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Standard for Decontamination of Operational Canines following Potential Environmental Exposure

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410 North 21st Street
Colorado Springs, CO 80904

Foreword

This document serves as a foundation for the general protocols, training, techniques, and procedures for first responder operational canines. There is currently no established formal training or regulatory guidelines for decontamination of operational canines as identified in this standard.

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This document was revised, prepared, and finalized as a standard by the Dogs and Sensors Consensus Body of the AAFS Standards Board.

Questions, comments, and suggestions for the improvement of this document can be sent to AAFS-ASB Secretariat, asb@aafs.org or 410 N 21st Street, Colorado Springs, CO 80904.

All hyperlinks and web addresses shown in this document are current as of the publication date of this standard.

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Keywords: *decontamination, toxic materials, decontamination (decon) kits, basic handlers training, reinforcement training, decon evaluations, FEMA, Emergency Management, maintenance training, record keeping and document management, change in behavior, diagnosis.*

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Standard for Decontamination of Operational Canines following Potential Environmental Exposure

1 Scope

This standard provides the requirements and certification procedures for canine handlers performing decontamination of operational canines following a potential hazardous or harmful environmental exposure. This document encompasses training in the identification of exposure to CBRNE (3.3) and mitigation. This document also provides prevention protocols to protect operational canines from exposure, types of necessary PPE and handler equipment.

2 Normative References

There are no normative reference documents. Annex A, Bibliography, contains informative references.

3 Terms and Definitions

For purposes of this document, the following terms and definitions apply. Refer to ASB Technical Report 025, *Crime Scene/Death Investigation – Dogs and Sensors – Terms and Definitions,* for a listing of canine detection terms.

3.1
assessment
A test conducted in an operational environment in which the canine team is deployed or utilized.

3.2
canine handler
A person who has successfully completed a recognized course of canine handling in a specific discipline and maintains those abilities through field applications, maintenance training, certification, recertification and department, agency or organization required continuing canine education.

3.3
CBRNE
An acronym for chemical, biological, radiological, nuclear, explosive.

3.4
canine decontamination
The actions performed to remove contaminants from an operational canine(s).

3.5
certifying authority
The organization authorizing the certification of a canine team.

3.6
certifying official
certifying assessor
A person who has been delegated the authority to conduct an evaluation and sign certificates on behalf of an organization or entity that recognizes a team has been trained to a particular standard within the organization.

3.7
competent trainer
A person having suitable or sufficient skill, knowledge, and experience to train canines and canine handlers, who has demonstrated, through education, training, and operational experience, extensive skills and knowledge in the subject field or discipline.

NOTE This person would normally perform the maintenance training and proficiency training in the field and may train canines in preparation for a formal course of instruction.

3.8
corrective action plan
A training course of action to remediate performance deficiencies with a canine team.

3.9
decontamination – dry
The process by which decontamination of an operational canine(s) is performed via dry protocols.

3.10
decontamination – wet
The process by which water is utilized as the primary method of removing contaminants from a canine exposed to hazardous materials.

NOTE 1 Includes high volume/low pressure or low volume/low pressure flowing water. Often this type of set-up is created, maintained, and performed by specialized decontamination personnel.

NOTE 2 Includes waterless kits, wipes, and antidotal methods. These protocols are performed as an immediate action using a canine field decontamination kit or ad hoc methods to remove contaminants from the operational canines.

3.11
decontamination personnel
A specialist of the military chemical corps, FEMA, State or local emergency management agency trained in the identification, removal, and confirmation of removal of CBRNE (**3.3**).

3.12
deployment record
A permanent record of operational utilization. Including; hours worked, evidence log, finds, locations/environmental conditions. Maintained in digital format.

3.13
medical assessment
Handlers will be capable of identifying signs of environmental exposure and the capability to perform emergency decontamination (e.g., administering naloxone to reverse an opioid exposure).

3.14
objective-oriented training
The training provided to enhance proficiency using specific goals established prior to the initiation of the training.

3.15
operational proficiency
The training conducted beyond the initial training of a discipline, designed to maintain a high level of competence or skill by ensuring the team's capability to perform desired tasks.

3.16
static location
A stationary or fixed location (temporary or permanent).

NOTE In this context – an established operational decontamination station.

4 Canine Team Requirements

4.1 General

4.1.1 Tasks

4.1.1.1 The handler shall perform tasks in accordance with the certification parameters (see Section 7).

4.1.1.2 If or when an operational canine has been exposed to a CBRNE or unknown agent a handler shall decontaminate the operational canine.

4.1.1.3 The canine team shall perform documented maintenance training, periodic proficiency assessments, and follow other recommended local, state and/or Federal decontamination training guidelines.

4.2 Mission Essential Equipment

The handler shall have the following equipment available for any mission with a risk of contamination exposure:

a) personal protective equipment (PPE);

b) clean and protective packaged replacement leash and muzzle;

c) dry decontamination equipment (e.g., canine field decontamination kit, microfiber towels);

d) wet decontamination logistic support (e.g., water, soap, or shampoo);

e) mission/agent specific contaminant decontamination confirmation assessing equipment (e.g., M8 paper, RadEye™[a]);

[a] This term is used as an example only, and does not constitute an endorsement of this product by the AAFS Standards Board.

f) handler personal protective equipment (PPE) per agency or organization (eye protection, respiratory protection, gloves, boots, protective clothing); and

g) antidotes and reversal agents [e.g., Atropine and Pralidoxime (2PAM)[b] autoinjectors, antiseizure auto injectors, naloxone].

4.3 Handler Responsibilities

4.3.1 The handler shall be proficient in canine first aid (see Annex B).

4.3.2 The handler shall be proficient in protocols to perform wet and dry decontamination.

4.3.3 The handler shall decontaminate an operational canine from environmental, CBRNE exposure.

4.3.4 The handler shall record date, time, location, decontamination protocols performed ad hoc in the field.

4.3.5 The handler shall transcribe field notes to the permanent health/operational record of the canine.

4.4 Handler Safety

4.4.1 The handler shall assess risk of exposure to an agent (e.g., high, medium, low).

NOTE The assessed risk may be influenced by the knowledge of agents in the area. The assessed risk may also influence protective equipment, concern for cross contamination spread, concern for initial medical intervention and evacuation and isolation protocols.

4.4.2 The handler shall self-decontaminate and don PPE based on agency protocols.

4.4.3 The handler shall mitigate the risk of personal contamination and decontaminate as soon as safely possible in a location that is deemed safe.

4.4.4 The handler shall ensure that the operational canine is properly restrained, basket muzzled, and retain positive control throughout the decontamination process.

4.4.5 The handler shall avoid aggressive interactions with the public, decontamination personnel, and medical staff.

4.4.6 The handler shall ensure the safety of the operational canine, handler, and military or civilian responders.

4.5 Site Safety

4.5.1 The handler shall remove the canine from the contaminated zone prior to starting decontamination.

[b] This term is used as an example only, and does not constitute an endorsement of this product by the AAFS Standards Board.

4.5.2 The handler shall avoid contamination, recontamination, and cross-contamination, by:

a) avoiding contaminated areas;

b) avoiding contaminated food and water sources;

c) moving upwind from an aerosol dispersed contaminant;

d) seeking shelter if available; and

e) removing contaminated equipment (leash, muzzles, harness, "booties") and replace it with non-exposed equipment.

4.5.3 The handler shall recognize the risk of the canine contaminating themselves and surrounding area and decontaminate as soon as can be safely done.

4.6 Canine Assessment

4.6.1 The handler shall perform a medical assessment (see Annex B).

4.6.1.1 The medical assessment should continue throughout the decontamination.

NOTE General medical protocols are reassessment of vitals every 5 to 15 minutes, or if canine's health status visibly declines.

4.6.1.2 An initial medical assessment should be performed by the handler, keeping in mind that any contact with a contaminated canine during the assessment or life-threatening medical interventions can place the handler at risk for contamination.

NOTE 1 To limit handler and medical personnel exposure, medical assessments may need to be visual only and may be limited to assessment of the canine's ability to maintain an airway and control hemorrhage (e.g., if the canine is able to hold its head up and take verbal commands).

NOTE 2 Testing of the canine skin and fur to identify a specific contaminant or category of contaminant is authorized (e.g., immediate colorimetric identification with M8 paper or illicit drug wipe test) if consistent with organization training policy and test materials are available to the handler.

4.6.2 Based on the medical assessment and assessed risk, handlers shall administer antidotes and reversal agents to sustain the canine's life, as soon as safely possible [e.g., Atropine and Pralidoxime (2PAM)[c] autoinjectors, antiseizure auto injectors, naloxone].

4.6.3 If, based on the medical assessment, the canine cannot be safely and properly decontaminated, sedation may be required with guidance from a veterinarian, the handler shall isolate the canine until sedation can be performed by a veterinarian.

[c] This term is used as an example only, and does not constitute an endorsement of this product by the AAFS Standards Board.

4.7 Decontamination of the Skin and Hair

4.7.1 General

NOTE Using a wipe canine field decontamination kit allows for removal of surface contaminants prior to and in conjunction with wet decontamination protocols. Wipe decontamination complements current wet decontamination protocols by reducing aerosolization risks, reducing excessive contaminated water, and reducing environmental and cross contamination through its more controlled collection of contaminants within the wipes.

4.7.1.1 All areas of the canine shall be decontaminated in the direction of the fur: nose, head, neck, chest, back, tail; legs from the top to the toes; belly to groin.

4.7.1.2 The handler should remove contaminants from the fur, which often acts as a barrier to skin exposure, to prevent contamination of the canine skin and transferring of the contaminant to humans.

4.7.1.3 Decontamination of the skin shall be performed if the skin has been compromised.

NOTE Decontamination of the fur and skin is performed to prevent further contamination as well as to remove contaminants from the skin to prevent additional contaminant exposure of the canine (uptake through the skin, inhalation, ingestion).

4.7.2 Dry/Wipe Decontamination

NOTE Dry wipe decontamination leverages the intrinsic protective mechanisms of the canine's fur coat and prevents initial wetting of the coat which has been shown to cause transport of the contaminant to the skin and transdermal absorption.

4.7.2.1 A dry/wipe decontamination (a canine decontamination kit, or a series of dry and soap/chlorhexidine scrub-soaked microfiber towels) shall be performed as early and as safely as possible to remove the bulk of the contamination.

4.7.2.2 The following steps shall be taken for dry/wipe decontamination:

a) use a pinch pull method to avoid pushing contamination further into the skin;

b) end with a dry towel to absorb remaining liquid with trapped contaminants;

c) if contaminated with a powdered substance, start with a damp wipe to avoid aerosolization, increasing the risk of inhalation and respiratory exposure; and

d) if caked on or sticky material adheres to the canine's fur and cannot be removed with the pinch pull method, then with extreme caution scissors can be used to cut away the contaminated fur, taking care to avoid cutting the canine's skin and the handler's protective equipment.

4.7.3 Wet Decontamination

4.7.3.1 Wet decontamination shall be conducted at a static location (e.g., FEMA decontamination site, OEM established decontamination site, mobile decontamination unit).

4.7.3.2 Wet decontamination shall be performed by thoroughly wetting the canine's fur, applying soap or shampoo, then thoroughly rinsing the canine, paying attention to the underside and paws of the canine.

NOTE 1 Environmental considerations: cooler water in hot weather and warm water in cooler conditions.

NOTE 2 Placing the canine on an elevated surface can improve the handler's ability to access and decontaminate the belly, groin, and paw pad areas.

4.7.3.3 The following steps shall be taken for wet decontamination:

a) start with high-volume/low-pressure water to rinse contaminants off outer fur coat without pushing them to contact the skin;

b) repeat with low volume/low pressure to remove contaminants from undercoat and skin; and

c) dry skin thoroughly to prevent moist dermatitis as well as for temperature control.

NOTE Soaps may compromise the protective oil-based coating of the skin especially important in maintaining body temperature in cold climates.

4.7.4 Post Decontamination Evaluation

4.7.4.1 The decontamination process shall be repeated if a post-test of the skin and fur identifies residual contamination.

NOTE Post-testing of the canine skin and fur to identify residual contaminant is authorized if consistent with organization training policy, and test materials are available to the handler.

4.7.4.2 Handlers completing decontamination protocols shall have their canine screened by decontamination personnel.

4.7.4.3 Decontamination personnel shall confirm the operational canine is free from contaminants.

4.8 Medical Management

4.8.1 Antidotes and Reversal Agents

When exposure to a contaminant is suspected or when clinical signs of poisoning are observed, and if safe to do so without risk of contamination to the handler, an antidote or reversal agent shall be administered.

4.8.2 Further Medical Assessment and Care

4.8.2.1 Operational canines exposed to toxic contaminants shall be medically screened by a veterinarian.

4.8.2.2 The handler shall simultaneously provide their chain of command an updated serious incident report (SIR) within 24 hours of the incident.

4.8.2.3 The handler shall evacuate the operational canine exposed to a CBRNE contamination from the exposure area to a designated triage area.

4.8.2.4 Handlers at remote sites shall evacuate as far from the exposure site as possible to perform individual assessment and decontamination.

5 Handler Decontamination Proficiency Training

5.1 The fundamental training associated with decontamination shall be included in:

a) all basic canine handlers' courses of instruction;

b) the military unit mission essential task list; and

c) in-service training of first responders.

5.2 Upon completion of training, the handler shall be able to demonstrate the following:

a) knowledge of risks of contamination to themselves;

b) proper donning of personal protective equipment (PPE);

c) proper muzzling of their operational canine;

d) removing the operational canine from a contaminant and from immediate danger prior to decontamination;

e) removing all contaminated equipment from their operational canine and replacing with non-contaminated equipment;

f) initial medical assessment of their operational canine;

g) decontamination with dry decontamination protocols;

h) decontamination with wet decontamination protocols;

i) confirmation of decontamination (see 4.7.4);

j) proper administration of antidote and reversal agents (e.g., intranasal spray, intramuscular injection); and

k) basic canine first aid.

6 Canine Training

6.1 The handler shall be in direct control of the canine at all times.

6.2 The canine shall be trained on the following:

a) handler in PPE;

b) wearing a basket muzzle and replacement of contaminated equipment;

c) restraint, mock contaminant administration, and medical assessment;

d) Dry decontamination protocols; and

e) wet decontamination protocols.

6.2.1 The handler shall have the following equipment available for training:

a) personal protective equipment;

b) replacement leash and basket muzzles;

c) dry/wipe decontamination training materials (dry and damp microfiber towels);

d) wet decontamination training materials (water source, soap); and

e) reversal agent training aids (e.g., needleless "injectors", empty nasal applicants).

6.2.2 The handler may have the following optional equipment available for training:

a) surrogate contaminant (e.g., GloGerm™); and

b) surrogate contaminant decontamination confirmation assessing equipment (e.g., black light/dark room).

7 Decontamination Certification

7.1 Certification for the named canine team shall be valid for one (1) year.

7.2 The certifying official(s) shall not be in the canine organization's chain of command.

7.3 For successful certification, the canine team shall achieve 100% decontamination tasks unless otherwise modified in this standard.

7.4 A mission-oriented environment(s) shall be used.

7.5 Decontamination shall be accomplished per task, conditions, and standards framework used within teams' organization.

7.6 A canine team that fails the certification process shall complete a documented corrective action plan before making another attempt to certify.

NOTE The certifying authority may fail the canine team due to handler errors and breaches of safety, which may include, but are not limited to, the following:

a) not maintaining positive control of the canine;

b) allowing canine outside of the decontamination area; and

c) not following directions of the assessor.

7.7 Certifying official(s) should identify the performance deficiency to the canine handler so that the trainer can determine the minimum amount of time for that deficiency to be remediated before another certification attempt.

7.8 During this remediation time frame, documentation should be provided by the canine trainer or handler to demonstrate that efforts have been enacted to correct the deficiency.

7.9 Organization(s) may enhance the recommended guidelines for team certification to direct enhanced task and procedures to improve team proficiency.

NOTE The organization has the discretion to direct additional tasks to improved proficiencies. Enhancements will be based on: specific mission, capabilities, and demographics.

8 Canine Team Maintenance Training

8.1 The canine team shall conduct regular objective-oriented training sufficient to maintain and enhance operational proficiency that includes:

a) enhancing the proficiency level of the canine team;

b) correcting identified deficiencies; and

c) a variety of search locations, environmental, weather conditions, and search area sizes.

8.2 Routine training conducted solely by the handler to maintain the canine's proficiency is acceptable, but not a best practice, and shall be combined with supervised training on a regular basis.

8.3 Canine teams shall receive supervised training by a competent trainer to improve performance, identify and correct training deficiencies, and perform proficiency assessments.

8.4 Canine teams shall be challenged during the regular maintenance training sessions within the operational environments for which the canine team may be deployed.

9 Canine Team Records and Document Management

9.1 The canine handler shall document training.

9.2 The canine team's organization shall document certification, canine team assessments, and deployment data as relevant.

9.3 Discipline-related deployment records shall be separated from training, proficiency assessment, and certification documentation.

NOTE Proficiency assessments and training records may be combined or separate documents.

9.4 Training and discipline-related records should be standardized within the organization.

9.5 Canine team assessment records maintained by the canine handler and organization shall include, but are not limited to, the following data:

a) canine team assessment results;

b) deficiencies and corrective measures noted for future training;

c) date and time of canine team assessment;

d) location, environment, and weather conditions during assessment (e.g., urban, rural, wilderness, etc.);

e) name of canine and canine handler;

f) name(s) of individual(s) conducting, assisting, or performing assessment;

g) other information required by the canine team's organization; and

h) the standard or guideline to which the canine team is assessed.

9.6 Certification records shall be maintained by the certifying authority and the canine handler, and shall include, but are not limited to, the following data:

a) canine team certification results;

b) certification authority [e.g., agency, professional organization, or individual(s)];

c) certification assessment design;

d) date and time canine team certified;

e) deficiencies and corrective measures noted for future training;

f) name of canine and canine handler;

g) name(s) of individual(s) conducting, assisting, or awarding certification;

h) other information required by canine team's organization; and

i) the standard or guideline to which the canine team is certified.

9.7 Training records maintained by the canine handler and organization shall include, but are not limited to, the following data:

a) canine team decontamination results;

b) deficiencies and corrective measures implemented during training regimen;

c) length of training session;

d) name of canine handler and canine;

e) name(s) of individual(s) conducting or assisting with training; and

f) other information required by canine team's organization.

9.8 Veterinary records shall be maintained in a manner such as they are accessible to the canine handler and organization.

9.9 Vaccinations required by state or local law shall be documented in the veterinary record of the canine.

Annex A
(informative)

K-9 First Aid Kit Inventory

NOTE The brand-name terms used in this Annex are used as examples only, and do not constitute an endorsement of the products by the AAFS Standards Board.

Equipment

Bandage Scissors – Lister

Hemostats – small curved, straight

Thermometer – digital, flexible tip

Supplies

Alcohol Wipes – clean intact skin, clean thermometer

Cling Elastic Wrap – Pet Flex: outer bandage layer

Clippers – mini, include batteries

Endotracheal tube – sized for your dog (e.g., 7, 8, 9)

Cotton cast pad roll – 3 in.: bandage intermediate layer

Gauze Sponges – 4 × 4 in.: sterile, wound contact layer

Gauze Rolls – 3 in., 4 in.: intermediate layer

Gloves – non-sterile, Nitrile hypoallergenic

Q-Tips – clean ears; apply styptic powder

Sam Splint – cuttable, malleable: extra limb support

Tape – 1 in. cloth, easy tear

Tongue Depressors

Treatments

Antibiotic Ointment – Triple Ab

Eye Irrigation Solution – gentle stream, eyes & wounds

Hemostasis Agent – Celox, QuikClot

Hydration Powders – Hydrolyte, K-9 Quencher

Antimicrobial Wipes – betadine/chlorhexidine; cleanse wounds

Lubricant – K-Y: lubricate thermometer, protect wound

Skin Glue – use gloves to apply

Skin Staples – size 35 wide: may hurt

Styptic Powder – Kwik Stop, less sting: use moist Q-tip

OTC Medications

Antacid – Prilosec 0.5-1 mg/kg 1x/day, Zantac 2x/day

Diphenhydramine – Benadryl 2-4 mg/kg or 1-2 mg/lb (e.g., 50-100 mg tablet per 50 lb dog)

Loperamide – Imodium

Naloxone – in nose or muscle, 2 ml repeat to effect

Personal Medications – 3-week supply

Skin drying agent

Shampoo – oatmeal, baby, dishwash

Annex B
(informative)

Physical Examination Normal Values

Temperature	Rectal, Aural (may be less accurate)	100.0°F to 102.5°F/38°C to 39°C Operational canine up to 106°F/41°C
Mentation	Observe, handler opinion	'BAR' = bright, alert, responsive
Hydration	Feel gingival or lip mucous membranes Tent skin over neck or back, check eyes	Moist mucous membranes (MM) Skin 'snaps' back, eyes not sunken
Mucous Membranes	Check color & capillary refill time (CRT) Look at gums, inner lip, eye conjunctiva Also prepuce, vulva	Pink, >1 and < 2 seconds refill of color
Eyes	Chamber clarity, conjunctiva Pupillary light response (PLR) direct, indirect (D/I) Nictitans (third eyelid) normal position	Clear, open, no discharge Pupils E/R (equal/responsive)
Ears	Visual exam, odor Otoscopic exam (challenging)	No discharge or malodor Tympanic membrane intact
Nose	Visual check, Glass/tissue/string before each nostril	Symmetrical, no discharge Airflow from each nostril
Throat/Oral	Lift lips, check teeth/gums Open mouth, check tongue	Teeth/gums intact, no blood No pain, check tonsils, gag reflex
Peripheral Lymph Nodes (PLNs)	Palpate parotid, mandibular, prescapular, axillary, popliteal	Small or non-palpable
Heart, Pulse	Auscultate heart left 5th rib Femoral pulse inner thigh	70 to 140 beats per minute (bpm), no murmur Athletic heart: 50 to 70 bpm Strong, synchronous to heartbeat
Lungs, Respiration	Auscultate thorax over ribs Observe breathing	Clear lung sounds 15 to 30 breaths per minute, no effort
Abdomen	Palpate	Non-painful, concave shape
Urogenital	♀: vulva, mammary glands ♂: prepuce, penis, scrotum	No swelling, discharge, pain, wound, blood
Integument	Part the hair to observe skin Run hands over body/limbs Check Paw pads, spread between toes	Good coat, no pain, wounds, swelling, excessive heat/cold

Rectal/Perineum	Observe area	No swelling, wounding, pain ♀: vagina/urethra ventrally ♂: prostate, urethra ventrally
Musculoskeletal	Observe gait, posture Palpate abnormalities	No lameness, swelling, pain or stiffness
Neurological	Mental state, cranial nerves Spinal pain, Limb reflexes	Bright Alert Responsive (BAR), visual, no spinal pain on palpation Normal reflexes

NOTE Prescription medications, by law, can only be prescribed by a veterinarian with a client-patient relationship. These may be obtained from your primary care veterinarian. Additional medications may be prescribed during deployment based on need to treat illness or injury of the operational canine.

Annex C
(informative)

Bibliography

The following bibliography is not intended to be an all-inclusive list, review, or endorsement of literature on this topic. The goal of the bibliography is to provide examples of publications addressed in the standard.

1] Florida v. Harris, Supreme Court of United States, October 2012.

2] ASB Technical Report 025, *Crime Scene/Death Investigation – Dogs and Sensors – Terms and Definitions*. 1st Ed. 2017.[d]

SWGDOG documents can be downloaded from:

https://www.nist.gov/sites/default/files/documents/2018/04/25/swgdog_general_guidelines.pdf

https://www.nist.gov/topics/forensic-science/dogs-and-sensors-subcommittee

[d] Available from: https://www.aafs.org/academy-standards-board

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