been repeatedly reinforced on, the dog may misidentify the material as

the target.

Another common problem is associated with ANFO. The major vapor headspace of the ANFO is fuel oil. When dogs are regularly reinforced on ANFO, they have a tendency to *indicate* on non-target fuel components, such as diesel fuel tanks, especially the plume source around fuel caps.

It is necessary to reinforce on the AN component, and extinct the FO component, and then occasionally test on the mixed ANFO while proofing on the fuel. See remediations below.

Associated Odor Signature

This is a form of contamination that involves repeated reinforcement of target material that has been in regular contact with non-target materials; i.e., storage containers, gloves consistently used to handle, handler scent, etc. The target material acquires the non-target odor signature as part of the target picture, and the dog is then reinforced repeatedly on this.

Once detection dogs have learned the process of being reinforced for alerting on an odor, they can inadvertently learn

the other odors they consistently encounter as being part of the odor picture they are being reinforced on. The same process, which creates a trained response to target materials unintentionally, creates a trained response to these non-target materials, simply through their consistent presence within the odor picture. Gas tanks, if used as hiding places, polyethylene bags, vinyl/nitrile gloves, and handler odor, are examples of odors the dog may inadvertently learn to alert on.

Remediation

Remediation generally consists of going back to reinforcing the foundation of the trained indication.

Problems related to the dogs responding to non-target odors, whether they are associated odors, common odor signatures, or novel odors, can be relatively quickly repaired by utilizing a Herstik Wall (See Sept/Oct, 2009 Detonator).

Place samples of non-target odors throughout the odor containment portals, making sure to include a target odor in one of the portals. Do not put a strong distracter odor too close to the target odor, in case the vapor plumes mix.

The concept here is habituate, or extinct the distracters, so the dog learns to have no response to their presence. The word "extinction" in this context refers to a behavioral term meaning repeated exposure to an item with no consequences, resulting in a neutral response.

Work the dog past distracters until it encounters the target odor. Then clearly reinforce the dog when *indicating* on the target odor. If the dog stops and *indicates* incorrectly, move on in a positive but persistent manner to the target odor. Do this repeatedly, until the dog works past the distracters to the target, without prompting. Then repeat by approaching from a different direction.

The next step is to generalize the protocol to a simulated search scenario. Set up the distracters in the scenario so that the dog will encounter them enroute to



the target odor. Work past the distracters, as you did on the Wall, until you get to the target source, then reinforce clearly. Repeat this until the dog walks past the distracters and goes right to the target.

Don't be concerned that the dog is using memory to go back to the target. That does not matter in this situation. The point is—the dog is walking past the diversions, going to the location of the intended target, and *indicating* correctly.

Think in terms of explaining it in so simple a manner that even a dog can understand. NPA's are caused by confusion, not resistance.

It is important not to correct the dog for mistakenly *indicating* on the non-target odors. This can cause confusion, stress and a negative association, that creates an avoidance response when these non-target odors are encountered. In a real-world search, we do not want our dogs to avoid a trashcan because they have been strongly corrected for investigating one. They may avoid the one that contains the IED! We want the dog to

search through the distracters for target odor, while acting indifferent to the presence of non-target odors.

Reiterating some things to avoid;

- Correcting the dog in response to an NPA. This causes conflicting avoidance issues.
- Waiting the dog out in response to an NPA. This creates confusion, stress, and generally teaches the dog nothing.
- Putting the dog away in response to an NPA. Again, this creates confusion, stress, and generally teaches the dog nothing. Work on to the target, and reinforce, so the dog learns what is correct.

Do not use imitation style training walls that have one hole directly over the other, or improper shallow scent portals, such as some commercially marketed walls. The original Herstik Wall is cheap to construct, simple and effective to use, and you can get all the necessary information free on

Google.

The term "maintenance training" is really a misnomer, that should be referred to as "enhancement training." The productive result should be the canine team's skills are constantly improving, as we remediate the various issues that inevitably come up. In order to progress professionally, egos must be set aside, and minds must be open to other qualified perspectives.

The handler must be able to accurately and efficiently work and read his dog. Remember it is not a final indication until the handler calls it. Ultimately the detection handler needs to toss the old adage, "Trust your dog" out the window, and replace it with, "Know your dog."

Mike Herstik is an instructor/trainer who produces teams for military and law-enforcement agencies, both domestically and internationally. Commendations he has received include those from the State of Israel and the County of Los Angeles. He is available for on-site seminars, training courses, and remediation clinics. His web site is at www.detectiondogs.com