

DIVISION OF ANIMAL AND FOOD INDUSTRY SERVICES

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METHODS PRESCRIBED OR APPROVED FOR ANIMAL EUTHANASIA AND COMPETENCY CERTIFICATION REQUIREMENTS

I. PURPOSE

This Directive sets forth methods that are currently prescribed and approved by the State Veterinarian for the euthanasia of animals by any person pursuant to the provisions of Title 3.1, Chapter 27.4 of the Code of Virginia (1950), as amended.

II. AUTHORITY

Title 3.1, Chapter 27.4, Article 4, §3.1-796.96,D of the Code of Virginia states, in part, “. . . Any animal destroyed pursuant to the provisions of this chapter shall be euthanized by one of the methods prescribed or approved by the State Veterinarian.”

Title 54.1, Chapter 34, §54.1-3425 of the Code of Virginia states, in part, that the Board of Pharmacy “. . . may issue, upon such terms and conditions as it finds proper, to any humane society making application, a limited permit only for the purpose of buying, possessing, and using any drug approved by the State Veterinarian for the purpose of euthanizing injured, sick, homeless, and unwanted domestic pets and animals. . . .”

III. APPROVED METHODS

The use of injectable euthanasia agents is the most rapid and reliable method of performing euthanasia. It is the most desirable method when it can be performed without causing fear or distress in the animal.

All euthanasia must be performed humanely, by a competency-certified individual, (See Appendix A - Euthanasia Competency Certification for further details.) and use one of the approved methods listed below:

A. Routine Euthanasia

All situations – possible exceptions indicated under Emergency Euthanasia.

1. Sodium Pentobarbital, with or without lidocaine

Humanely administered intravenously or intraperitoneally, with or without prior sedation by an approved pre-euthanasia method. Intracardiac administration may be used only when the animal is anesthetized or comatose. (See Appendix B for dosages and further details.)

2. Carbon Monoxide Gas
Humanely administered, commercial-grade gas dispensed from a cylinder into an appropriately constructed and functioning chamber, with or without prior sedation of the animal with acepromazine (See Section III, C. under pre-euthanasia). NOT APPROVED FOR ANIMALS UNDER 16 WEEKS OF AGE, OR FOR ANY ANIMAL WHO HAS A COMPROMISED RESPIRATORY SYSTEM OR DIFFICULTY BREATHING DUE TO ADVANCED AGE, INJURY, ILLNESS OR PREGNANCY. (See Appendix C for chamber and operating requirements and further details.)
3. Drugs and/or Methods
Drugs and/or methods considered and recommended as humane by the most recent report of the American Veterinary Medical Association's Panel on Euthanasia.

B. Emergency Euthanasia

When euthanasia is required, but no other method of routine euthanasia is possible, and all other conditions for use of the following methods are met.

1. Sodium Pentobarbital, with or without lidocaine
Humanely administered intravenously or intraperitoneally, with or without prior sedation by an approved pre-euthanasia method. Intracardiac administration may be used only when the animal is anesthetized or comatose. (See Appendix B for dosages and further details.)
2. Firearms
Approved for use only when all of the following conditions are met:
 - a. Euthanasia is performed pursuant to:
 - (1) §3.1-796.98 when an animal is "showing active signs of rabies or suspected of having rabies" and for which "confinement is impossible or impracticable," or
 - (2) §3.1-796.116 when dogs are "in the act of killing or injuring livestock or poultry";
 - b. Approved methods of humane capture have been unsuccessfully attempted or are not possible (e.g., a dog which is in the act of killing or injuring livestock or poultry, animals that are an immediate danger to the public or a police or animal control officer, such as but not limited to, an animal that is loose on a road and is causing an immediate danger to the public, or an animal running at large that is exhibiting active symptoms of rabies.);
 - c. Conditions permit the safe utilization and discharge of a rifle or pistol without jeopardy to the public or other non-targeted animals;

- d. All local and state laws, rules and regulations or ordinances governing the use of firearms are followed;
 - e. Euthanasia is performed by a person that is trained and competency-certified in the:
 - (1) Use of the firearm to be used,
 - (2) Accurate placement of the projectile (i.e., the bullet) in the brain or heart* of the animal at the appropriate location for the species so as to cause instant unconsciousness or death.
- *NOTE: Only for animals in field situations in which locating and hitting the brain of the animal by gunshot is not possible or is inappropriate (as in the case of a rabid animal for which the intact brain may be required).
- f. Any animal that can reasonably be considered to be, or is capable of being, under the direct control or custody of an animal control officer (including critically ill, critically injured or unweaned animals) are to be euthanized ONLY by means of an approved method of routine euthanasia, i.e., sodium pentobarbital or carbon monoxide, NOT by the use of firearms.

Firearms are also approved for use, by Virginia State Police and local law enforcement officers in emergency situations; i.e., when an animal is placing the public or the officer in immediate danger, or, when an animal control officer is not available and humane euthanasia is necessary.

C. Pre-Euthanasia

The following methods are approved for use ONLY as a means of preliminary sedation of an animal in preparation for and as an aid in the humane euthanasia of an animal, but NOT for use as the primary means of euthanasia.

1. Acepromazine Maleate
Administered intramuscularly, subcutaneously or orally. See Appendix D for dosages and further details.
2. Xylazine Hydrochloride (e.g., trade name Rompun)
Administered intramuscularly (in dogs and cats) or subcutaneously (in dogs only). See Appendix D for dosages and further details.
3. Ketamine Hydrochloride-Xylazine Hydrochloride Combination
CARNIVORES ONLY. Administered intramuscularly only. See Appendix D for dosages and further details.
4. Sodium Pentobarbital, with or without lidocaine

Administered intravenously or intraperitoneally. See Appendix D for dosages and further details.

5. Tiletamine-zolazepam (trade name Telazol)
Administered intramuscularly. See Appendix D for dosages and further details.

IV. **GENERAL CONSIDERATIONS FOR EUTHANASIA**

- A. According to the 2000 Report of the American Veterinary Medical Association's Panel on Euthanasia, "The need to minimize animal distress, including fear, anxiety, and apprehension, must be considered in determining the method of euthanasia. Distress vocalizations, fearful behavior, and release of certain odors or pheromones by a frightened animal may cause anxiety and apprehension in other animals. Therefore, whenever possible, other animals should not be present when euthanasia is performed, especially euthanasia of the same species."
- B. According to Regulation 2 VAC 5-110-90, B., issued pursuant to §3.1-796.96 of the Code of Virginia, after euthanasia of an animal, death must be positively confirmed before disposal of the carcass. Therefore, each animal is to be carefully examined for:
 1. Lack of heartbeat*,
 2. Lack of respiration*, and
 3. Lack of corneal (i.e., eye) and/or toe-pinch reflexes.

*The use of a stethoscope to check for lack of heartbeat and respiration is quick and easy to learn. It is also more reliable than visual observation or palpation of the thorax, and should be used.
- C. The approval of any drug, drug combination, euthanizing agent, method of euthanasia or pre-euthanasia medication does NOT sanction the procurement or use of such drugs, agents or methods by any person in violation of state or federal law.

V. **COMPETENCY CERTIFICATION REQUIREMENTS**

Detailed information on the competency certification requirements can be found in the following appendices:

- A. Appendix A – Euthanasia Competency Certification
- B. Appendix B - Sodium Pentobarbital
- C. Appendix C - Carbon Monoxide
- D. Appendix D - Pre-euthanasia Methods
- E. Appendix E - Competency Certification Form – Injectable Euthanasia and Capture Drugs
- F. Appendix F - Competency Certification Form – Carbon Monoxide
- G. Appendix G - Competency Certification Form – Firearms and Capture Systems (Parts I & II)
- H. Appendix H - Competency Certification Form – Positive Determination of an Animal's Death

VI. **APPROVAL OF ADDITIONAL METHODS AND PROCEDURES**

The State Veterinarian reviews animal euthanasia research. New or improved methods, which are proven to be acceptable, will be added to the approved list. Local authorities or individuals seeking approval of specific alternative methods of animal euthanasia must submit a written request for consideration of the proposal to:

State Veterinarian and Director
Division of Animal and Food Industry Services
1100 Bank Street
Richmond, VA 23218

The request must include a detailed explanation of the proposed alternative method, substantive justification for the request, substantive reasons why the currently approved or prescribed methods cannot be used, and how the proposed deviation or alternative will resolve the reasons/problems, and sufficient objective and supportable evidence that the proposed deviation or alternative is at least as humane as the currently approved methods of euthanasia identified in this directive.

- VII Euthanasia performed for pounds or animal shelters by licensed veterinarians.
A licensed veterinarian who performs euthanasia on any animal in the custody of a pound, animal shelter or other releasing agency must submit a letter, on official letterhead, to the State Veterinarian, prior to performing such euthanasia stating that the veterinarian has read this directive, including each Appendix, and that the veterinarian will conduct the euthanasia in accordance with these directives.

Reviewed and approved this 28th day of October 2004.

/s/
Donald W. Butts, DVM
State Veterinarian

Attachments

Appendix A – Euthanasia Competency Certification
Appendix B - Sodium Pentobarbital
Appendix C - Carbon Monoxide
Appendix D - Pre-euthanasia Methods
Appendix E - Competency Certification Form – Injectable Euthanasia and Capture Drugs
Appendix F - Competency Certification Form – Carbon Monoxide
Appendix G - Competency Certification Form – Firearms and Capture Systems (Parts I & II)
Appendix H - Competency Certification Form – Positive Determination of an Animal’s Death

APPENDIX A – EUTHANASIA COMPETENCY CERTIFICATION**GENERAL PROVISIONS**

Any animal euthanized is to be euthanized only by a person or by persons that have been certified* in writing by a veterinarian employed by the Virginia Department of Agriculture and Consumer Services (VDACS) or by a licensed veterinarian authorized to practice in Virginia, as being properly trained and competent in the humane restraint and euthanasia of animals by the specific approved method(s) and euthanasia agent(s) used.

***NOTE:** Licensed veterinarians are exempted from this provision, having their competency certified by their Virginia license, but are required to perform euthanasia of animals in the custody of pounds, shelters or releasing agencies in accordance with the methods and euthanasia agents approved in this directive.

Such written certification of competency is to:

- A. Indicate that, at a specified point in time (i.e., date), the individual (specified by their full name):
 1. Was instructed by an appropriately qualified individual (identified by full name and credentials) in the proper humane restraint and euthanasia of animals, using the approved method(s) and euthanasia agent(s) specified;
 2. Demonstrated to the instructor/certifying veterinarian:
 - a. An understanding of the requirements of this Directive;
 - b. Competence in the humane restraint of animals for the approved method(s) and euthanasia agent(s) to be used;
 - c. Competence in determining the concentration and the appropriate dosage and rate of administration of the approved pre-euthanasia and/or euthanasia agent used;
 - d. Competency in humanely administering the specified approved pre-euthanasia and/or euthanasia agent(s) via approved routes of administration;
 - e. Competency in properly and accurately determining the death of an animal by the lack of a detectable:
 - (1) Heartbeat (by the use of a stethoscope and by thoracic palpation),
 - (2) Respiration (by use of a stethoscope and by thoracic palpation), and
 - (3) Corneal reflex and toe-pinch reflex;
- B. Be signed and dated by the VDACS or licensed veterinarian attesting to (i.e., 'certifying') the individual's demonstrated competence at that point in time;
- C. Be kept on file at the animal facility as a matter of public record;
- D. Be copied to the Office of the State Veterinarian for file, reference and public information; and
- E. Be renewed at least every three (3) years.

APPENDIX B - SODIUM PENTOBARBITAL

Sodium Pentobarbital, with or without lidocaine, is the euthanasia agent of choice and is recommended above all others at this time.

GENERAL INFORMATION AND REQUIREMENTS

Authorization to procure and use sodium pentobarbital (with or without lidocaine) requires registration with:

Drug Enforcement Administration (DEA)
Techworld Plaza
800 K Street NW, Suite 500
Washington, DC 20001
Phone: 202-305-8800

Virginia Department of Health Professions
Board of Pharmacy
6603 West Broad Street
Richmond, VA 23230
Phone: 804/-662-9911

LEGAL CONSIDERATIONS REGARDING SODIUM PENTOBARBITAL

- A. According to the Board of Pharmacy, §54.1-3415 of the Code of Virginia authorizes animal control officers and law-enforcement officers “. . . in the employ of the United States government or of any state, territorial, district, county, municipal, or insular government . . . by reason of his official duties . . . ;” to purchase, receive or possess any approved euthanasia drug for use in the lawful euthanasia of animals.
- B. According to §54.1-3425 of the Code of Virginia, the Board of Pharmacy “. . . may issue, upon such terms and conditions as it finds proper, to any humane society making application, a limited permit only for the purpose of buying, possessing, and using any drug approved by the State Veterinarian for the purpose of euthanizing injured, sick, homeless, and unwanted domestic pets and animals. . . .”
- C. Sodium pentobarbital, in a concentration of not less than 5 grains of sodium pentobarbital per cubic centimeter (i.e., per cc) of water, is to be administered by hypodermic syringe and needle directly into the bloodstream or peritoneal cavity of a properly restrained animal.
- D. Restraint and injection is recommended to be performed by two trained individuals; one to restrain the animal and the other competency-certified to administer the drug(s). However, it is also acceptable if one individual, trained to restrain the animal, and competency-certified to administer the drugs, can effectively and humanely accomplish both tasks simultaneously.

GENERAL CERTIFICATION REQUIREMENTS**Sodium Pentobarbital, with or without lidocaine**

- A. Certified competency and training for use of this drug is to include a demonstrated knowledge of the requirements of this Directive for its use.
- B. The ability to correctly determine the
 1. Concentration of the euthanasia solution used and
 2. The appropriate euthanasia dose of the euthanasia solution used.

- C. The correct gauge of hypodermic needle to be used (e.g., in a puppy, kitten or other young animal, in animals under 20 pounds, in animals 20-35 pounds, in animals 35-50 pounds, and in animals over 50 pounds).
- D. Intravenous administration is the preferred route of administration and is to be performed ONLY:
1. By an operator who is properly trained and competency-certified in intravenous administration of the drug into the jugular vein, cephalic vein, saphenous vein, femoral vein (cats only: not for dogs) or any other readily accessible and appropriate venous site for the species of animal being euthanized;
 2. When the animal is tractable and properly restrained without undue stress; and
 3. When a vein is readily accessible.
- E. Generally, a one-inch, 20- or 22-gauge hypodermic needle is used for injection in dogs weighing 20 or more pounds. Intravenous injection of smaller dogs, cats, kittens, and puppies requires increased expertise and the use of a smaller gauge (e.g., a 24-gauge), one-inch hypodermic needle. However, the smaller gauge needles, such as 24-gauge, makes injection of the sodium pentobarbital through the needle difficult and may cause the needle hub to disconnect from the syringe during injection. Therefore, use of a 24-gauge needle which screws onto an eccentric-tipped syringe and slow, steady injection may be needed for small animals. In all cases, the gauge or size of the needle used must be the appropriate size (i.e., not too large or too small) for the size of the vein being injected.
- F. The use of eccentric-tipped syringes for increased ease of inserting the needle into an animal's vein is recommended.
- G. Pre-euthanasia medication may be administered. (See Section III., C. of Directive 79-1)
1. Before intravenous administration of the euthanasia drug, sedation or anesthetization of the animal with an approved pre-euthanasia medication may be performed and may be needed, especially in fractious, vicious or intractable animals, or in animals with veins that are difficult to identify for injection.
 2. Such pre-euthanasia sedation or anesthetization is to be performed ONLY by individuals who are properly trained and competency-certified in the use and administration of the approved pre-euthanasia medications.
- H. Intravenous Administration
Certified competency training for the use of this method of administration is to include a demonstrated ability to:
1. Properly and humanely restrain an animal for injection into the jugular, cephalic, saphenous and femoral vein (in cats only); and
 2. Correctly locate and humanely inject into the
 - a. Jugular vein,
 - b. Cephalic vein,
 - c. Saphenous vein, and
 - d. Femoral vein (for cats only).
- I. Intraperitoneal Injection
Certified competency training for use of this method of administration is to include a demonstrated ability to properly and humanely restrain an animal for injection into the peritoneal cavity and correctly locate, and humanely inject into, the peritoneal cavity approximately one-inch behind the umbilicus on the midline.
1. Intraperitoneal injection may be a preferred route of injection in cats, kittens, small dogs less than 20 pounds, puppies, birds and other small animals, or for animals that have small, collapsed or difficult to inject veins.
 2. Intraperitoneal injection is to be performed ONLY
 - a. By a person who is properly trained and competency-certified in the procedure, and
 - b. When the animal is properly restrained.

3. The usual injection site is approximately one-inch behind the umbilicus on the midline.
4. Generally, a one-inch, 22- to 24-gauge hypodermic needle may be used in animals weighing under 10 pounds; a one-inch, 22-gauge needle in animals weighing 10-25 pounds; a one-inch, 20-gauge needle in animals weighing 25-45 pounds; and a one-inch 18-20-gauge needle in animals over 45 pounds. (See §E above concerning caution in the use of 24-gauge needles.) In each case, the size and gauge of the needle must be appropriate for the size of the animal.
5. After intraperitoneal administration of the drug(s), the animal is to be placed in a safe cage or run (preferably in a quiet area) and monitored so that the animal does not inadvertently injure itself by stumbling or falling as unconsciousness develops. The time from injection to unconsciousness to death will differ from animal to animal.
6. The drug is gradually absorbed through the peritoneum. Therefore, after intraperitoneal injection, the animal gradually enters deeper planes of anesthesia as increasing amounts of the drug enter the bloodstream. Consequently, 30 minutes or more may be required before sufficient drug concentrations are absorbed to induce death. However, the mode of action to induce death is the same as for intravenous administration.
7. Because of the slow absorption from the peritoneal cavity, and the variability of metabolism in various animals, it is strongly recommended that, once the animal is "down," (i.e., sedated, anesthetized or unconscious), that the animal be given a "follow-up" injection of sodium pentobarbital to ensure death.

J. Intracardiac Injection

1. Intracardiac administration is NOT approved for use unless the animal is fully anesthetized, comatose or unconscious.
2. Competency certification to use this method of administration is to include a demonstrated ability to:
 - a. Properly and humanely restrain an animal for intracardiac injection;
 - b. Correctly locate the heart for humane injection in cats, puppies, kittens and other young animals as well as in small (less than 20 pounds), medium (20-40 pounds), and large (>40 pounds) animals;
 - c. Correctly determine and select the appropriate gauge and length of hypodermic needle for use in young, small, medium and large animals; and
 - d. Properly and humanely penetrate (i.e., inject) the heart of an animal with one thrust of a hypodermic needle.

APPENDIX C - CARBON MONOXIDE**MINIMUM REQUIREMENTS FOR USE**

Note: Carbon monoxide (CO) is a highly toxic, colorless, odorless gas that can be extremely flammable and explosive. According to the 2000 Report of the American Veterinary medical Association's Panel on Euthanasia:

"Carbon monoxide is cumulative poison. Distinct signs of CO toxicosis are not evident until the concentration is 0.05% in air, and the acute signs do not develop until the concentration is approximately 0.2%. In human beings, exposure to 0.32% CO and 0.45% CO for one hour will induce unconsciousness and death, respectively. Carbon monoxide is extremely hazardous for personnel because it is highly toxic and difficult to detect. Chronic exposure to low concentrations of carbon monoxide may be a health hazard, especially with regard to cardiovascular disease and teratogenic [i.e., birth defect] effects. . . ."

"In people, the most common symptoms of early CO toxicosis are headache, dizziness and weakness. As concentrations of carboxyhemoglobin increase, these signs may be followed by decreased visual acuity, tinnitus, nausea, progressive depression, confusion, and collapse. Because CO stimulates motor centers in the brain, unconsciousness may be accompanied by convulsions and muscular spasms."

Consequently, the potential personnel and safety hazards that accompany the use of carbon monoxide for the euthanasia of animals should be strongly considered before using this method of euthanasia. However, if this method is to be used, the following conditions must, at a minimum, be met:

- A. Euthanasia of animals with carbon monoxide is to be performed only:
 - 1. By a person who is properly trained and competency-certified in the use of this method of euthanasia;
 - 2. Using a properly constructed and maintained chamber; and
 - 3. In accordance with all provisions of this Directive.

- B. The chamber must:
 - 1. Be constructed of durable, easily cleanable material;
 - 2. Have sufficient external lighting in conjunction with at least one clean and transparent view port (i.e., window), both of which are to be used by the operator of the chamber to directly observe and monitor the animals during euthanasia to ensure that euthanasia is occurring properly and humanely;
 - 3. Be properly sealed, with such seals properly maintained to enable at least a 6% concentration of the gas to be attained in the chamber within 20 seconds, and to maintain this chamber concentration of the gas until death has occurred; and
 - 4. Be located in a well-ventilated area, preferably out of doors where the toxic hazards of gas exposure to the operator, to pound/shelter personnel and to pound/shelter animals will be avoided. If the chamber is located inside the shelter, OSHA approved CO monitors are required to warn personnel of hazardous concentrations.
 - 5. **Any electrical equipment (e.g. lights and fans) exposed to CO should be explosion proof.**

GUIDELINES FOR POUND AND SHELTER INSPECTIONS

- C. Only use commercial-grade carbon monoxide gas, dispensed from a cylinder.
- D. The commercial-grade carbon monoxide gas shall be dispensed from a cylinder into an appropriately constructed, sealed and maintained carbon monoxide chamber at a pressure and rate that achieves a 6% concentration of the gas within the chamber within 20 seconds.
- E. The carbon monoxide gas is to be stored in a well-ventilated area, where the toxic hazards of gas exposure to the operator, to pound/shelter personnel and to pound/shelter animals will be avoided.
- F. Pre-euthanasia sedation with acepromazine maleate, given intramuscularly (See Appendix D), is recommended to be performed in dogs and cats 20 minutes prior to subjecting the animal(s) to carbon monoxide euthanasia.

According to Drs. A. Dallaire and A. Chalifoux in their report on the "Physiologic and Behavioral Evaluation of Carbon Monoxide Euthanasia of Adult Dogs – Premedication of Dogs with Acepromazine or Pentazocine Before Euthanasia with Carbon Monoxide" (Canadian Journal of Comparative Medicine, 1985, 49:171-178):

"Acepromazine (at a dosage of 0.3 mg/lb. of body weight)...reduced by 25%...the number of (mongrel) dogs that showed vocalization and agitation. In acepromazine pre-medicated dogs, the duration of these signs was significantly diminished and sphincter relaxation did not occur in more than 50% of the cases. Furthermore, with the use of acepromazine, no significant peaks or drastic drops were noticed in the heart and respiratory rates and in the arterial blood pressure. These manifestations are usually related to stress. ..."

"Acepromazine pre-treatment significantly reduced

- (1) The number of dogs showing behavioral manifestations (33.3%) and
- (2) The duration of the behavioral manifestations (39.8%)."

- G. Only compatible animals of the same species shall be placed into the chamber together.
- H. The chamber must allow for the separation of individual animals by partitions or by placing individual animals in separate cages/carriers within the chamber. Each individual animal shall be separated from other animals in the chamber by means of partitions, cages or carriers. All partitions, cages or carriers used shall have solid bottoms. It is preferable that the sides of the partitions, cages or carriers be solid or a small mesh to minimize contact and stress.
- I. Animals to be euthanized shall not be placed into the chamber with other animals that have already been euthanized.
- J. All partitions, cages and carriers used in the chamber should be thoroughly cleaned after each use and before putting another animal in them to minimize the animal's fear and stress.
- K. The animal(s) should become unconscious within 45-60 seconds, and death should occur within 2-4 minutes.

GUIDELINES FOR POUND AND SHELTER INSPECTIONS

NOTE: Some reflex movements and sounds (vocalizations) may occur from the unconscious animals. These vocalizations and movements, made while the animal is passing through Stage II of anesthesia, should be differentiated from, and should not be confused with, conscious struggling.

- L. Animals should be left in the chamber at least 10 minutes after death has occurred before the chamber is opened.
- M. The operator should open the chamber only in a well-ventilated area, and should leave the animals another 10 minutes after the chamber is opened.
- N. Animals must be carefully examined to ensure that death has indeed occurred.

GENERAL CERTIFICATION REQUIREMENTS

Certified competency training in the use of carbon monoxide for euthanasia is to include the following:

- A. A demonstrated understanding of the provisions of Euthanasia and Competency Certification Directive 79-1 pertaining to the use of this method of euthanasia, including the proper separation of individual animals within the chamber and the prohibition of carbon monoxide euthanasia for animals with immature or compromised respiratory systems.
- B. A demonstrated understanding of the hazards associated with the use of this method and appropriate precautions to be taken when this method of euthanasia is performed.
- C. A demonstrated ability to properly and correctly determine and monitor the rate of flow and concentration of carbon monoxide in the chamber.
- D. A demonstrated ability to correctly operate the chamber.
- E. A demonstrated ability to properly and humanely euthanize animals with carbon monoxide.
- F. A demonstrated ability to correctly evaluate and determine when an animal has been rendered unconscious and has died.

Certification of Operation

The pound must obtain, from a recognized health and safety organization, an annual inspection of the chamber, certifying that the chamber is properly sealed, and capable of rapidly achieving a uniform carbon monoxide concentration of at least 6% after animals are placed in the chamber.

APPENDIX D – APPROVED PRE-EUTHANASIA METHODS

A. These methods are NOT approved as a primary means of euthanasia, but only as a means of preliminary sedation to aid in the humane euthanasia of an animal.

APPROVED DRUG*	SPECIES	ROUTE OF ADMINISTRATION	DOSAGE
Acepromazine maleate	Dogs	Intramuscular or subcutaneous Orally	0.25 to 0.5 mg/lb. 0.25 to 1 mg/lb.
	Cats	Intramuscular or subcutaneous Orally	0.5 to 1 mg/lb. 0.5 to 1 mg/lb.
Xylazine hydrochloride	Dogs less than 50 lb.	Intramuscular or subcutaneous	1 mg/lb.*
	Dogs more than 50 lb.	Intramuscular	0.5 mg/lb.*
	Cats	Intramuscular	1 mg/lb
Ketamine hydrochloride	Cats	Intramuscular	5 to 15 mg/lb.
	Non-human primates	Intramuscular	3 to 15 mg/lb.
Ketamine HCL, Xylazine HCL combination ***	Carnivores	Intramuscular	0.6 ml/10 lb.
Tiletamine-zolazepam (Telazol)	Cats & dogs	Intramuscular	0.1 to 0.4 ml/10 lbs.
Sodium pentobarbital** (with or without lidocaine)	Any animal	Intravenous	0.2 cc/10 lbs.**
	Young, small, fractious, ill or injured animals	Intraperitoneal	0.6cc/10 lbs.**

*Species, route and dosages approved by the FDA and listed in the manufacturers’ recommendations.

**Assuming the use of a 5 grain/ml. Concentration of sodium pentobarbital.

***Use of this drug must be under the general supervision of a licensed veterinarian.

B. Pre-euthanasia sedation is to be administered only:

1. By individuals that are properly trained and competency-certified to use and administer the approved pre-euthanasia drugs;
2. In the species in which the FDA has approved the drug(s) for use;
3. Via an approved route of administration for the species being given the approved drug; and
4. When the animal is being properly and humanely restrained by a person who is trained in the proper restraint of the animal for injection via the approved route of administration to be utilized.

C. Competency certification for pre-euthanasia is to include:

1. A demonstrated knowledge of the requirements of this Directive regarding the use of the approved pre-euthanasia drugs;
2. A demonstrated knowledge and ability to correctly determine the:
 - a. Concentration of the approved pre-euthanasia drug to be used;
 - b. Dose of the approved pre-euthanasia drug required; and,
 - c. Humane administration of the drug by the approved route(s) of administration to be used.

APPENDIX E
TRAINING AND COMPETENCY CERTIFICATION
Injectable Euthanasia and Capture Drugs

Veterinarian's Name(Print): _____

CERTIFICATION:

I hereby certify that _____ (full name)

received training on _____ (Month, day, year) and demonstrated competency in:

<input checked="" type="checkbox"/> Appropriate boxes:				
<input type="checkbox"/>	The requirements of the Directives 79-1 (Methods Prescribed or Approved for Animal Euthanasia and Competency Certification Requirements) and 83-1 (Approved Capture Drugs and Drug Administering Equipment) regarding the use of injectable drugs;			
<input type="checkbox"/>	Determining the concentration of the drug(s) being used;			
<input type="checkbox"/>	Determining the proper dose of the drug(s) to be given for the (check one or both as applicable)			
	<input type="checkbox"/> Euthanasia of the following animals:		<input type="checkbox"/> Chemical capture of the following animals:	
	Dogs <input type="checkbox"/>	Horses <input type="checkbox"/>	Sheep <input type="checkbox"/>	Birds/Poultry <input type="checkbox"/>
	Cats <input type="checkbox"/>	Cattle <input type="checkbox"/>	Goats <input type="checkbox"/>	Wildlife <input type="checkbox"/>
				Other (specify) <input type="checkbox"/>
<input type="checkbox"/>	The proper and humane restraint of the indicated species, and the appropriate selection and use of approved capture drugs and administering equipment;			
<input type="checkbox"/>	The selection of the appropriate gauge and length of hypodermic needle for small (< 10 lbs), medium (10 to 25 lbs) and large (> 25 lbs) animals, for various sizes and/or ages of the previously indicated species, and for each of the following indicated routes of administration; and			
<input type="checkbox"/>	The humane administration of the following indicated drugs via approved routes of administration, using approved drug administering equipment:			

Route of Administration	Drugs					
	Sodium Pento-barbital*	Ketamine HCL	Xylazine HCL	Ketamine/ Xylazine Combination (Rompun)	Ace-promazine Maleate	Tiletamine HCL & Zolazepam HCL (Telazol)***
INTRAVENOUS	<input type="checkbox"/>	NA	<input type="checkbox"/>	NA	<input type="checkbox"/>	NA
Jugular Vein	<input type="checkbox"/>	NA	<input type="checkbox"/>	NA	<input type="checkbox"/>	NA
Cephalic Vein	<input type="checkbox"/>	NA	<input type="checkbox"/>	NA	<input type="checkbox"/>	NA
Saphenous Vein	<input type="checkbox"/>	NA	<input type="checkbox"/>	NA	<input type="checkbox"/>	NA
Femoral Vein	<input type="checkbox"/>	NA	<input type="checkbox"/>	NA	<input type="checkbox"/>	NA
INTRAMUSCULAR	NA	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
INTRACARDIAC**	<input type="checkbox"/>	NA	NA	NA	NA	NA
INTRAPERITONEAL	<input type="checkbox"/>	NA	NA	NA	NA	NA
SUBCUTANEOUS	NA	<input type="checkbox"/>	NA	NA	<input type="checkbox"/>	NA
ORAL	NA	NA	NA	NA	<input type="checkbox"/>	NA

* With or without lidocaine. NA = Not approved route of administration.

** The individual demonstrated the ability and competence to correctly locate the heart for injection into the ventricle and demonstrated the ability and competence to properly and humanely penetrate (i.e., inject) into the ventricle of the heart with one thrust of the hypodermic needle. This procedure was and is ONLY to be done in an anesthetized or comatose animal.

*** Requires direct approval by the State Veterinarian. Submit written requests to use to the State Veterinarian, 1100 Bank Street, Richmond, Virginia 23219.

Signature certifying veterinarian****

Date

****Certifying veterinarian must be a veterinarian employed by the Virginia Department of Agriculture and Consumer Services or a licensed veterinarian authorized to practice in Virginia.

APPENDIX F
TRAINING AND COMPETENCY CERTIFICATION
Carbon Monoxide

Veterinarian's Name (Print): _____

CERTIFICATION:

I hereby certify that _____ (Full Name) received training

on _____ (Month, day, year) and demonstrated competency in:

<input checked="" type="checkbox"/>	Appropriate boxes:
<input type="checkbox"/>	The requirements of the State Veterinarian's Directive 79-1 (Methods Prescribed or Approved for Animal Euthanasia) regarding carbon monoxide chamber construction;
<input type="checkbox"/>	The requirements of the State Veterinarian's Directive 79-1 (Methods Prescribed or Approved for Animal Euthanasia) regarding the use of carbon monoxide to euthanize animals;
<input type="checkbox"/>	An understanding of the hazards associated with using carbon monoxide;
<input type="checkbox"/>	An understanding of the proper precautions to be taken when carbon monoxide is used to euthanize animals;
<input type="checkbox"/>	The proper and correct determination and monitoring of the: Rate of flow of carbon monoxide into the chamber, and
<input type="checkbox"/>	Concentration of carbon monoxide required in the chamber;
<input type="checkbox"/>	The proper, safe and humane operation of the carbon monoxide chamber;
<input type="checkbox"/>	The proper and humane euthanasia of the following indicated species of animals using carbon monoxide: <input type="checkbox"/> Dog <input type="checkbox"/> Cat <input type="checkbox"/> Wildlife <input type="checkbox"/> Birds/ Poultry <input type="checkbox"/> Other _____
<input type="checkbox"/>	The correct evaluation and determination of when the previously indicated species of animals have been rendered unconscious and dead in the chamber.
<input type="checkbox"/>	An understanding that no animal under 16 weeks or with a compromised respiratory system will be placed in the chamber and that each animal placed in the chamber will be separated from other animals in the chamber by means of partitions, cages or carriers.

Signature certifying veterinarian****

(Month, Day, Year)

****Certifying veterinarian must be a veterinarian employed by the Virginia Department of Agriculture and Consumer Services or a licensed veterinarian authorized to practice in Virginia.

APPENDIX G
Part I of II

TRAINING AND COMPETENCY CERTIFICATION FOR FIREARMS & CAPTURE SYSTEMS

Certifying Professional's Name (Print):

CERTIFICATION:

I hereby certify that (Full Name)_____ received training
on (Month, day, year)_____ and demonstrated competency in:

<input checked="" type="checkbox"/>	Appropriate boxes:
<input type="checkbox"/>	Local rules, regulations and restrictions concerning the carrying and use of firearms.
<input type="checkbox"/>	Proper and safe use and storage of firearms. (Including all firearms used by Animal Control, handguns, long-guns and dart delivery systems.)
<input type="checkbox"/>	Accuracy in firing the weapons listed below: _____ _____ _____ _____ _____
CERTIFICATION IS VALID ONLY FOR THOSE WEAPONS LISTED ABOVE	

Signature of Certifying Professional

Date

Appropriate box:

Range-master

OR

Firearms Instructor

1 of 2
APPENDIX G
Part II of II

TRAINING AND COMPETENCY CERTIFICATION FOR FIREARMS & CAPTURE SYSTEMS

Certifying Professional's Name (Print):

CERTIFICATION:

I hereby certify that (Full Name)_____ received training
 on (Month, day, year)_____ and demonstrated competency in:

<input checked="" type="checkbox"/>	Appropriate boxes:
<input type="checkbox"/>	Methods Prescribed or Approved for Animal Euthanasia and Competency Certification Requirements Directive 79-1 regarding the appropriate use of firearms for euthanasia.
<input type="checkbox"/>	Appropriate sites for bullet placement in the brain or the heart of the indicated species: <input type="checkbox"/> Dog <input type="checkbox"/> Cat <input type="checkbox"/> Horse <input type="checkbox"/> Cattle <input type="checkbox"/> Goat <input type="checkbox"/> Poultry <input type="checkbox"/> Swine <input type="checkbox"/> Wildlife <input type="checkbox"/> Other _____
<input type="checkbox"/>	Appropriate drugs and dart placement in the indicated species: <input type="checkbox"/> Dog <input type="checkbox"/> Cat <input type="checkbox"/> Cattle <input type="checkbox"/> Sheep/Goat <input type="checkbox"/> Swine <input type="checkbox"/> Wildlife
<input type="checkbox"/>	Has a written post capture protocol which includes: <input type="checkbox"/> The procedure for removing the dart from a captured animal, <input type="checkbox"/> First aid care of the dart wound, <input type="checkbox"/> The procedure for providing veterinary care to the animal immediately upon capture, and <input type="checkbox"/> Appropriate location and handling of the animal during recovery from anesthesia.

 Signature of Certifying Professional

 Date

- Appropriate box:
 State Veterinarian OR Instructor approved by State Veterinarian

APPENDIX H
TRAINING AND COMPETENCY CERTIFICATION
Positive Determination of An Animal's Death

Veterinarian's Name (Print) _____

CERTIFICATION:

I hereby certify that _____ employed by _____ received
(Full name) (Name of Pound/Shelter)

training on _____ and demonstrated competency in:

<input checked="" type="checkbox"/>	Appropriate boxes:
<input type="checkbox"/>	The proper and accurate determination of the death of the following indicated animal species: <input type="checkbox"/> Dog <input type="checkbox"/> Cat <input type="checkbox"/> Horse <input type="checkbox"/> Cattle <input type="checkbox"/> Sheep <input type="checkbox"/> Goat <input type="checkbox"/> Birds/ Poultry <input type="checkbox"/> Wildlife <input type="checkbox"/> Other _____
<input type="checkbox"/>	By the proper and accurate determination in the indicated species of: The lack of: <input type="checkbox"/> A heartbeat by: <input type="checkbox"/> The use of a stethoscope, and <input type="checkbox"/> Thoracic palpation; <input type="checkbox"/> Respiration by: <input type="checkbox"/> The use of a stethoscope, <input type="checkbox"/> Thoracic palpation, and <input type="checkbox"/> Visual observation; <input type="checkbox"/> Corneal reflexes; and <input type="checkbox"/> Toe-pinch reflexes.

Signature of Certifying Veterinarian*

Date

Street Address

Telephone Number

City State Zip Code

* Certifying veterinarian must be a veterinarian employed by the Virginia Department of Agriculture and Consumer Services or a licensed veterinarian authorized to practice in Virginia.