Bureau of Alcohol, Tobacco, Firearms and Explosives

Proposed Move of the
National Canine Division
to the
National Center for Explosives Training and Research

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I. Executive Summary/Introduction

In FY 2016, language contained in Senate Report 114-66 required ATF to examine the feasibility of moving its National Canine Division (NCD) canine training and kennel facilities from Front Royal, Virginia, to the National Center for Explosives Training and Research (NCETR) at Redstone Arsenal in Huntsville, Alabama. The feasibility study found that "in order to properly accomplish training objectives and to have the maximum impact on violent crime and terrorism, the canine training facility, located on the grounds of the US Army's Redstone Arsenal, would have to be deemed as free of explosives or other contaminants prior to construction."[1] The report also stated that "ATF would need to accomplish an environmental study of the potential for airborne and ground contaminants at any identified potential locations for the ATF canine training facility on RSA [Redstone Arsenal], as well as a study to determine the potential effects of environmental noise distractors on the program participants."[2] Subsequent to the issuance of the 2016 ATF internal study, ATF commissioned an independent environmental evaluation of the proposed NCETR kennel site by AECOM Technical Services, Inc. (AECOM). The AECOM report was issued in November 2017.

ATF subject matter experts from NCD, NCETR, and ATF's forensic laboratories have reviewed the environmental study, assessed the risks a transfer to NCETR would pose to the canines in light of the findings in the study, and evaluated the substantial costs associated with the move. As a result of this review, our experts strongly recommend that the NCD remain in its current location. While this recommendation is based on the totality of the circumstances and findings, the most compelling factor driving the recommendation is the presence of explosives residue soil contaminants at the Redstone Arsenal facility, including the area occupied by NCETR. Due to soil contamination resulting from its history as a munitions manufacturing location, the facility has been designated as an environmental "Superfund" site for nearly 25 years. Moreover, the facility continues to serve as a primary location for detonation of explosives for military and law enforcement training, and therefore is currently, and continually, exposed to post-blast contamination from explosives detonation. Training explosives detection canines in this environmental setting is impractical precisely because even trace explosives contaminants in the soil present obstacles that are likely insurmountable to the initial imprinting of the canines to detect explosives and accelerants. Initial imprinting is absolutely essential to ATF's well-established and internationally-recognized training regimen. Consequently, ATF has concluded that moving the NCD from Front Royal, Virginia, to the NCETR campus in Huntsville, Alabama, would significantly diminish and perhaps irreparably damage the canine program and its mission to protect the public and fight violent crime.

II. Background

Currently, the NCD is co-located with the U.S. Customs and Border Protection Canine Training Center in Front Royal, Virginia. NCD serves as the Bureau's principal training center for explosives and accelerant detection canine training, research and development, and deployment

[1] Bureau of Alcohol, Tobacco, Firearms and Explosives, "Report to the House and Senate Appropriations Committees, National Center for Explosives Training and Research," Fiscal Year 2016, p. 16.

[2] Bureau of Alcohol, Tobacco, Firearms and Explosives, "Report to the House and Senate Appropriations Committees, National Center for Explosives Training and Research," Fiscal Year 2016, p. 19.

readiness. The NCD training cadre delivers basic and advanced detection canine team courses at the training center in Front Royal, including – most crucially – the initial imprinting of the canines to detect explosives residue present in firearms, shell casings, projectiles, and post-blast and trace evidence. Training recipients include ATF personnel, Federal, State, local, and international law enforcement, fire service departments, intelligence agencies, and military and civilian Department of Defense components. ATF specifically and exclusively trains Labrador Retrievers based on their unique breed characteristics, which match ATF's mission requirements.

In 2016, ATF completed a preliminary study to determine the feasibility of moving the NCD to NCETR. The results indicated that creating a comparable canine training and kennel facility at Redstone Arsenal would require, among other things, substantial financial investment (estimated to be in excess of $4 million at that time), plus intensive talent recruitment, and extended time for new infrastructure development. The 2016 study concluded that the loss of NCD's existing infrastructure and key NCD personnel due to the move would substantially disrupt continuity of operations and mission readiness. The preliminary study further found that if it were otherwise feasible to relocate the NCD to NCETR, such a move would require substantial time to reestablish the program to its existing level of expertise and capability, thus jeopardizing the program's reliability, efficiency, and efficacy in the interim.

In November 2017, AECOM Technical Services, Inc. (AECOM) provided ATF with an environmental evaluation of the proposed NCETR kennel site (the AECOM Study)[3]. The AECOM Study, conducted onsite at Redstone Arsenal in September 2017, focused on three categories: surface soil assessments, noise evaluation, and air dispersion modeling. The AECOM Study raises serious questions regarding whether the environmental conditions on Redstone Arsenal military base are suitable for training ATF explosives detection canines.

1. **The AECOM Study's soil analysis demonstrates that NCETR is not a suitable location for the NCD**

While the AECOM Study determined that explosive residue constituents "were near laboratory detection limits and would not pose any significant risk to the health of humans or dogs at the proposed facility," the authors deferred to government subject matter experts as to whether there would be an impact on training the canines. The report indicates that AECOM "will defer to government subject matter experts in dog training as to whether these low-level detections of explosive constituents could potentially affect dog training operations."[4] A foundational basis of using canines for explosives detection is the exceptional capacity of the canine olfactory system to recognize the presence of chemicals and compounds that cannot be measured and assessed using existing laboratory instrumentation. Because current technology cannot establish the thresholds at which canines can detect odors, it is not possible to quantify precisely the impact that various levels of contamination will have in a training environment. Nevertheless, ATF subject matter experts, after consultation with law enforcement partners who utilize explosives detection canines, have concluded that even minute levels of contamination pose significant risks to the well-established and internationally recognized explosives-detection training regimen employed by ATF. Consequently, ATF has concluded that the measurable levels of

[3] AECOM Technical Services, Inc., "Environmental Evaluations for the Proposed Kennel Facility, Redstone Arsenal, Huntsville, Alabama 35898, 2017."

[4] Ibid, Executive Summary, Page 3.

contaminants at Redstone would have a detrimental effect on ATF's canine training. The Front Royal location, by contrast, is a pristine environment free of soil contaminants that impact the canine olfactory system and noise from explosives detonations.

The AECOM Study recognizes that "[o]ne or more of the Nitroaromatic and Nitramine (explosive) constituents were detected in each of the eight soil samples collected at the site." NCD subject matter experts recognize that the levels of soil contamination discovered are not necessarily a cause for alarm concerning the health and safety of the canines; however, *the levels of explosive constituents present do cause significant concern as to long-term training effects and their eventual effects on canine performance and reliability.* A core component of ATF's canine training methodology is the grouping of explosives into six "families" according to shared chemical formulations; training focuses on detecting each "family" of explosives at low levels. Nitroaromatic and Nitramine are two of the six explosives "families." Consequently, the detection of these chemicals in all the soil samples collected from the proposed kennel site, even at concentrations that do not necessarily pose health risks, nevertheless significantly jeopardize the canine training regimen.

It is important to note that:

- Explosives soil contaminants have been present at Redstone Arsenal since beginning of operations in 1941. As a result of these contaminants, Redstone has been listed on the Environmental Protection Agency (EPA) Superfund National Priorities List since 1994.

- ATF forensic chemists and canine experts employ a strict regimen to ensure canines are trained to a target odor only, and not tertiary scents, in the soil or otherwise.

- Contamination of any type has significant impact on the training, confidence, and reliability of the canine.
    - ATF canine training subject matter experts have previous experience with the impact of contamination in both trace and gross amounts on canine training and field performance.
    - While not of significant risk to the health of humans or canines, trace contaminants found in the soil becomes problematic during training when the canine begins to associate the environmental explosive constituents with the target odor. The environmental odor and target odor become one, and the canine will no longer detect the odor when transferred to another environment. The canine becomes unreliable.
- Forensic scientists recognize that the extremely sensitive canine olfaction system is more sensitive than existing laboratory instruments. In 2000-2001, Richard A. Strobel, a now-retired ATF forensic chemist, and John W. Kury, of Lawrence Livermore Laboratories, conducted a study, "Nitromethane Detection Limits," in which they observed canines detecting nitromethane diluted in water in the parts-per-trillion range. Nitromethane is a common explosives component, and is consequently included in the six explosive "families" integral to ATF's training regimen.
- Training canines in an environment where they must routinely ignore low levels of material could have an impact on their performance for identification at low thresholds. This may affect detection of buried explosives, explosives hidden in packaging/devices, and post-blast scenarios. ATF detection canines are primarily an investigative tool used to search for very

low levels of explosive odors. The training is specific to the mission of detecting low levels of explosive residue, and is different from other training methodologies, such as:

- Department of Defense military working dogs at Redstone Arsenal are a different breed and have a different role than ATF canines.
- The military working dogs' initial imprint (for detection of explosives odors) and training does not occur at Redstone Arsenal.
- Comparing the ATF canines and the military working dogs for the same environmental suitability is not an appropriate comparison.

2. The AECOM Study's noise evaluation identifies the base level harm to the canines but does not address the more complex damage and costs that will likely result

AECOM used Corkern Range, the closest active explosives range to the proposed kennel site at NCETR, as the baseline for blast activity measurements. Utilizing this baseline analysis, the AECOM Study concluded, "Blasting activities at Corkern Range have a clear potential to affect the dogs at the proposed kennel site, especially if the dogs are outdoors at the time of the blasting activity." The report plainly noted the harm that could come to the canines from loud explosions, stating that "Assuming the dogs that will be in the kennel will not have had military experience, the key potential for degree of effect is the ability of the sound to startle the dogs. If they have military experience, there are documented cases of post-traumatic stress disorder in dogs and those dogs vary considerably in their reactions to impulsive sounds (depending on their experiences)." This excerpt continues, "An impulsive blast easily meets the criteria for onset rates causing startle (25 to 30 dB/sec) and the audibility of the blasts at the kennel site generates a clear startle potential for the dogs, which translates to a potential adverse effect."[5]

NCD subject matter experts, who have extensive experience with the actual training and deployment of explosives detection canines, know that exposure to loud noises -- especially when accompanied by seismic activity -- causes some dogs to develop phobias to otherwise innocuous circumstances. While training and acclimation in some instances can moderate these conditions, the mitigation steps result in increased training costs, and are not always successful; post-exposure reoccurrence triggered by other loud noises, sensations, and superstitious associations are common. Experience demonstrates that noise, tremors, and certain related events will traumatize some explosives-detection candidate canines, as well as some previously trained and experienced canines, with the same result—they are unable to perform their detection mission effectively. Even minimal blast exposure can permanently traumatize and disable a canine's working abilities.

The ATF Canine Program trains only Labrador Retrievers because research and experience have demonstrated that it is the breed that possesses the particular character traits needed to perform the mission specific to ATF and its partners. Much of the canine's success is dependent upon their training and environmental exposures. The initial training period is a critical time of development and maturation for the canine. It is a time of controlled exposure to a variety of stimulation, and any uncontrolled stimuli can have catastrophic effect on development.

The AECOM Study suggested that a masking noise could mitigate the effects of the blast activities, but this recommendation is insufficient and impracticable in light of canine training

[5] Ibid, Page 3.

requirements. The Study offered that the potential effects of the noise could be mitigated 1) by placing the dogs inside a facility that is designed by a board-certified noise control engineer to reduce low frequency noise; and/or 2) by augmenting background noise inside the facility through the HVAC system or through a formal sound masking system. ATF subject matter experts do not agree that these recommendations would be effective or practical for the following reasons:

- The potential adverse effect cannot be mitigated when canines are outdoors while moving to and from the indoor kenneling facility;
- ATF canines are outdoors for approximately six hours of their eight-hour shift, for training or awaiting training; and,
- Much of ATF's canine training is mission-specific and requires scenario-based exercises conducted in outdoor venues (*e.g.*, field, roadway, and vehicle searches).

3. The AECOM Study's analysis of air dispersion modeling does not identify adverse health effects on canines. ATF forensics chemists, however, suggest there may be an effect on training operations caused by trace accelerants in the air.

The AECOM Study concluded that "Computer modeling predictions of air quality during burning activities are below human worker health standards." The Study further states that "It is therefore anticipated that there would not be any adverse health effects for the dogs especially given the infrequency of the arson burn cell operations." While ATF's forensic chemists do not have sufficient information to offer analysis, impacts, and conclusions regarding the overall health issues, their expert opinion is that the exposure of accelerant detection canines to NCETR burn cell operations may effect kennel and training operations due to trace accelerants in the air. Moreover, the NCETR burn-cell, which dispels smoke and residue when in use, is a relatively recent addition to the facility. An increase in burn-cell usage is planned, and this increase can pose additional air-quality concerns for canines. For these reasons, relocation of the NCD to a site away from burn cell operations is recommended.

III. Costs and Other Considerations

1. Financial impact is significant

The cost to move the NCD to NCETR, including personnel, property, and equipment, was estimated in 2016 at $37,130,000. At that time, it was also estimated that $3,382,000 would be required to provide full training/certification capacity. Additionally, given that commercial airfare to Huntsville is 23.2% higher than fares at Dulles International Airport, ATF would need to increase the NCD yearly airfare budget by a minimum of 30.1%, or approximately $52,600. Obviously, estimates for the current fiscal year would likely be higher.

2. Front Royal, Virginia, is a more central location for program requirements

Front Royal sits at the northern edge of the Shenandoah Valley, approximately 70 miles west of Washington, D.C. The established contractual and veterinary relationships in the region are vital. Moreover, the NCD's proximity to a major international airport, ATF Headquarters, and

the National Capitol Region, ensures that NCD remains accessible to handlers, ATF executive staff, congressional members and their staffs, and the media.

a. Vendors, veterinarians and other service providers

Moving the NCD to NCETR would dismantle the established support network of the ATF Canine Program. Contracts and working relationships with canine and hotel vendors, training locations, and veterinary services would be lost, and finding new support in Huntsville could potentially cost more and would take years.

For example, ATF currently maintains contracts with eight canine vendors located throughout the United States. The logistics involved for a canine acquisition, as stated within the contract statement of work, requires either a delivery of canines by the vendor or a procurement trip by ATF staff to the vendor's location. If a vendor is located within a 450-mile radius of the NCD in Front Royal, Virginia, as a majority of them are, NCD staff will test and transport from the vendor's location following the preliminary testing. As a result, the requirements for vetting each canine for interstate travel is minimal due to the current locations of the awarded vendors. Relocation of the NCD to another location, outside the established radius, would potentially triple the acquisition expenses.

b. Better access for training

Currently in Front Royal, the NCD has outstanding access to numerous training sites, including fire scenes, because of its proximity to expansive metropolitan areas. Nearly 75% of all ATF accelerant detection canine teams, nationwide, are generally within one day's driving distance. Approximately 50% of all ATF explosives detection canine teams, nationwide, are generally within one day's driving distance (500 miles).

Dulles International Airport sits between Front Royal and Washington, D.C. It is a large airport supporting many direct domestic and international flights. In contrast, commercial air travel options to/from Huntsville International Airport are limited and generally more expensive than commercial airfare to/from other major international airports. Additionally, many flights to Huntsville require layovers that add 4-6 hours of extra travel time, and in some instances an extra travel day, for travelers. Furthermore, logistical coordination of canine transport to/from the area via the airport will be more difficult and cost prohibitive.

IV: Conclusion

The NCD and other subject matter experts reviewed the AECOM Study and considered it in conjunction with the requirements of maintaining an outstanding canine program. Ultimately, these ATF professionals – trainers with more than 25 years of experience in detection canine training; forensic chemists specializing in explosives analysis, explosives case work, and who possess extensive expertise in the methodology underlying explosives detection canine training; and an animal behaviorist with 35 years of experience in the canine field (and who currently leads a U.S. government mentorship program for canine programs abroad) – each reached the same conclusions:

- Even minute levels of odors at Redstone would have a detrimental effect on training our canines. The Front Royal site, in contrast, is a pristine environment free of soil contamination and noise from routine detonation of explosives.
- Blasting activities near the proposed site at Redstone Arsenal could affect canine training, especially when the dogs are outdoors at the time of the blasting. Keeping dogs indoors during blasting is impractical, considering the fact that ATF canines are outdoors for approximately six hours of their eight-hour shift.
- While the environmental study did not conclude adverse health effects regarding arson cell burn operations, ATF's forensic chemists recognized that there may be an effect on training operations caused by trace accelerants in the air.
- While there are military canines at the Redstone location, they are working dogs of a different breed with different missions from the ATF dogs. Also, those dogs are not imprinted and trained at Redstone.

ATF currently has one of the best canine detection training programs in the world and trains domestic and international canine teams. This program is established, well-known, and held in the highest regard by law enforcement globally. Moving the NCD to NCETR would necessitate a complete restructuring of the entire program, from the type of dogs utilized to the training methodologies employed, and, given the soil contaminants, ATF may not be able to reconstruct current levels of NCD mission capability.