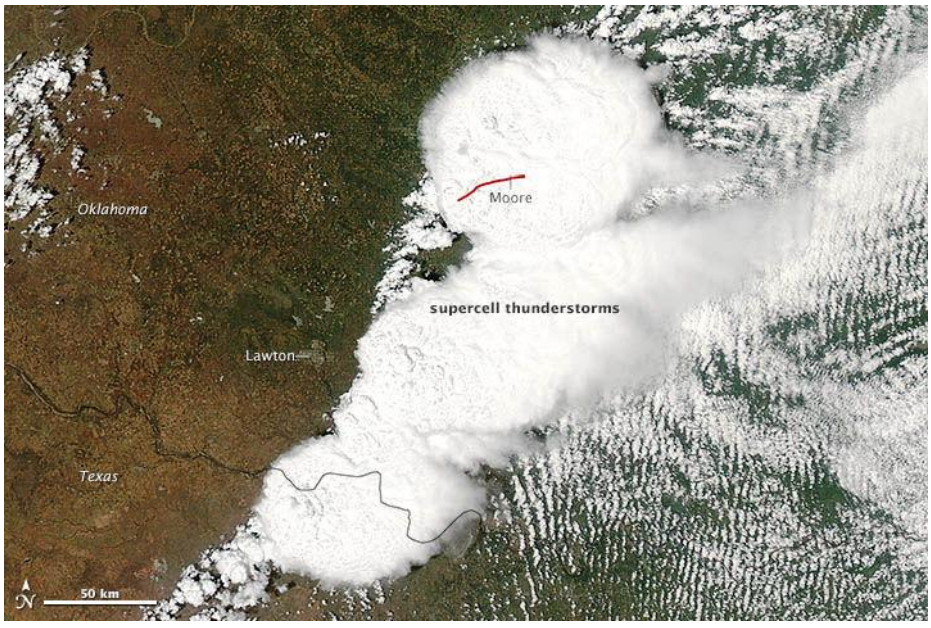
Handler and Canine Deployment Survey

Moore Oklahoma Tornado

May 20, 2013



NASA image courtesy Jeff Schmaltz, LANCE/EOSDIS MODIS Rapid Response Team at NASA GSFC

Lori E. Gordon, DVM
MA-TF1 US&R

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Executive Summary

Survey response of 100% of FEMA US&R handlers is notable, and reflects the importance of the information to the Handlers as well as dedication to their Search Canines. This also increases accuracy of the data, which relies on human recall and memory in the absence of official deployment documents and medical records. Efforts to make these documents available would further increase data accuracy and make a more reliable platform from which to make system recommendations.

Medical aspects of canines at deployments are the primary reason the author has undertaken creating surveys and reports to disseminate within the system. Dehydration and wounding, then lameness and diarrhea, have been the most common conditions experienced by Search Canines at missions to the Haiti Earthquake (2010), Joplin Tornado (2011), Sandy Hurricane (2012), and now seen at Moore Tornado response. Emphasis in preparation, medical training, planning, and cache drugs, supplies, and equipment needs can be based on these real life problems.

Decontamination awareness for the canines has been embraced by the system, as evidenced by K9 decontamination procedures on 100% of system canines and approval for decontamination kits in the cache. Concern remains with having wet canines in a rapidly cooling environment. Despite day temperatures in Moore in the 70's and 80's (Fahrenheit), some evening temperatures dipped down to the low 50's. It takes several hours for some canines to completely dry, and their ability to retain warmth is greatly diminished. Adding dehydration and energy loss from shivering makes the situation worse. They need rest and regeneration to be at top performance for the next shift, as we do. Towels, blankets, shelter, warmth are options to be emphasized.

Proper preparation is aided by weather predictions at the briefing before each shift. Briefings and debriefings and the passing of information from shift to shift and day to day are a vital part of increasing safety and Hazard awareness. Above and beyond the expected concerns for a certain event are always things that have not come up before. Wet clumps of spilled pills seen in Moore that a canine steps into may be absorbed and wreak havoc on them. Lack of vigilance about absorption of chemicals through the paw pads lead to liver and kidney illness in 2 canines at Joplin. Despite K9 booties in the cache and training in booties, I have never seen nor heard of them being used at deployment. Perhaps they should be considered more often.

The chlorine dioxide decontamination solution carried by TX-TF1 has reportedly been 'vetted' through the military system, and is used for Military Working Dog canine decontamination. It may be worth investigating as a system-wide cache item.

FEMA modular aspects were experienced with deployment of one HRD canine per team. There will be need for education on how to best utilize this FEMA resource for those who have not worked with them before, and certification standards and testing guidelines are nearly complete.

Communications and sharing resources like veterinary care with other rescue teams is a mutually beneficial endeavor. SUSAR standards are very similar to US&R, so we should be able to work well together, and continue nurturing this relationship.

Introduction

This is the fourth in a series of reports (2010 Haiti Earthquake, 2011 Joplin MO Tornado, 2012 Hurricane Sandy) based on data collected from a Handler and Canine Deployment Survey sent by the author.

Information acquired from this and all prior data guides future policy recommendations made to the FEMA Working Groups, Operations Group, and ultimately the Program Office. Pre-mission training, planning, cache items, decontamination, and medical/veterinary preventative measures and needs can be stream lined and emphasis placed on actual deployment experiences.

Of particular interest is for the first time in a multi-team mission, Program Office approved deployment of Human Remains Detection canines, one per FEMA US&R Task Force deployed (NE-TF1, TN-TF1, and TX-TF1). In addition, Oklahoma Task Force 1 SUSAR teams from Oklahoma City and Tulsa were included in the study.

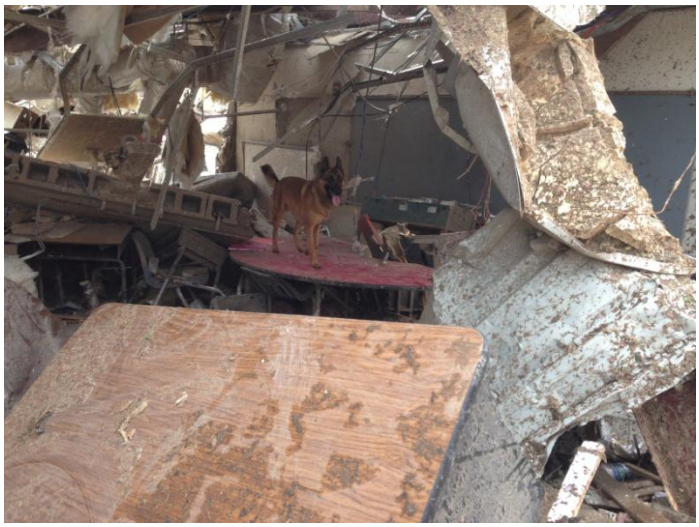
Information Collection

A survey was sent out electronically to all handlers that deployed with FEMA US&R teams in response to the tornado in Moore, Oklahoma. In addition, OK-TF1 teams (one from Oklahoma City one from Tulsa) deployed to the same area were included in the survey.

Questions included handler experience, canine signalment (breed, age, gender) and experience, their transportation and billeting, physical examinations performed, work shift information, injuries and illnesses incurred, decontamination procedures, and briefing details. The handlers were invited to give comments, and make recommendations to address issues.

Brief History

A category EF-5 (Enhanced Fujita scale) tornado touched down at 14:56 hours 4.4 miles west of Newcastle, OK and ended 4.8 miles east of Moore, Oklahoma. The tornado's ground travel was 39 minutes long, yielding an approximate tornado path length of 17 miles (27 km) and a width of 1.3 miles (2.1 km) at its peak, passing through a heavily populated section of Moore, OK.



TX-TF1 Search K9 Remi at elementary school, Moore, OK
Photo by Jim Yeager
Courtesy Handler Bob Deeds

Definitions for Reference

Mean = the average; the numbers are added and then divide by the number of numbers
Median = the middle value in the list of numbers
Mode = the value that occurs most often; if no number is repeated, there is no mode
Range = is the difference between the largest and smallest values

Abbreviations

CE - Certifying Examination
DVM - Doctor of Veterinary Medicine
FCP - Fractured Coronoid Process
FEMA - Federal Emergency Management Agency
HO - Hypertrophic Osteodystrophy
HRD - Human Remains Detection
IPWDA - International Police Working Dog Association
LF - Live Find
MO - Missouri
NASAR - National Association Search and Rescue
NSAID - Non-Steroidal Anti-Inflammatory Drug
OCD - Osteochondrosis Dissecans
OK - Oklahoma
OKC - Oklahoma City
PE - Physical Examination
STM - Search Team Manager
SUSAR - State Urban Search and Rescue
TF - Task Force
UAP - Ununited Anconeal Process
US&R - Urban Search & Rescue

Thank You

Despite attempts at making the survey brief, with many 1-2 word responses and skipping over others when the answer was no, it requires precious time out of the lives of very busy people. For that I wish to thank all who participated in the survey, as well as those who encouraged you on my behalf to do it!

DATA SUMMARY with COMMENTS and RECOMMENDATIONS

Comparison data to the 3 prior surveys (Haiti Earthquake 2010, Joplin, MO Tornado 2011, and Sandy Hurricane 2012) are included where relevant.

Handlers

The FEMA US&R Handler response to this survey was 100%. This is increased from a 73% response for Hurricane Sandy (2012) and a 58% response for Haiti Earthquake (2010). The Joplin, MO tornado survey (2011) although not a FEMA deployment, also had 100% response from handlers, many of who were FEMA TF members. SUSAR Handler response, 70%, is still far above the average.

- According to Survey Gizmo, internal surveys will generally receive a 30-40% response rate or more on average, compared to an average 10-15% response rate for external surveys. Response rates can soar past 85% when the respondent population is motivated and the survey is well-executed.
- Despite efforts to create the perfect survey, there are inherent errors that cannot be avoided. Some response information relies on the subjective nature of human memory, perception, and recollection unsubstantiated by objective facts.
- ***Recommendation***: Methods to improve data accuracy include acquiring daily 214 Unit Logs, medical records, and timely response to the survey, as well as improving the survey itself with respect to length, questions, design, and ease of responding.

Team membership was nearly identical for FEMA and SUSAR Handlers, with an average of 7.5 years and the majority on teams for between 5-8 years. This is comparable with the Joplin Handlers who averaged 7 years with their team, whereas Sandy responders averaged more than 9 years.

NE-TF1 Damon Wirth & K9 George, Andrew Pitcher & K9 Chief
Photo Courtesy Andrew Pitcher NE-TF1

Search Canines

The majority of both FEMA and SUSAR Handlers had deployed before (67% and 86% respectively. For the majority of FEMA search canines, however, this was their first deployment (56%). In total for all teams it was split nearly 50:50 for first versus prior deployments for the search canines, though most of their handlers had deployed prior. Just over one fourth of the FEMA Handler-Canine Teams were both on their first deployment.

- Anecdotally, FEMA and other first responder deployments seem to be increasing. This may be due to a combination of an increase in severe weather events, expansion of missions to which FEMA is capable of responding, and other factors.
- As missions increase, so does the experience of handlers. Since canines' working years are more limited, it follows that the survey reveals more first deployments for canines as compared to handlers
- Tremendous strides in breeding, selection, and training have made even the less experienced canines a proven asset in search operations as seen during the Haiti mission.

Labrador Retrievers were most numerous of survey deployed canines in this (FEMA 69%, SUSAR 86%) and all previous surveys (Haiti 43%, Joplin 43%, Sandy 61%). Only in Haiti did another breed come close: 10 German Shepherds deployed compared to 11 Labrador Retrievers. It follows that the majority of weights fall between 50-75 pounds (23-34 kg).

- Medical cache supplies, equipment, and medication can be tailored as to the strengths, amounts, and sizes needed to adequately treat the canines
- From a veterinary medical perspective, this information brings to light the need to educate ourselves on illness and injury common in deployed breeds (Cruciate Ligament injury, Laryngeal Paralysis, Stress Colitis, Gastric Dilatation-Volvulus Syndrome, etc.) above and beyond that which is directly related to the deployment conditions including terrain, weather, and the mission.
- ***Recommendation***: the canine portion of the Medical Search Specialist Course emphasize common illness and injury in the breeds most deployed in addition to the most common illness and injury experienced during these missions

TN-TF1 K9 Jetta. Photo Courtesy of Kari Bruce, Handler

Other aspects regarding canine signalment is age and gender. For age, the general range for all 4 prior surveyed deployments is approximately 2 years old to 9, 10, and 11 years old. These are out-lyers, in that the most common age for the 3 prior and this survey is 5.5 to 7 years old.

- This data suggests we can place the common juvenile bone and joint disease (Panosteitis, HO, UAP, FCP, OCD) of young (< 1 year old) Retrievers and Shepherds very low on any diagnostic list for lameness
- Additionally, increased knowledge and vigilance for less expected conditions (liver disease, kidney disease, cancer) seen in older canines (> 7 years old) is warranted despite their seemingly athletic condition

Regarding gender, in Haiti and this Moore study neutered males were the majority of deployed canines (65% and 75% respectively). Spayed females topped the list in Joplin (43%) with neutered males a close second at 36%. Sandy was different, with intact males the vast majority (48%) and intact females a close second (24%).

- For Moore, potential conditions related to intact males and females was minimal (only one intact male of the 23 canines)
- Review of the past 3 surveys reveals the need to maintain vigilance for conditions specific to non-neutered and non-spayed canines (false pregnancy, pyometra, prostatitis, testicular torsion, etc.)
- ***Recommendation***: the canine portion of the Medical Search Specialist Course emphasize common illness and injury in intact males and females in addition to the most common illness and injury experienced during these missions

This deployment had authorization for one HRD canine be deployed with each Task Force. They all have a bark alert, although in many other disciplines a sit or down is a common alert. HRD canines had a variety of certifications that exist throughout the country.

- Standardizing certification for system canine deployability is one of the pivotal events in FEMA US&R history that elevated the capabilities and expertise of both handlers and canines within the system
- Deployed HRD canines were certified by a nationally or internationally recognized association of search and rescue
- The K9 Subcommittee is currently in the process of standardizing certification for HRD system canines in response to the modular deployment annex
- Comments on the deployment of an HRD canine are addressed at the end of this section

OK-TF1 K9 Salsa - downtime outside Plaza Elementary
Photo Courtesy Handler Dane Yaw

Transportation and Billeting

Modes of transportation vary among Task Forces. No vehicular incidences were reported. Range of transport time was 6-11 hours, averaging 9 hours. SUSAR teams were close by, many 15-30 minutes. Handlers of all teams transport with their canine. Only 2 of the 23 canines were reported as having stress issues (one from being cramped in overcrowded vehicle, other in crate did fine once in cab with handler). Sleeping quarters were at college dormitories. Half the canines were free in the rooms, other were crated, depending on individual comfort with the arrangements.

- Most canines are well-adapted to a variety of conditions in which they travel
- The few who had difficulties were gladly helped by team members
- Barring any severe allergies of human teammates, traveling and billeting with the canines provides many advantages. Documented health benefits include reducing cardiovascular effects of anxiety (lower heart rates, lower blood pressure), reduced behavioral and psychological indicators of anxiety, are a shoulder to rest on amidst chaos, and provide companionship and a calming effect to team members

Physical Examinations

All search canines on 2 of the 3 FEMA teams had a pre-mission PE by a licensed veterinarian. The third team had difficulties with the timing of getting their pre-arranged veterinarian to their base before mobilizing to Moore. During deployment handlers were the most common person to perform examinations on their canines. This is part of their training and responsibility as Handlers.

- US&R Program Directive 2011-023 mandates and funds a Pre-Mission Examination by a licensed veterinarian for all search canines, implemented January 1, 2012 with a 6-month transition date for compliance by July 1, 2012.
- ***Recommendation***: Task Forces should consider having more than one veterinarian under contract to provide examination services should one be unable to fulfill that need
- Handlers are the primary caregivers for their canines, and this includes regular examinations during deployment, recognition of abnormalities, and the ability to render some forms of treatment as well as recognize when to seek further medical attention.
- Doctors, Paramedics, and EMTs are expected to have some base knowledge in the treatment of canines, and as evidenced here performed several exams and gave treatments as needed
- There were 2 veterinarians deployed with the OK SUSAR teams, one who was also a handler. They did not have any interaction with the FEMA teams during this deployment.
- ***Recommendation***: Intercommunication with all teams on the ground should be established to relay important and mutually beneficial information, including on-site presence of veterinary personnel.

NE-TF1 K9 Chief and Handler Andrew Pitcher.
Photo Courtesy Andrew Pitcher

Deployment Times - Mobilization to Base Return

FEMA teams spent a range of 56-70 hours from mobilization to return home, averaging 68.5 hours. OK SUSAR teams spent a range of 37-47 hours with an average of 41 hours. FEMA Handler/K9 Teams put in a total of 987 deployment hours, OK SUSAR Teams a total of 289.25 hours. The combined total canine deployment time was ***1,275.25 hours***

Site Times - Arrival to Demobilization
On-site time from arrival to demobilization for FEMA ranged 39-51 hours, averaging 47 hours. OK SUSAR teams spent a range of 36-43 hours with an average of 39 hours. Handler/K9 Teams put in a total of 289.25 deployment hours. FEMA Handler/K9 Teams put in a total of 711.25 site hours, OK SUSAR Teams a total of 272.25 hours. The combined total canine deployment site time was ***984 hours*.**

Search Work
FEMA shift lengths ranged from 1 to 12 hours. FEMA surveyed canines worked a total of *161 hours*. Live Find worked 128.5 K9 hours, HRD worked 32.5 hours. All shifts were during the day. There were no finds. One HRD canine alerted on blood pools.

OK SUSAR shift lengths ranged from 3 to 15.5 hours. SUSAR surveyed canines worked a total of *122 hours*. Most of these were at night. There were no finds.
Combined canine search work time equaled ***283 hours***

Illness and Injury
Lacerations, abrasions, and puncture wounds to the paws and paw pads were experienced by 44% (7/16) of the FEMA canines, and all those plus chemical burns were experienced by 29% (2/7) of the OK SUSAR canines for a total of 39% (9/23) of all surveyed canines. Wounding was the most common injury in the 3 prior deployments @ 26% in Haiti, 64% in Joplin, and 9% at Sandy. All injuries were treated on site by a variety of medical personnel for FEMA injuries, and by the OK SUSAR team veterinarian who deployed with the team.

Dehydration was the only illness reported by the handlers, for 25% (4/16) canines. This was the most common illness at Joplin (21%) and Haiti (30%). Both oral rehydration and subcutaneous fluids were used to resolve the issue. One OK SUSAR canine experienced diarrhea which resolved with conservative management (water, rest, light diet).

OK-TF1 K9 Moxie being treated for wounds
Photo Courtesy OK-TF1 Scott Mason, DVM

One FEMA TF Doctor reported that one of their team search canines was pulled from search work at 1600 hours due to exhaustion. Contributing factors included lots of walking site to site as there were no vehicles for transport, resulting in minimal down time between searches, and large areas to cover for search work.
Preventative measures for avoiding exhaustion, dehydration, and hyperthermia or hypothermia are important for search canines to maintain a high performance level.

  - Monitoring search periods and adjusting time length for weather and temperature conditions (shorter in heat, direct sun)
  - Sufficient rest periods; work-rest cycle guidelines are part of FEMA protocol for search canines. Circumstances vary with deployments so these recommendations are flexible. Factors include weather, search terrain, canine age, illness or injury.
  - Maintaining hydration
  - Monitoring heart rate, respiratory rate, and body temperature for signs of a problem

- ***Recommendation***: Emphasis in attention to these parameters by handlers, medical personnel, safety personnel, and all team members results in a search canine being able to stay at the top of their performance
- There is an inherent design flaw when conducting surveys by question and answer without documentation. Recollection of events by human memory is historically been known to have inaccuracies and/or varied details depending on the perspective, how long after the event the answers are given, and the way the questions are answered
- ***Recommendation***: Methods to improve data accuracy include acquiring or the creation of canine medical records, and timely response to the survey, as well as improving the survey itself with respect to length, questions, design, and ease of responding.
- ***Recommendation***: Review of medical record keeping for the search canines is warranted. Considerations include a central data base, individual records, a record that stays with the handler. In addition, contacting medical personnel medical records or their recollections of events may improve the medical data information

Moore, OK. Photo Courtesy OK-T 1 Handler Dane Yaw

Decontamination

Every FEMA search canine received some form of decontamination. This was also the case in Haiti and at Sandy. Water only from a fire truck was most common (56%, 9/16) followed by soap and water (38%). One handler reported an antiseptic boot wash (see below) was also used. 57% (4/7) OK SUSAR canines got soap and water decontamination. For one canine this was also part of the treatment for chemical burns from gas to the paws. This canine also broke with diarrhea, but it is unknown if possible systemic absorption of contaminants contributed.

- The high percent of decontamination supports the recognition of the importance of these procedures for everyone
    - Further inquiry into the antiseptic boot wash revealed the substance to be chlorine dioxide, which is dissolved in water in specified amounts and allowed to dwell in water for 1 hour before use A potent biocide that kills a wide range of organisms (bacteria, yeasts, viruses, fungi, protozoa, spores, molds, mildews, and other microbes) via oxidation
    - Effective at low concentration and over a wide pH range.
    - Biodegrades in the environment.
    - Does not generate chlorinated organic by-products.
- ***Recommendation***: Consider investigating the use of chlorine dioxide as an element for canine decontamination, including results with its use for military working dogs.

Briefings

Briefings on hazardous materials and safety issues ranged between 63% (10/16) of FEMA handlers and 43% (3/7) OK SUSAR Handlers. Several handlers expressed they already knew what to expect in a disaster like this and did not receive specific briefings on the subject. Others received emphasis on several contaminants and debris hazards. Some of the actual contaminants and safety issues reported were different than what was mentioned in the briefing (wet pills that a canine may step in and absorb, fiberglass insulation that melted and was sticking to paws).

Briefings are important. This ensures that if you did not hear it the first time, you will hear it another time, or bring to the forefront how important it is to be vigilant. It increases awareness and decreases problems

- HazMats and contaminants that are encountered but were not included in prior briefings should be reported to safety, Search Team Manager, Canine Coordinator, and Hazmat to be added to the list
- ***Recommendation***: Safety briefings before each shift, and review of encountered hazards at the end of shift to be added and passed on to the next shift should be communicated and written down.

FF Lt. Steve Taylor, Dane Yaw, Lt. Mark Edwards, K9s Ocho & Salsa @ Briarwood Elementary
Photo Courtesy Dane Yaw OK-TF1

Responses to Handlers' Comments

The deployment of HRD canines presented some new challenges. Recommendations as to how they would be better utilized in the field included educating Search Team Managers and others about the similarities and differences between LF and HRD and having 2 HRD canines per team.

- Testing standards and evaluators are being formulated for HRD system canines, with a projected date for implementation of August or September, 2013
- As a new element to the system, educating personnel and review of After Action Reports will help improve aspects of HRD search for the TFs

Downtime, a place to decompress, cold water when warm would be better, and clean crates after decon are internal issues that need to be addressed at the Task Force level. Advocating for canine physical and mental health are important aspects for them to maintain a high performance level of search capability. A certain level of athleticism and training is required to maintain an often demanding work ethic as well. Emergency blankets are small and compact, and can be used to help keep canines warm. High absorbency towels are also small and compact, and drying a wet canine as well as sheltering is extremely important if trying to get them warm when they are wet and temperatures plummet.

The comment for the need for a veterinarian on site may have been alleviated with increased communication efforts between FEMA US&R and OK SUSAR, who had 2 veterinarians with their team (one was also a Handler). If the need for veterinary medical care is great, local infrastructure outside the destruction zone should be utilized, and if unavailable the IST has the option to deploy the IST Veterinary Officer to the area.

NSAIDS (non-steroidal anti-inflammatory drugs) for canines are a veterinary prescription medication. Unless a handler has some of their own for their canine, or there is a veterinarian with these medications, human medical personnel do not have the licensure to carry these as part of their medical cache. These drugs are not without side effects, and combined with the high incidence of dehydration may even be fatal if not used correctly. Any and all drugs a handler carries and/or uses for their canine should be reported when readying for deployment at their home base. Whether over-the-counter or prescription, drugs should not be used without documentation or the direction of veterinary or medical personnel. Their education and experience in the use of any drug is important to avoid problems.

Many handlers expressed appreciation for the help and care from their fellow team members, and the outstanding medical support. It is a pleasure to report that none of the survey canines suffered severe illness or injury, and all came home safely.

OK-TF1 K9 Jagger Handler Jason Smith
Photo Courtesy Handler Dane Yaw

Survey Data

Handler Information

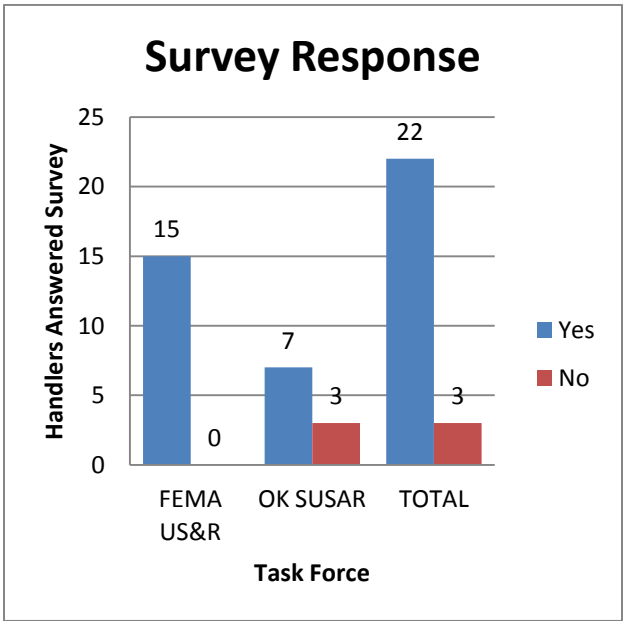
15 Handlers from 3 FEMA US&R Task Forces were deployed. 10 Handlers from Oklahoma SUSAR Task Forces (OK-TF1) were deployed.

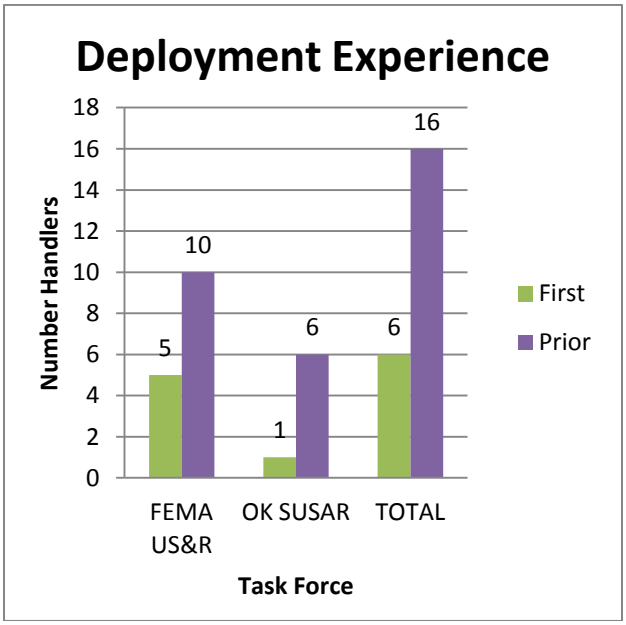
Survey Response

- FEMA Handlers: 15 of 15 (100%) responded to the survey (one deployed with 2 K9s)
- OK SUSAR: 7 of 10 (70%) responded to the survey
- Total Account: 22 of 25 (88%) responded to the survey

Deployment Experience

- FEMA US&R: 5 of 15 (33%) first deployment, 10 of 15 (67%) deployed before
- OK SUSAR: 1 of 7 (14%) first deployment , 6 of 7 (86%) deployed before
- Total Account: 6 of 22 (27%) first deployment, 16 of 22 (73%) deployed before

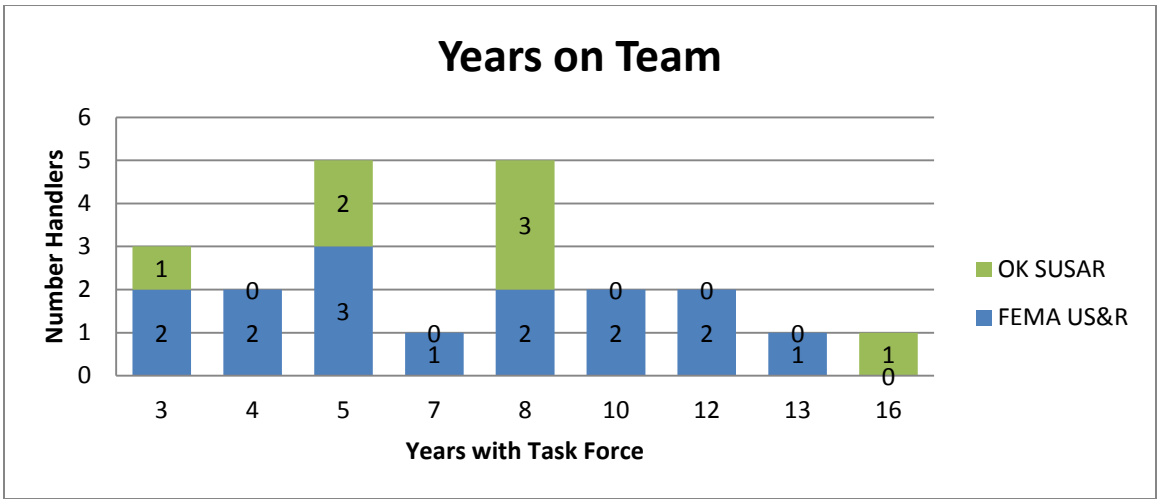




OK-TF1 Handlers
Yaw & Edwards
with K9s Salsa and Taz
Photo Courtesy Dane Yaw

Handlers' Length of Team Membership

- FEMA US&R: range 3 to 13 years: mean 7.3 years, median 7 years, mode 5 years
- OK SUSAR: range 3 to 16 years: mean 7.6 years, median 8 years, mode 8 years
- Total Account: range 3 to 16 years: mean 7.5 years, median 7.5 years, mode 5 & 8 years



Canine Information

15 FEMA Handlers deployed with 16 K9s, 10 OK-SUSAR Handlers deployed with 10 K9s.

Survey Response

- FEMA Canines: 15 Handlers reported on 16 of the 16 (100%) canines deployed
- OK SUSAR: 7 Handlers reported on 7 of the 10 (70%) canines deployed
- Total Account: Survey information is on 23 of the 26 (88%) canines deployed

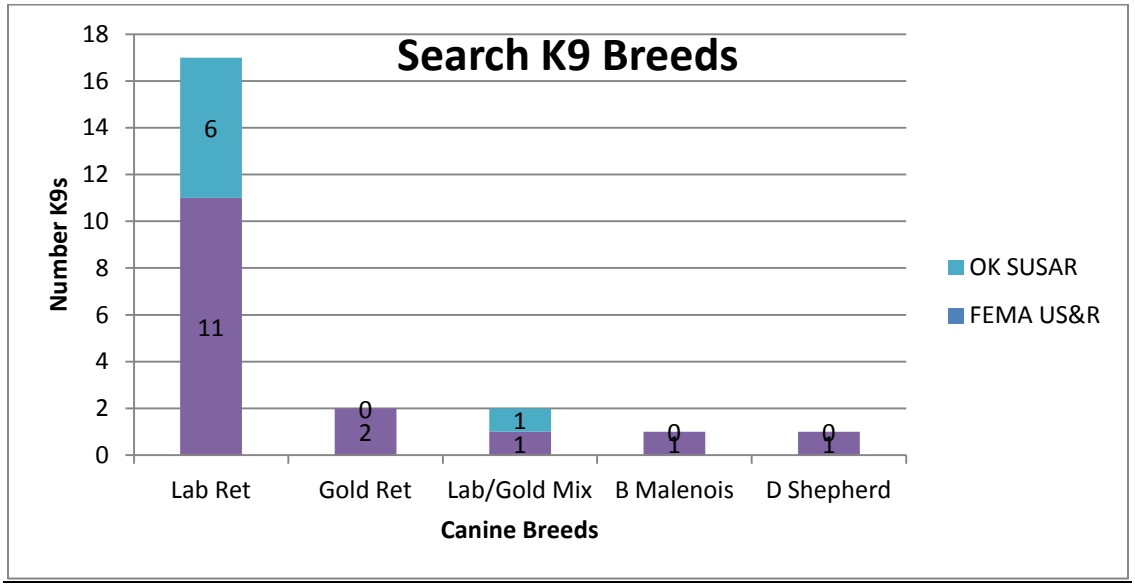
NE-TF1 K9 Search Team Robin Habeger and Search K9 Rae
Photo Courtesy Robin Habeger

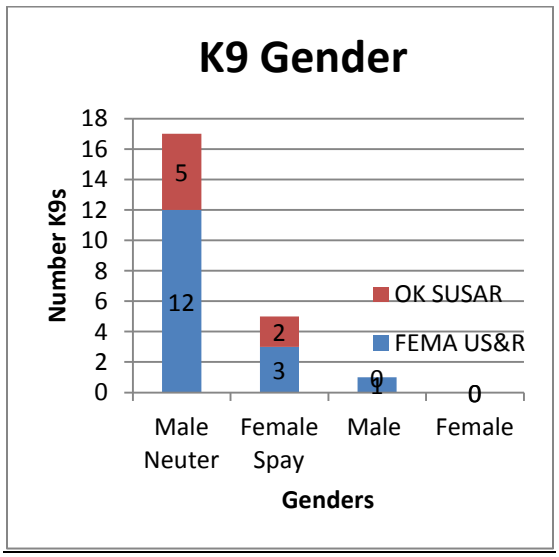
Breeds

- FEMA Canines: 11 Labrador Retrievers (69%), 2 Golden Retrievers (13%), 1 each English Shepherd, Belgian Malenois, Lab/Golden Mix (6% each)
- OK SUSAR: 6 Labrador Retrievers (86%), 1 Lab/Golden Mix (14%)
- Total Account: 17 Labrador Retrievers (74%), 2 Golden Retrievers (9%), 2 Lab/Golden Mix (9%), 1 each English Shepherd, Belgian Malenois (4% each)

Gender

- FEMA K9s: 12 Male Neuter, 3 Female Spay, 1 Male (75% MN, 19% FS, 6% M)
- OK SUSAR: 5 Male Neuter, 2 Female Spay (71% MN, 29% FS)
- Total Account: 17 Male Neuter, 5 Female Spay, 1 Male (74% MN, 22% FS, 4% M)





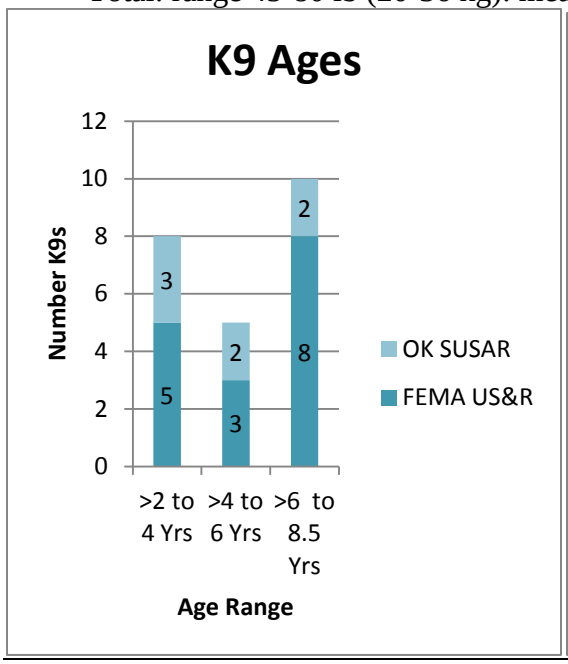
NE-TF1 Damon Wirth & K9 George - AP Photo
Photo Courtesy Damon Wirth

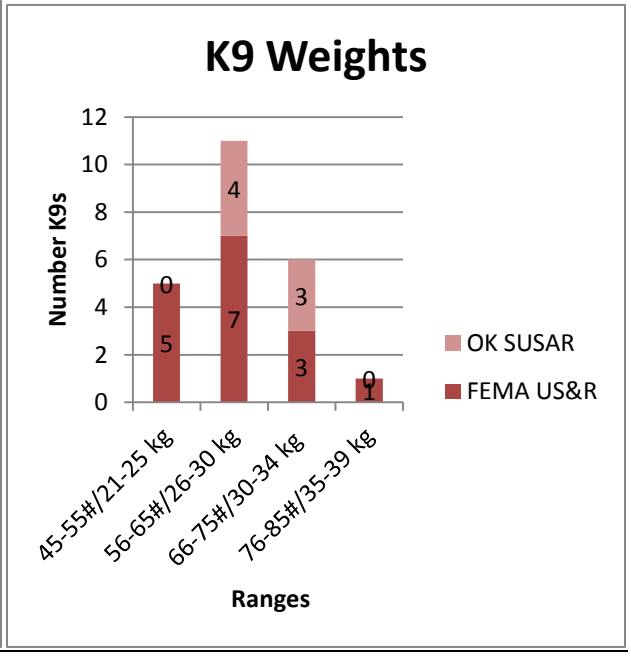
Age

- FEMA Canines: range 3 to 8.5 years: mean 5.8 years, median 6.0 years, mode 4 years
- OK SUSAR: range 2.25 to 7.5 years: mean 4.9 years, median 5.25 years, mode 2.25 years
- Total Account: range 2.25 to 8.5 years: mean 5.5 years, median 5.5 years, mode 4 years

Weight

- FEMA: range 45-80 lb (20-36 kg): mean 61 lb(28 kg), median 61 lb(28 kg)
- SUSAR: range 59-74 lb(27-34kg): mean 66 lb/30kg, median 63 lb/29kg, mode 60 lb/27kg
- Total: range 45-80 lb (20-36 kg): mean 62 lb/28 kg, median 62 lb/28 kg, mode 60 lb/27 kg





Search Capability

- FEMA: total of 13 LF, 3 HRD
- OK SUSAR: all 7 LF, 0 HRD
- Total Account: 20 LF, 3 HRD

Alert

- FEMA Canines: all canines (16/16) had bark alert; one HRD K9 did both bark and down
- OK SUSAR: all canines (7/7) had bark alert
- Total Account: 23/23 had Bark Alert, one HRD K9 had both bark and down

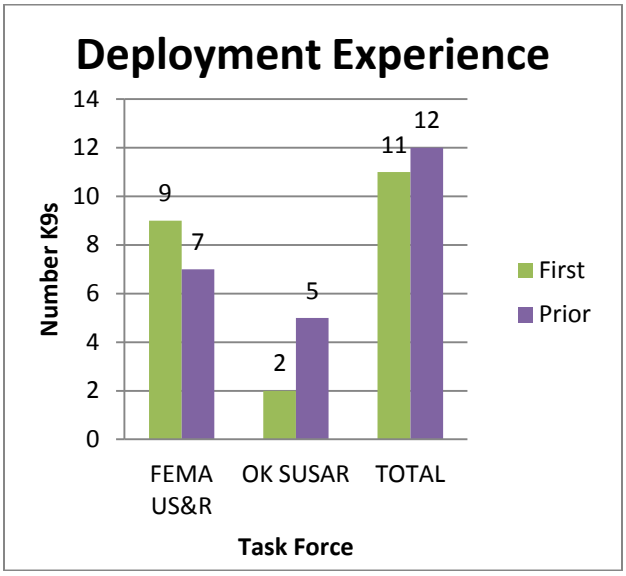
Certifications

- FEMA LF: all (13/13) LF have FEMA CE, one also NASAR Type I, two also IPWDA
- FEMA HRD: NASAR Type III, USAR Foundation, SUSAR Type I
- OK SUSAR: all (7/7) LF have SUSAR CE, one also FEMA

NE-TF1 K9 Chief, Handler Andrew Pitcher
Photo Courtesy Andrew Pitcher

Deployment Experience

- FEMA K9s: 9 of 16 (56%) first deployment, 7 of 16 (44%) deployed before
- OK SUSAR: 2 of 7 (29%) first deployment , 5 of 7 (71%) deployed before
- Total Acct: 11 of 23 (48%) first deployment, 12 of 23 (52%) deployed before
    - For FEMA Teams, this was a first deployment for 4 Handlers and their K9 (27%)
    - For OK SUSAR this was a first deployment for one handler and their K9 (14%)



TN-TF1 Tank arriving to work;
Photo Courtesy Handler Lauren Farr

Transportation

A combination of trucks, buses, and vans were used for transport. Some used TF vehicles, some POVs. All canines were transported together with their handlers.

Home to Mission:

- FEMA K9s: Transit range 6-11 hours: mean 9 hrs, median 9.25 hrs, mode 9.5 hrs
- OK SUSAR: Transit range 15 min - 2 hrs: mean 1 hr, median 30 min, mode 30 min

Demobilization to Home:

- FEMA K9s: Transit range 5-12 hours: mean 9.5 hrs, median 9.5 hrs, mode 11.5 hrs
- OK SUSAR: Transit range 15 min - 3 hrs: mean 1 hr, median 30 min, mode 30 min

Difficulties were incurred by 2 canines, 1 from FEMA and 1 from OK SUSAR. One became anxious and stressed from crowded and cramped 9.5 hour ride to the site. Teammates tried helping by doubling up to give the canine more room. On the way home the canine was the same, but so tired they were able to rest (8.5 hour ride). The other canine became stressed after transport in the crate. Once placed into the cab of the truck there were no more issues.

Billeting

All FEMA Handlers were billeted at Oklahoma University college dormitory with their canines: 8 of 16 (50%) were crated, the other 8 of 16 (50%) were free in the rooms.

The OK SUSAR handlers from Oklahoma City billeted at home or at the fire station, being within 15-30 minutes of the search sites. Those from Tulsa stayed in their truck or a tent.

Base of Operations

FEMA teams had a BoO in various parking lots near the disaster area. An elementary school served as the BoO for the SUSAR team.

Physical Examinations

Pre-Mission Physical Exam

- FEMA K9s: 15/16 (94%): 11 by DVM; 5 by combination of Handler, MD, Medic, EMT
- OK SUSAR: 4/7 (57%): 1 by DVM; 3 by Handler
- Total Acct: 19/23 (83%) had a pre-mission PE

Pre-Shift Physical Exam

- FEMAK9s: 10/16 (63%): 5 by Handler; 5 by combination of Handler, MD, Medic, EMT
- OK SUSAR: 2/7 (29%): both by the Handler
- Total Acct: 12/23 (52%) had a pre-shift PE

Post-Shift Physical Exam

- FEMA K9s: 13/16 (81%): 4 by Handler, 1 by DVM, 7 by combination MD, Medic, EMT
- OK SUSAR: 5/7 (71%): 3 by Handler, 1 by DVM, 1 by Handler who is also a DVM
- Total Acct: 18/23 (78%) had a post-shift PE

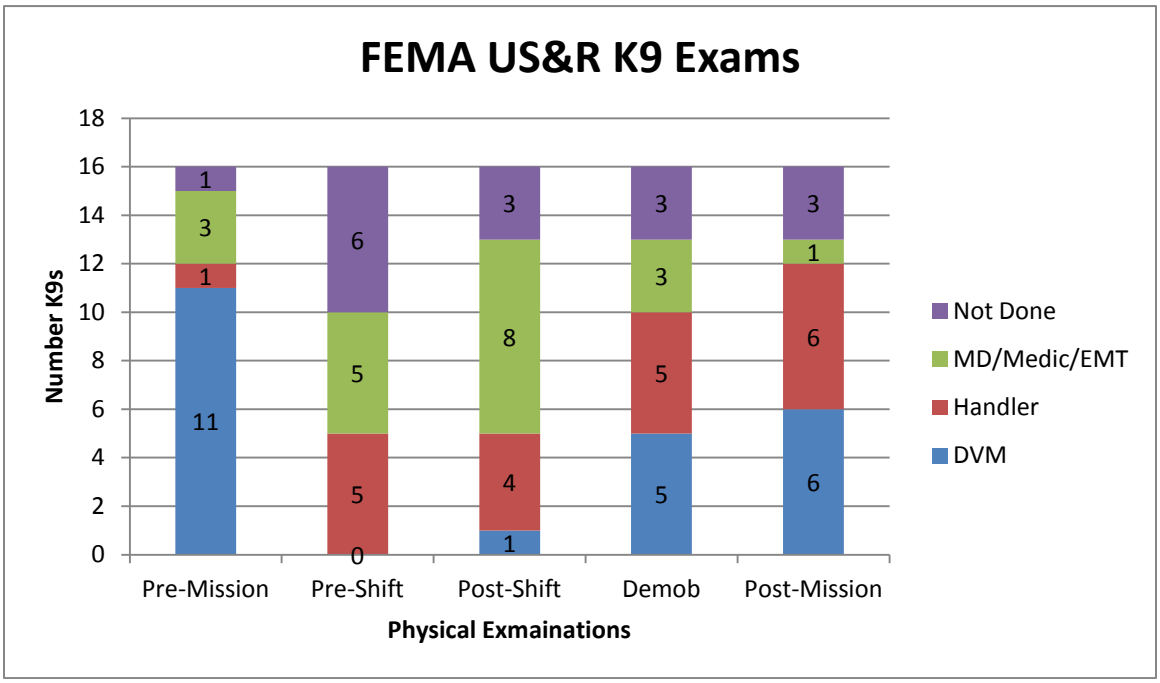
Demobilization Physical Exam

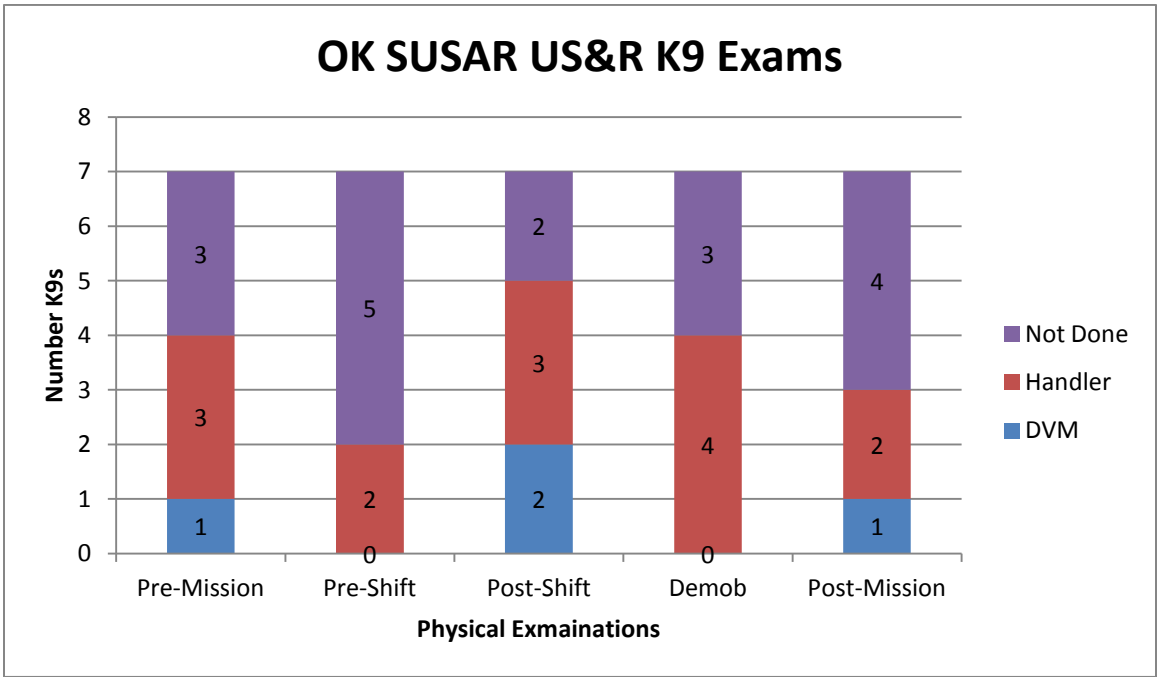
- FEMA K9s: 13/16 (81%): 5 by DVM; 5 by Handler; 3 by combination MD, Medic, EMT
- OK SUSAR: 4/7 (57%): all 4 by Handler
- Total Acct: 17/23 (74%) had a demobilization PE

Post-Mission Physical Exam at Home

- FEMA K9s: 13/16 (81%): 6 by DVM; 6 by Handler; 1 by Handler & EMT
- OK SUSAR: 3/7 (43%): 3 by DVM; 2 by Handler
- Total Acct: 16/23 (70%) had a post-mission PE

OK-TF1 K9 Moxie being treated for injury
Photo Courtesy OK-TF1 Veterinarian Scott Mason, DVM


FEMA US&R K9 Exams
Number K9s
18
16
14
12
10
8
6
4
2
0
1
3
1
11
6
5
5
0
3
8
4
1
3
3
5
5
3
1
6
6
Pre-Mission
Pre-Shift
Post-Shift
Demob
Post-Mission
Physical Exmainations
Not Done
MD/Medic/EMT
Handler
DVM


OK SUSAR US&R K9 Exams
Number K9s
8
7
6
5
4
3
2
1
0
3
3
1
5
2
0
2
3
2
3
4
0
4
2
1
Pre-Mission
Pre-Shift
Post-Shift
Demob
Post-Mission
Physical Exmainations
Not Done
Handler
DVM

Deployment Time - Mobilization to Base Return

FEMA - Total Handler/K9 deployment time = ***987 Hours***

- Teams left between Mon May 20 @ 2100 and Tues May 21 @ 0030
- Teams arrived back at base on Thursday May 23 between 0800 and 2030
- Deploy time range 56-70 hrs: mean 65.8 hrs, median 68 hrs, mode 68 hrs

OK SUSAR - Total Handler/K9 deployment time = ***289.25 Hours***

- Teams left between Sun May 19 @ 1930 and Tues May 21 @ 0230
- Teams arrived back at base on Wednesday May 22 between 0730 and 2000.
- Deploy time range 37-47 hrs: mean 41 hrs, median 41.5 hrs, mode 37 hrs

Combined - Handler/K9 time = ***1,276.25 Hours***

- Deploy time range 37-70 hrs: mean 58 hrs, median 65 hrs, mode 68 hrs

Deployment Site Time - Arrival to Demobilization

FEMA - Total Handler/K9 site time = ***711.25 hours***

- Teams arrived in Moore, OK on Tuesday May 21 between 0530 and 1130
- Teams demobilized on Thursday May 23 between 0800 and 0930
- Site time range 39-51 hours: mean 47 hours, median 48 hours, mode 46 hours

OK SUSAR - Total Handler/K9 site time = ***272.75 Hours***

- Team members arrived Sunday May 19 @ 2030 and Tuesday May 21 at 0430
- Team members ended on Wednesday May 22 between 0700 and 1700.
- Site time range 36-43 hours: mean 39 hrs, median 39 hrs, mode 36 hrs

Combined - Total Handler/K9 site time = ***984 Hours***

- Site time range 36-51 hours: mean 45 hrs, median 46 hrs, mode 46 hrs

NE-TF1 Robin Habeger & Search K9 Rae
Photo Courtesy Handler Robin Habeger

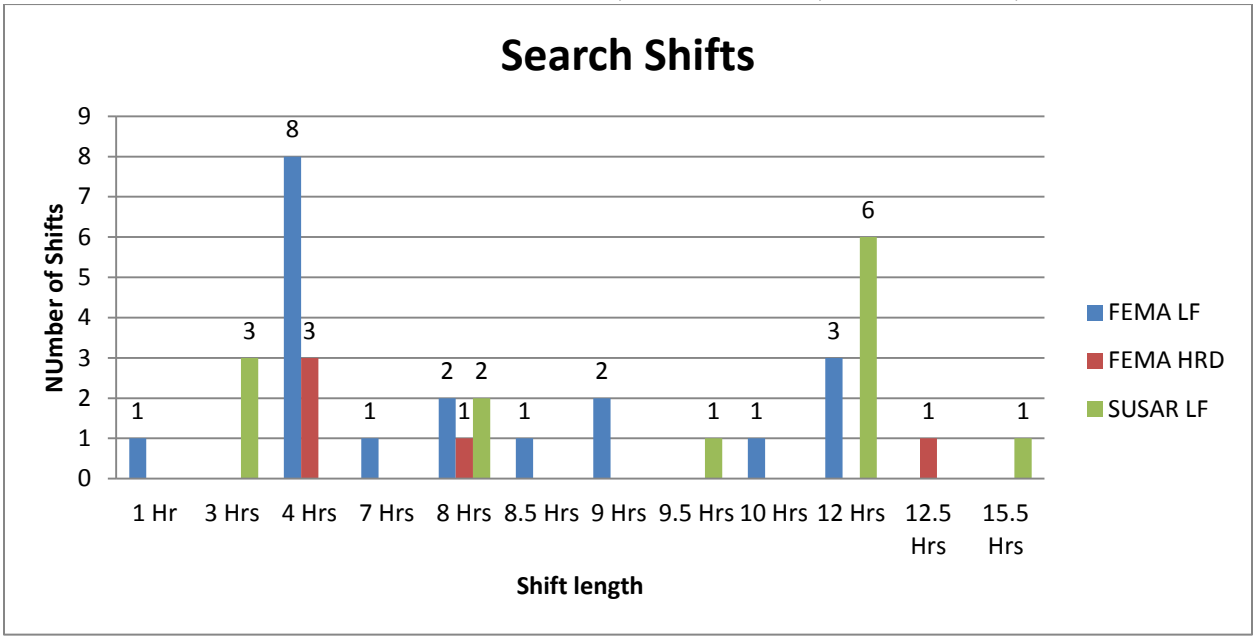
Search Work

FEMA surveyed canines worked a total of ***161 hours***. Live Find worked 128.5 K9 hours, HRD worked 32.5 hours. All shifts were during the day. There were no finds. One HRD canine alerted on blood pools.

- 6 LF K9s worked 2 shifts each: 8 shifts of 4 hrs, 2 shifts of 8 hrs, 2 shifts of 12 hrs
- 7 LF K9s worked 1 shift each: 2 worked 9 hrs, 1 shift each of 1, 7, 8.5, 10 and 12 hrs
- 2 HRD K9s worked 1 shift each: 1 shift of 8 hrs, 1 shift of 12.5 hours
- 1 HRD K9 worked 3 shifts: 4 hours per shift

OK SUSAR surveyed canines worked a total of ***122 hours***. Most of these were at night. There were no finds.

- 4 LF K9s worked 1 shift each: 2 shifts of 8 hrs, 2 shifts of 12 hrs
- 3 LF K9s 3 shifts ea: 3 shifts of 3 hrs, 1 shift 9.5 hrs, 4 shifts 12 hrs, 1 shift 15.5 hrs



NE-TF1 Handler Damon Wirth and Search K9 George - AP Photo
Photo Courtesy Damon Wirth

Illness and Injury

Injury

- FEMA K9s: 7 of 16 (44 %): lacerations, abrasions, punctures to paws and paw pads
- OK SUSAR: 2 of 7 (29%): lacerations, abrasions, chemical burns to paws & lower limbs
- Total Acct: 9 of 23 (39%) survey K9s incurred injury

FEMA injuries were treated by MD, paramedic, EMTs, and DVM. Treatments included cleansing, antibiotic ointment, systemic antibiotics, and skin glue. Resolution ranged from immediate to 7 days. Only one canine had systemic antibiotics added by their primary care veterinarian at home follow-up.

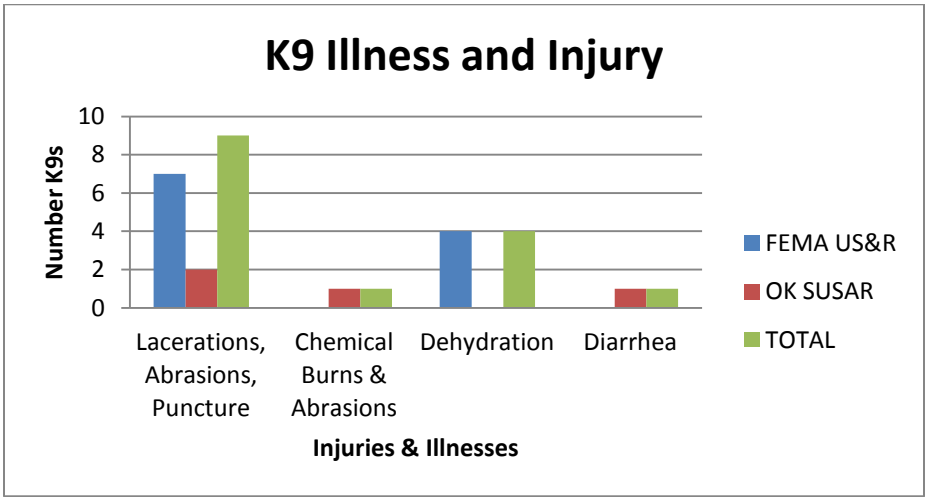
OK SUSAR injuries were treated by a veterinarian who deploys with their team. Treatments included cleansing, surgical debridement and suture, antibiotics, and decontamination for the chemical burns. Resolution for the wounding was 10 days.

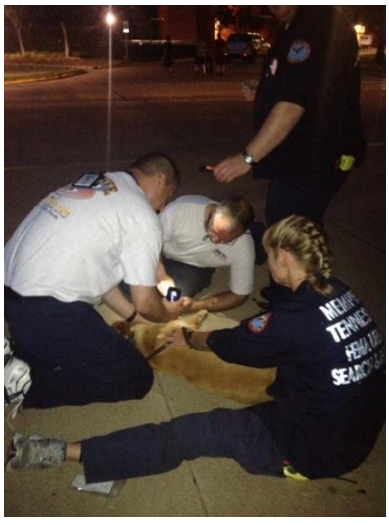
Illness

- FEMA K9s: 4 of 16 (25%): dehydration
- OK SUSAR: 1 of 7 (14%): diarrhea
- Total Acct: 5 of 23 (22%) survey canines incurred illness

FEMA illnesses were treated by handler for 2 canines, consisting of increased water intake (orally) and cooling down. Resolution took approximately 4-5 hours. The 2 canines treated by an MD received fluids subcutaneously. Two of the dehydrated canines also had wounding. Resolution was seen right after the treatment. One canine had a 3 pound weight loss but energy level was not affected. Several canines received subcutaneous fluids after their shifts to help them prepare for the next day, according to one handler.

OK SUSAR illness was treated conservatively by the handler with rest, water, and diet change.



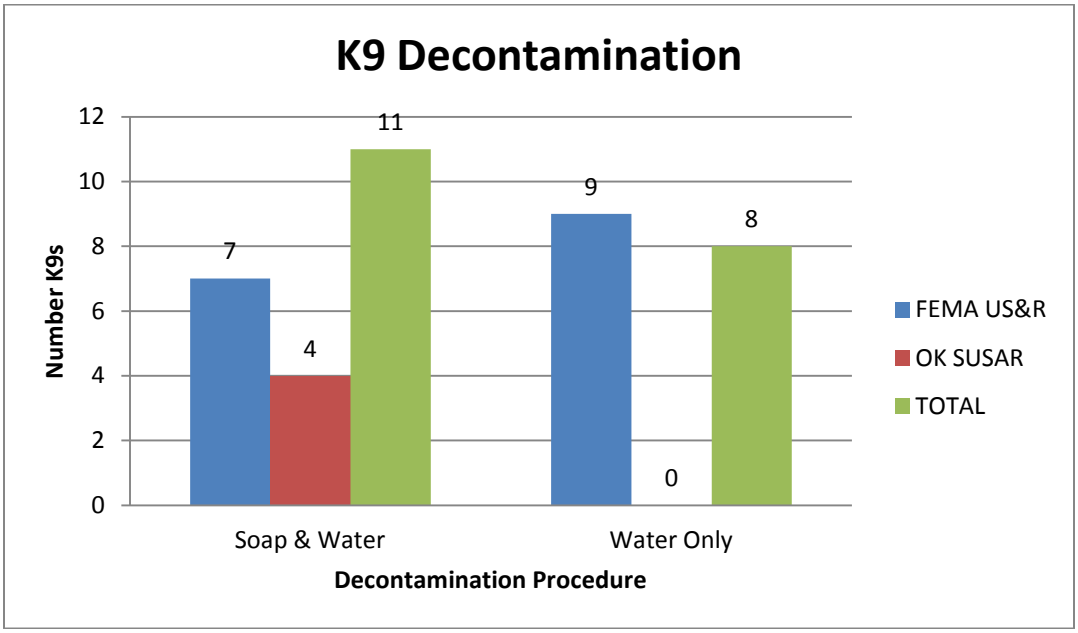


TN-TF1 K9 Charlie being treated by Dr. Holly, Medic Greg Waymon, Sue McManus; Photo Courtesy of Handler Deborah Burnett

I had an opportunity to speak with a FEMA medic who deployed to Moore, OK. He reported that one of their team search canines was pulled from search work at 1600 hours due to exhaustion. Contributing factors included lots of walking site to site as there were no vehicles for transport, therefore minimal down time, and large areas to cover for search work.

Decontamination

- FEMA K9s: 16/16 (100%) received decontamination: 6 soap and water, 9 water only, and 1 had a soap, water, and antiseptic boot wash used on their canine
  13/16 (81%) received decontamination every shift
- OK SUSAR: 4/7 (57%) received decontamination: all 4 soap and water
  3/4 received decon after last shift, not every shift, or back at station
- Total Acct: 20/23 (87%) received decontamination: 11 soap and water, 8 water alone



Texas Task Force 1 Portable Decontamination Kit
Courtesy Dr. Alex Migala

Briefings

- FEMA K9s: 10/16 (63%) reported receiving Hazmat briefings
- OK SUSAR: 3/7 (43%) reported receiving Hazmat briefings
- Total Acct: 13/23 (57%) reported receiving Hazmat briefings

Many received general Hazmat information common in such disasters. Several reported that as disaster responders they were already aware of potential hazards. Briefing was given by a variety of personnel, including Search Team Managers, Hazmat Officers, IST, Squad Leaders, and Safety Officers. Certain concerns were emphasized, specifically: anti-freeze, gas, oil, chemicals, rubble debris, rotting food, glass, nails, loose dogs, and natural gas leaks.

<u>Hazards encountered by some of the handlers included</u>

- Natural gas leaks
- Household cleaners
- Deceased animals
- Wet pills spilled on floor
- Automobile fluids
- Fiberglass insulation which some had melted and it stuck to paws
- Fuel
- Oil
- Rotten food
- Severe weather

OK-TF1 Briefing; Photo courtesy Handler Dane Yaw

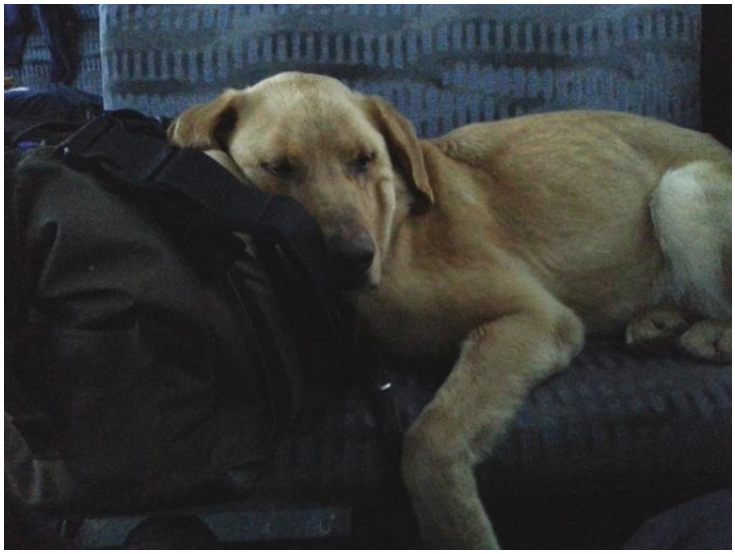
Comments

FEMA

- TF members enjoy the canines, often offering to help. The dogs were well looked after.
- Outstanding medical support from medics and MDs
- Great TF support
- Stressful and long travel, no downtime, only 1 hour break - canine still did well, always ready to go; separate canine vehicle would be helpful
- Need 2 HRD canines per team - shifts too long for one, STMs need training on how to utilize HRD canines in the field
- Warm day weather turned cold quickly, everything wet, canine shivering for 1 hour in the street; was warmed up but then decon was with cold water
- NSAIDS should be carried by medics for pain relief and fluids for the canines at end of day
- Not enough HRD resources
- Need veterinarians on site

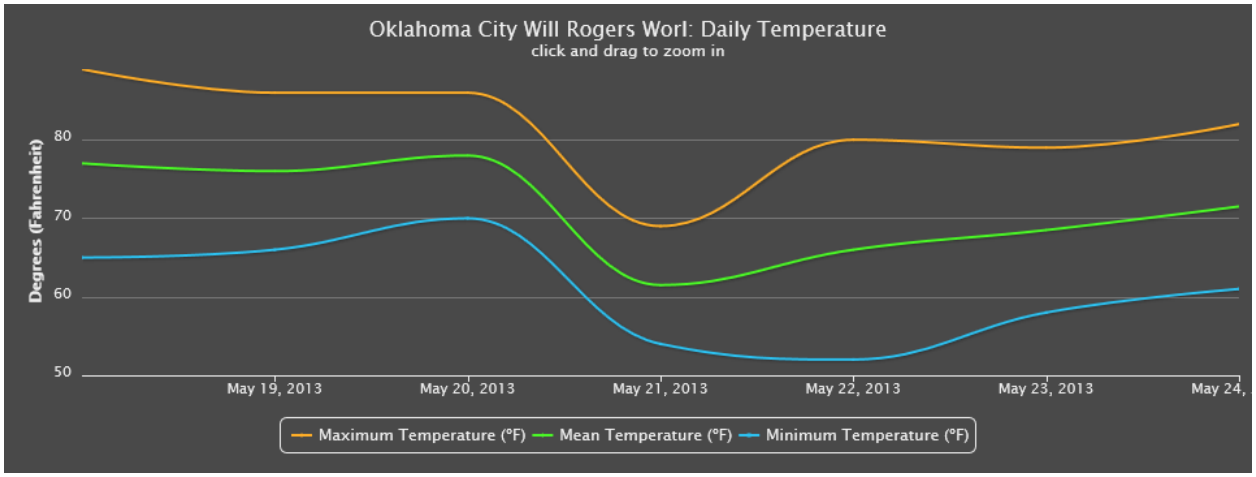
OK SUSAR

- Veterinarian is part of team deployed, treated several canines and did blood draws post-mission
- Need a place for canines to decompress (like handlers have)
- Canines placed into contaminated kennels after decon; need a clean crate to go in after decon



NE-TF1 Search K9 Lilly Heading Home
Photo Courtesy of Handler Steve MacDonald

Temperature Log for Oklahoma City, OK 5.4 miles from Moore, OK from May 19-23, 2013



http://weathersource.com/account/official-weather?location=Moore%2C+OK&start-date=05%2F20%2F2013&end-date=05%2F23%2F2013&subscription-demo=1&sid=20uuaqr8gelce3sp5u4lsjcr14&search=1&station-id=10071&latitude=35.3632&longitude=-97.5104