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ABOUT CANINE DETECTION

Using dogs for a variety of detection tasks began more than five decades ago. Today, dogs are widely used by local, state, and federal law enforcement, the military, and security companies. This growth and widespread acceptance is explained by one key factor, dogs can be extremely effective.

It has been estimated that a dog's olfactory system is 10 thousand to 10 million times greater than that of a human. A dog has 220 million scent cells as compared to about 5 million for a human. Dog scent cells line the canine mucosa, a membrane at the rear of the snout, which is folded so many times that, if smoothed out, it would be larger than the dog's body.

Based on laboratory testing at Auburn University's Canine and Detection Research Institute, dogs can detect certain scents in a concentration at least as low as 500 parts per trillion. To put that into perspective, that's like buying one lottery ticket out of two billion (a third of world's population) and winning every time.

Dr. L. Paul Waggoner, Interim Director of the Canine Detection Research Institute at Auburn University, says that the other characteristics of dogs may be even more important than their odor detection sensitivity in field detection work, especially compared with other detection methods:

- **Rapid:** Canine detection is the only readily available tool that can detect target odors "real time."
- **Mobile:** Canines can interrogate larger areas in a given period of time than any other method.
- **Versatile:** Explosive Detection Dogs (EDD) can detect a wide spectrum of substances.
- **Focused:** Canines can detect target odors in a very "odor noisy" environment, which often compromises the effectiveness of electronic sensors.
- **Able to Find Source:** Only canines can track chemical vapor to its source; no instrumental device presently is capable of doing this.
- **Selective:** Dogs can discriminate between very similar chemical compounds and are not very susceptible to false alerts. Data collected by K-9 SOS concerning its own operations verifies this point. K-9 SOS conducted more than 550,000 searches nationwide and is operating at a false alert percentage of .003%

Dr. Waggoner summarizes a great deal of research:
The bottom line is that the properly trained and maintained EDD is the most effective readily available explosive detection tool and across most parameters exceeds the capability and especially the utility of available instrumental technology.

PROTECTION THROUGH DETECTION

The largest staff of specialized
canine detection teams in the U.S.



K-9SOS SEARCH ON SITE

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BUSINESS PROFILE

K-9 Search on Site (K-9 SOS) provides efficient and effective canine detection services.

Our experienced, well-trained handlers and canines constitute the finest explosive detection teams in the U. S. Our canines are selected from the top European bloodlines and then integrated into our own breeding program. We offer complete canine detection services in the areas of:

- Explosives detection
- Human concealment detection
- Drug detection
- Patrol services
- Tracking services
- Screening of Persons
- Chemical Weapons of Mass Destruction.

K-9 SOS is one of the few canine service companies in America with capabilities and experience in all of these phases of security.

We provide detection teams to some of the most sensitive facilities of the U.S. Government. We furnish letters of recommendation from all of these clients. In most cases our services can be available to government agencies almost immediately.

K-9 SOS teams currently conduct more than 350,000 searches a year.

We have the capability to be on site at your facility with at least two highly experienced teams anywhere in the United States within 24-hour notice.

We excel at what we do because we have an outstanding staff of managers and handlers, top canines, a new 18,000-square-foot state-of-the-art training facility, and because we exercise effective and reliable business practices.

PERSONNEL

The K-9 SOS CEO is Freddie Brasfield, who received a degree in Animal Science from the University of Tennessee. He holds a variety of certifications including:

- State of Tennessee Police Officers Standards of Training (P.O.S.T.) Canine Explosives Detection Certification Instructor
- Cross Creek Training Academy, Certified in Search and Rescue Officer Lead Trailing
- Cross Creek Training Academy, Certified in Narcotic Detection
- Indiana Law Enforcement Training Academy Certified Academy, Single Purpose Explosive Detectors Dog Handler's Course
- Dunn's K-9 Training Certification Center, Certified in K-9 Narcotic Detection Dog Handling
- Department of Justice, Certification of Completion of Incident Response to Terrorist Bombings, Technical Level Operations Course, Socorro, New Mexico
- State of New Mexico Magistrate Courts Certification
- Public Agency Training Council Certification of Instructor Development Course, Indiana
- License with the Bureau of Alcohol, Tobacco, and Firearms for possession of explosives for training purposes
- License with the Drug Enforcement Administration for possession of Narcotic Training aids

Amy Brasfield Marlow

Business Operations Manager

Amy Brasfield Marlow, a Certified Public Accountant licensed in Tennessee, manages our day-to-day business operations. She received a Bachelor of Science degree from the University of Tennessee in Business Administration and, prior to joining K-9 SOS, she worked for seven years as a public accountant, preparing tax returns for clients and advising them on various aspects of their business operations.

FACILITIES

K-9 SOS has the finest canine training facility in the U.S. We designed and built this facility, which opened on June 15th 2005. The 18,000-square-foot building houses a training center, kennels, and offices.

The training center is used for various types of canine detection training. We can train indoors, so weather is not a limiting factor. Within the 10,000-square-foot indoor training area, we have several props to allow a variety of training scenarios:

- A fleet of automobiles,
- A flexible room set-up area that we change regularly to simulate different office environments,
- Barrels, lockers, and other props.

Our building also contains 6,000 square-feet of kennel space. This climate-controlled area is home to 50 canines. The kennel area is sanitized 3 times per day with an electric pressure washer system and is well ventilated by several large fans that keep air circulating and eliminate odor. Our kennels are set 3 feet above floor level to keep our canines free from parasites and waste. Our kennel contains a washing room area, which has a ramped washbasin that allows us to keep our canines bathed and groomed. This area is also utilized for our veterinarian/health management program. Don Lentz, DVM, directs this program.

The training facility, which is also our corporate headquarters, includes 2,000 square-feet of modern, secure office space where we conduct day-to-day operations, including record keeping, billing, communications, and other business activities.

We also maintain a satellite location used to securely store and maintain various types of training aids. These facilities have been approved for these uses by the ATF and DEA.



BUSINESS PRACTICES

In addition to having the finest trainers, canines, and facilities anywhere, we also employ progressive business practices. This includes billing and reporting, responsiveness to issues and concerns, operational oversight, and regular client communications.

Our CEO regularly visits all operational locations for face-to-face meeting with our clients.

All of our office and field personnel are trained to interact courteously and professionally with clients and their employees and members of the public with whom they may come into contact.

In addition, we employ a proprietary data entry system we developed that tracks all search activities by virtually any parameter. We can rapidly produce a report that includes fields such as types of searches at any location by dates, handlers, or canines.

K-9 SOS and our staff are actively involved in the communities in which we work. For many years, we have worked with the D. A. R. E. program in area schools. Our trainers, handlers and canines are favorites of school administrators and students alike. The K-9 SOS team stresses the importance and benefits of a drug-free lifestyle while warning of the hazards associated with wrong choices.

We also carry this theme into church groups, community fairs, and other civic organizations. We donate all of our time and material to these worthy causes.

An overview of the 18,000-square foot K-9 SOS canine training center in Oak Ridge, Tennessee.

K-9 SOS is proud to have been

selected as the site for the 2005

Department of Energy Working

Canine Group meeting.

The annual program was held

for four days in June 2005 at our

new training center in Oak Ridge,

Tennessee.

Personnel from six DOE National

Laboratory sites attended.

Staff from Auburn University's

Canine Detection Research and

Training Center also attended and

provided valuable information

regarding chemical weapons of

mass destruction detection and

preparedness.

Tracking (Intruders)

Intruder detection with canines is a science that K-9 SOS has developed and taken to a very high level. Our specially trained tracking canines and tracking handlers are capable of going into an area and discovering the presence of an intruder who may have passed through that area up to twelve hours prior or may still be present. This canine specialty service takes away the possibility that unauthorized people are moving through restricted areas undetected. In addition to the specialized canine training our tracking handlers are certified man-trackers. This makes our team a complete intruder detection unit. If you have special needs that do not fit into twelve-hour windows we can design a custom intruder detection-tracking program for you.

Screening of Persons

We at K-9 SOS have designed a specific program, which with our equipment and our canine teams, allows us to detect persons who are carrying target substances, such as explosives. This specially designed program can be of specific interest to people who are trying to protect certain areas of their property from the introduction of substances such as explosives. Large numbers of people can move quickly through this detection process unimpeded.



Dex discovers a hidden human target.

This program can also address the issue of people leaving a secured area in possession of contraband substances. If there is a contraband substance that does not have a distinctive odor, we can tag the substance to give it a distinctive, detectable odor. Thereby, the canine can identify the person carrying the contraband substance if someone were to attempt to leave the secured area with the substance.

Chemical Weapons of Mass Destruction

We are one of the few firms in the U.S. that offers Chemical Weapons of Mass Destruction (CWMD) Canine Teams. Our teams are trained and certified through Auburn University's Canine Research and Detection Center.

Our CWMD teams have undergone several weeks of extremely complex, rigorous training that requires a working knowledge of target odors in addition to health hazard precautions. We have also invested in the specialized equipment required to conduct safe and thorough searches of this kind.

Our CWMD teams train continuously and are prepared to travel to where ever they are needed on a moment's notice.

Certifications

Although there is no single source of canine certification in the U.S., K-9 SOS meets the criteria for any certification required for our work. For example in Tennessee, our explosives detection teams are certified through the State through the Police Officer's Standard Testing Commission (POST). This examination, among a wide range of test items, offers certification on 1200 pounds and 4,000 pounds of ANFO. In addition, many of our handlers hold other military, police, and independent certifications in the canine and security field. We also work with each of our clients to establish individual performance testing standards and procedures.

At K-9 SOS, she is responsible for Federal and State tax compliance, Human Resources functions, and business strategies and planning. Also, in holding with our belief that all employees should be involved in the core business, Amy is a P.O.S.T.-certified Explosive Detection Dog handler and is responsible for the design, implementation, and oversight of our Puppy Program.

Michael Hartmann Trainer/Field Operations Manager

Michael Hartmann oversees day-to-day operations of more than 20 detection teams. He received his certificate in Explosives Ordnance Disposal by the Federal Bureau of Investigation and the United States Army at Red Stone Arsenal. He also holds a Trainer's Certificate by a very prestigious U.S. Canine Academy, is a Certified Master Trainer by Mid-South Police Canine Association, and is a State of Tennessee Police Officers Standards of Training (P.O.S.T.) Canine Explosives Detection Certification Instructor.

David Bilbrey Field Security Officer and Accountant

David Bilbrey, a graduate of the University of Tennessee, manages our contracts with six federal facilities and serves as our Facility Clearance Officer. As a senior member of our staff, he is involved in all business planning and financial reconciliations. He also finds time daily to work directly with the canines.

Handlers

K-9 SOS handlers are selected and retained for their experience and their integrity. Both are vital when protecting some of the most secure and sensitive facilities in the U.S.

Our handlers are selected from relevant but diverse backgrounds. Some come from U.S. Military canine explosive detection teams or other law enforcement fields. Others have experience at highly classified and critical nuclear facilities.

Our handlers and trainers are dedicated professionals who take their responsibilities

seriously. They are proud of their ability to work with top-notch canines as part of our elite squad.

CANINES

We select many of our canines from top breeders in Europe. These breeders have a history of providing the finest German Shepherds, Dutch Shepherds and Belgian Malinois in the world.

Our canines are renowned for their work ethic. When working on-site, it is vital to have a canine with the ability to maintain focus for extensive periods of time. The breeds we select are known for their abilities to combine a keen sense of smell for detection with the needed discipline to avoid distraction. All of the breeds we utilize are renowned for their physical stamina and mental focus.

In addition to acquiring the best detection canines in the world by means of purchase, we have developed our own breeding program. We breed only our very best canines to cultivate superior working dogs with the most desirable characteristics for detection dogs. In addition, this program ensures that our canines receive the very best care starting from the time they are born, including diet, regular veterinary health care, and regular exercise and play.

Our puppy-training program focuses on socialization with people and other canines, confidence building, and desire to work. Since most of our clients do not want apprehension canines, we do not train our canines to bite. Our canines have little or no aggression toward people or other animals. If we observe overly aggressive behavior in one of our animals, we secure a place for it with a local police department or other canine professional who requires an aggressive animal.



A handler conducts a training exercise in the Oak Ridge Training Center with Shaft, a ring two Belgian Malinois. Shaft is an explosives detection canine.

"It may be that dogs' ability to discriminate among target and non-target odors is even more impressive than their sensitivity," said Dr. J. M. Johnston of Auburn University. Selectivity is the ability to discriminate between very similar chemical compounds, resulting in very few false alerts. As a case in point, K-9 SOS conducted more than 550,000 searches nationwide and is operating at a false alert percentage of .003%

The canine olfactory system is 10 thousand to 10 million times more sensitive than human olfactory system. Dogs have 220 million scent cells compared to 5 million in humans. Dog scent cells line a membrane at the rear of the snout that if smoothed out would be bigger than the dog's body.

According to J. M. Johnston, PhD,
Auburn University, dogs have
been able to detect concentrations
as low as 500 parts per trillion of
some substances. To place that in
perspective, that's like buying one
lottery ticket out of 2 billion and
winning every time!

Our teams work in diverse environments with many potential hazards and unforeseen circumstances. It is important that our canines remain confident in unfamiliar surroundings. We work carefully to build each canine's confidence with specific and positive reward-based training.

Once a canine has reached the proper level of maturity, we begin detection training. The training program is multi-faceted and therefore, must be tailored for each canine. This training process usually takes between 90 and 120 days depending on the canine. After a canine has completed detection training, they progress to on the job training. This step is critical to ensuring



The trainer instructs some of the Oak Ridge staff about how to keep the canine in the sit/stare position once the canine has alerted.

that a canine will become a successful member of our squad because of the sensitive nature of our business and our clients.

We treat our canines humanely and with the respect they deserve. We house and transport them in a clean, temperature-controlled environment. We provide them with regular veterinary care and routine physical hygiene.

TEAM TRAINING AND CAPABILITIES

Even though we discussed the qualifications and characteristics of handlers and canines separately, our primary working unit is a team that consists of one handler and one canine.

The bond of respect and trust between the handler and his or her dog is critical to successful on-the-job performance. Handlers must learn to recognize what constitutes typical and unusual behavior in his assigned animal

because it is those cues that signal detection of a target substance or human. On the other hand, canines must learn voice and other commands from their handlers that provide them with cues as to what is expected of them. In light of this, the teams train as units.

We train our teams using live drug aides and live explosives. There are differences in the training methods and strategies used in training drug detection canines as opposed to explosives detection canines. The drug detection canines are allowed to move more freely around the search area. Explosives canines and canine handlers are not allowed to disturb the surroundings to the same degree. Electrical equipment such as radios and lighting equipment many times cannot be used to assist explosives canine teams. A professional explosives detection canine handler must undergo specialized training.

Explosives Training and Capabilities

Our canines are trained to alert their handler to the presence of more than a dozen particular odors associated with bombs. The handlers are trained to be constantly observant of the canine's behavior and the handler will know immediately when the canine encounters one of the odors it is trained to alert on. The dog will show a change in behavior that is consistent with the change in behavior he has shown in initial and maintenance training of odor detection. The handler will allow the canine to investigate the odor until the canine is satisfied that he is as close to the source of the odor as he is trained to go. At this point the canine will give his final alert to his handler, which is to sit down facing the direction of the source of the odor. At this point the canine's work is finished. The handler will react in a predetermined manner according to the standard operating procedures set forth with the facility prior to the canine search's beginning.

The handler's training and experience are as equally important as that of the canine. The handler's ability to "read" the canine's behavior

Michael Hartmann, K-9 SOS Operations Manager, works with Boy, a Dutch Shepherd, to search the chassis of this vehicle for explosives.

is critical to the detection process. The handler must stay out of the alert equation and not influence the canine's decision to alert. The handler must also be involved in the search enough to ensure that the canine has checked all productive locations in the area being searched.

Although the handler cannot smell the odor he is searching for, he is the organizer of the search and as with any search, the organization of the search can be critical. The handler must possess a great knowledge of the characteristics of the odors he is searching for. This will save precious search time and energy for the search team. The canine should spend its talents wisely in a manner that will be the most productive. This approach will help to search the greatest area in time available or allotted and to more efficiently find the explosive device if there is one in the search area.

Human Concealment Training and Capabilities

It is not always necessary for a perpetrator to bring explosives into a facility to do damage. The material for destruction may already be present inside a secured area. Therefore, it may be necessary to search everything going into a secured area for humans who might be hiding in a "Trojan horse." Canines trained to search for concealed humans will ignore both drugs and explosive odors.

These non-aggressive dogs will detect the human scent, follow it to a point as close to source as they are trained to do, and indicate detection by sitting and staring toward the source. The handlers of human concealment detection canines are specially trained to organize searches for concealed humans.

We search for humans in areas such as:

- Large sealed cardboard boxes
- Barrels
- Large tool box areas
- Vehicles
- Any area large enough to hold a human that cannot be thoroughly visually inspected



Ever wonder how far away a dog can detect a bomb?

K-9 SOS had a dog detect an explosive odor from almost 200 yards away on a windy day when the wind direction was blowing from the source to the dog's position. He showed a change of behavior and took the handler across two parking lots to get to the source.

Narcotics Training and Capabilities

Our canines are trained to alert their handler when they detect the odor of specific drugs by an immediate change of behavior that the handler is trained to recognize. The handler will allow the canine to work to a point as close as training allows. Finally, the canine will give the final stage of alert by sitting and staring in the direction of the source.

The target drug odors on which our canines are trained are:

- Cocaine (all varieties)
- Heroin
- LSD
- Marijuana
- Methamphetamines

Patrol Training and Capabilities

Each of our patrol canine handlers has at least 10 years experience in handling patrol canines. The handlers' experience comes from the U.S. military or law enforcement organizations. Only seasoned, specially trained canines and handlers with many years of experience are used on patrol. A canine patrol team functions as a deterrent as well as an effective detection tool. Our detection dogs do not double as patrol dogs unless specifically requested by our individual client.

Our security design team will mold a patrol service to fit the needs of each individual client who needs this service.