

# ACCELERANT DETECTION CANINES: USES AND MISUSES

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## INTRODUCTION

The use of canines in the fire service date back to the eighteenth century when horses were used to pull steam pumpers. Dalmatians, derived from the ancient breed named Dalmatia, were used to keep the horses' company in their stables and to calm the horses' at fire scenes. As time progressed and the fire serviced evolved into motorized equipment, the role of the Dalmatian soon diminished into that of a fire department mascot.

Today as in history, mans best friend is playing an important role in the fire service to assist fire/arson investigators in locating evidence of ignitable liquids. Termed Accelerant Detection Canine, these animals have provided substantial assistance to agencies across the United States and Canada. For the purpose of this paper, it should be clarified that the term Accelerant Detector Canine refers to a canine trained to detect and locate trace amounts of ignitable liquids.

In the early 1980's a feasibility study was conducted in the State of Connecticut to test a canine's ability to located and give a specific response to the odor of ignitable liquids. The feasibility study soon progressed to a project program. On May 1, 1986, training began on the world's first Accelerant Detection Canine. A black Labrador retriever, named Mattie, was obtained from the Guide Dog Foundation and trained by the Connecticut State Police (CSP) to react to the odor of ignitable liquids. The project program lasted for one year and surpassed all expectations of the project. This program was the combined efforts and cooperation of three agencies; The Bureau of Alcohol, Tobacco, and Firearms (BATF), Connecticut State Police, and the New Haven State's Attorney's Office. Due to the over whelming interest across the Unites States and Canada, CSP and BATF began training accelerant detection canine teams throughout the United States. The program is now supervised by BATF at its training facility in Front Royal, Virginia. These teams have been strategically located throughout the United States. To date there are forty-five accelerant detection canine teams working across the United States, which have graduated from this program. These teams hold a federal certification through the BATF and are attached to the four BATF National Response Teams. Other state, municipal, and private organizations, utilizing various training methodologies, have placed accelerant detection canines in operation. It is estimated that approximately two hundred accelerant detection canine teams are operating in the United States alone.<sup>2</sup>

Using canines donated from the Guide Dog Foundation and The Guiding Eyes for The Blind, these canines are trained using the Traditional Pavlovian Conditioning. During the training, the canines are imprinted with the odor of 50% evaporated gasoline. A primary positive response (alert) by the canine in the presence of an ignitable liquid is indicated when the canine assumes a "sit" position. This response by the canine is then reinforced by a food reward. This was the method of choice since food is a high priority of the canine. These canines are trained on a daily basis to discriminate between pyrolysis products normally found at fire scenes and pyrolysis products containing an ignitable liquid. Once fully trained, these canines are 100% accurate during their daily training. This methodology is very efficient in locating the exact spot for the evidence technician to collect a fire debris sample to ensure the high probability of a positive result from the crime laboratory, once the sample is analyzed.

Although these canines have been very successful assisting in fire/arson investigations, one must understand that these canines are only a tool to assist fire/arson investigators in locating traces of ignitable liquids.<sup>2</sup> The canine, however, is not an infallible tool.<sup>2</sup> Although there is a high probability that an ignitable liquid is present when a properly trained canine alerts, some pyrolysis products will solicit a positive reaction from these canines.<sup>6</sup> The canine will never replace the trained and experienced fire/arson investigator. The canine alert does not prove or disprove that a crime has been committed or omitted. It certainly does not prove that ignitable liquids were used in the commission of the crime of arson or unlawful burning. Samples must be collected by a qualified evidence technician familiar with the canine program

and confirmed by the crime laboratory to determine if the samples contain ignitable liquids. Fire/Arson investigators, canine handlers, and chemists must work in concert to corroborate each other to establish that a crime has been committed or omitted.

Most jurisdictions are utilizing canines for a number of types of searches. These searches include fire scenes, equipment searches for contamination purposes, vehicle searches both burned and unburned, crowd searches, clothing lineup searches, and area searches. These types of searches will be discussed in the following paragraphs.

## **USES OF THE ACCELERANT DETECTOR CANINE**

### **Fire Scene Searches**

The utilization of a canine to search a fire scene reduces the amount of man hours expended by fire/arson investigators.<sup>2</sup> Canine teams can survey large areas in half the time it takes an investigator to complete a search of the same area.<sup>7</sup> This task is completed due to the mobility and the keen olfactory senses that the canines possess.

Utilization of the canine to search for ignitable liquids reduces the number of samples that the evidence technician may need to collect. Past history of properly trained and maintained canine teams have shown that positive reactions by the canines yields a high probability that ignitable liquids are present.<sup>6,8</sup> Investigators no longer have to collect "pot shot" samples based on fire behavior and burn patterns. Canine searches of fire scenes are also identifying locations where a perpetrator has poured ignitable liquids that have not ignited. Often investigators are overlooking these areas. Identification of these areas shows more intent on the part of the perpetrator when the case goes to trial.

Once samples have been collected from the fire scene, these samples may be rechecked by the canine team prior to sealing of the evidence container, to ensure that the evidence technician has collected the debris sample from the proper location in relation to the canine alert.

### **Equipment Searches**

In one of the most publicized trials of the century, i.e., State of California v. Orenthal James Simpson, the importance of using clean, uncontaminated evidence collection utensils/tools to collect fire debris samples should be of utmost importance to the evidence technician. A number of reports have suggested that the accelerant detection canine olfactory senses is 200 times more sensitive than that of a human nose.<sup>3</sup> Some reports even suggest that the canine can detect quantities of ignitable liquids below the detection limits of the laboratory instrumentation.<sup>3,8</sup> Based on these two issues, accelerant detection canine teams are being utilized to search the evidence collection utensils/tools utilized by evidence technicians after decontamination of the collection utensils to ensure no cross contamination has occurred of the samples during the collection process. This type of search is being conducted when the collection process has been completed and the utensils/tools are prepared for storage.

### **Vehicle Searches**

Both burned and unburned vehicles are being searched by the accelerant detection canine team. However, in the search of the burned vehicle, one must understand that a vehicle contains many common forms of ignitable liquids that will solicit a positive reaction by the canine. It will be the task of the trained fire/arson investigator to make the determination through sound investigative practices and procedures that the ignitable liquids located by the canine were common or uncommon to the area they were located. This will either prove or disprove that a crime has been committed.

Unburned vehicles of potential suspects are being searched provided that all applicable search and seizure criteria has been met by the investigative team. Documented searches across the country have assisted investigators is gathering physical evidence from the suspect's vehicle containing ignitable liquids used in commission of arson and unlawful burning cases. This type of evidence has assisted in a conviction of the suspect(s).<sup>4</sup>

## **Crowd Searches**

As most trained fire/arson investigators are aware, some fire setters like to remain on the fire scene or even return to the fire scene to watch their handy work. The canines are very social animals and provide no threat to the public. Based on the socialization training in which these canines have received as a puppy from the Guide Dog Foundation, utilization of the canine to participate in a non-solicited search of the crowd gathered to watch the fire suppression activities has assisted investigators in identifying a suspect(s) early into the investigation. Although a positive reaction to a person does not mean this person(s) set the fire, it does give the investigator a reasonable suspicion to question the individual in which the canine alerted to in order that more data be gathered concerning why the canine indicated on this particular person(s). It may also give the investigator/handler probable cause to obtain a search warrant to conduct a clothing line-up search with the canine.

Once a suspect(s) have been identified, directed searches of the suspect(s) can be preformed utilizing the canine. This type of search can only be performed if all criteria of the forth amendment right has been met, i.e. consent, search warrant, or search incident to arrest. This search is performed by placing individuals, in a line, that is known not to have ignitable liquids on or about their person along with the suspect(s). The canine is then allowed to search the entire line of individuals identifying the suspect(s) which have a high probability of containing ignitable liquids. In most cases the canine will indicate on the clothing of the potential suspect(s).

## **Clothing Searches**

Once investigators have identified a suspect(s), the canine is utilized to search the clothing of the suspect(s). Of course all search and seizure criteria must be met in this type of search to ensure the suspects forth amendment right is not violated. This search is completed in somewhat the same fashion as a photo lineup is completed. The suspect(s) clothing is introduced among known clothing containing no ignitable liquids. The canine team searches the entire clothing lineup, identifying the exact spot on the clothing that contains ignitable liquids. This type of search was utilized in the Branch Davidian fire in 1993 which resulted in convictions.<sup>5</sup>

## **Area Searches**

Many fire setters leave physical evidence behind during the act of fire setting. This physical evidence may contain ignitable liquid residues. This evidence may be located in areas in which investigators pay little or no attention to, i.e. exterior curtilage, fields, woods, etc. By the utilization of the canine team to search these areas for this type evidence, large areas outside of the fire scene can quickly be searched to locate this physical evidence left by the fire setter. This type of search again reduces manpower and saves time. Physical evidence that may not otherwise been located by the fire/arson investigator is located and used to corroborate the investigative teams findings of an incendiary fire.

## **MISUSES OF THE CANINE**

As discussed earlier, utilization of an accelerant detector canine results in a high probability of a positive laboratory finding for the presence of ignitable liquids.<sup>3</sup> Although the canine is 100% accurate during daily training many individuals perceive that this accuracy should also be consistent during blind searches at fire scenes, crowd searches, area searches, and clothing lineups. This is simply not true. The canine is not infallible. Conformation of the canine alert must occur. This is completed by collecting samples at the exact spot of the canine alert and submitting the samples to a qualified laboratory for analysis for the presence of ignitable liquids. Any alert given by the canine that is not confirmed by laboratory analysis should be considered as an unconfirmed indication for the presence of an ignitable liquid as it relates to the origin and cause determination process.<sup>6</sup> Forensic scientists have not yet determined the exact triggering process which solicit a positive alert by the canine for the presence of ignitable liquids.<sup>6</sup> Therefore, any testimony given by canine handlers as to the presence of ignitable liquids, based on the canine alert alone, without collection of samples, and those samples being confirmed by a qualified laboratory, should not be admitted into evidence at trial. There are several cases in which evidence of an alert by an accelerant detector canine have been allowed into evidence without laboratory conformation of debris samples; *State of Iowa v. Roy Laverne Buller* 517 N.W.2d 711 and *New Jersey V. Acevedo*, A-1896-91T4, decided January 13, 1994, cert. denied 136 N.J. 29,641 A.2d 1040 (N.J. 1994) In both of these cases the handlers were allowed to give expert testimony as to their canine reactions at the fire scene for the presence of ignitable liquids. In the

case of Supreme Court of Delaware v. David J. Reisch, 628 A.2d 84, June 4, 1993, and accelerant detector canine was utilized to search the fire scene and gave positive alerts. No samples were collected based on the canine alerts. In this case the handler was allowed by the court to give expert testimony as to the presence of ignitable liquids based on the canine alerts alone. In these cases no positive laboratory results confirmed the presence/use of ignitable liquids at these fire scenes.

It is the opinion of many handlers, trainers, forensic chemist and professional fire/arson investigators that such testimony, without laboratory confirmation, is a gross misuse of the accelerant detector canine. These canines are only a tool for investigators to use in locating the exact spot for the evidence technician to collect samples which have a high probability of containing ignitable liquids. However, laboratory analysis should always be the determining factor which confirm the presence of ignitable liquids.

The use of Accelerant Detection Canines that have been trained on the methodology of unsound professional training techniques have increased throughout the United States. This methodology of training has given rise to concern in that these canines are not being properly trained daily and validated yearly. Consent discrimination training must occur daily to ensure that the canine is properly discriminating between pyrolysis products commonly found in fire scenes and ignitable liquids. These canines should also be trained at a level in which a qualified laboratory can consistently find ignitable liquids in suspect samples submitted.<sup>2,6</sup> Canine handlers must document and maintain accurate daily training records for court purposes. Crime laboratories are encouraged to maintain strict records of samples which were obtained/located by the use of an Accelerant Detector Canine for the purposes of proficiency of the canines.<sup>6,8</sup>

The concern over unconfirmed canine alerts prompted the International Association of Arson Investigators (IAA) Forensic Science Committee to publish a position paper denouncing the use of unconfirmed canine alerts at trial. Subsequent to the IAA position paper, the National Fire Protection Association adopted a Tentative Interim Amendment (TA) to NAPA 921, effective October 21, 1996. This TA addresses the proper use and misuses of the accelerant detector canine.

Ironically two courts now have ruled that unconfirmed canine alerts is inadmissible evidence. *People v. Acari*, 662 N.E.D. 115 (Ill. A.P., 3 Dist. 1996); *State of Georgia v. Weldon Wayne Carr*, 482 S.E.2d 314 (1997)

Accelerant Detector Canines, properly trained and used, can be a very effective investigative tool for the fire/arson investigator. It is the responsibility of professionals in the field of fire and arson investigation and professional canine trainers to ensure this valuable tool is used properly to accomplish our arson mitigation goals in the United States. It should also be the ethical responsibility of prosecuting attorney's not to abuse the role the accelerant detector canine in a fire/arson investigation in when these canines participate in.

## References

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- 5 *United States of America vs. Kathryn Schroeder, ET AL*, case no. w-93-CR-046, Western District of Texas
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