

SOP: **LARC-13**

Title: **Operation & Maintenance of the CO2 Euthanasia System**

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PURPOSE

The purpose of this Standard Operating Procedure (SOP) is to describe the method for using and maintaining the CO2 euthanasia system. This SOP applies to all CO2 euthanasia systems in the Laboratory Animal Research Core's Animals Facilities on the campus of the University of Missouri-Kansas City.

POLICY

It is LARC policy to meet or exceed all federal, state, and local regulations and guidelines and to comply with all institutional policies and procedures as they apply to the use of animals in research. Personnel must attend any applicable training in animal care and use, occupational health and safety, equipment operation, and Standard Operating Procedures prior to performing activities outlined in this SOP or work under the direct supervision of a trained LARC staff member.

REFERENCES

- A.** *LARC-10 Process and Disposal of Animal Carcasses*
- B.** *LARC-12 Euthanasia of Animals*
- C.** *AVMA Guidelines on Euthanasia*
- D.** Laboratory Animal Research Core Personnel

PROCEDURES

A. Introduction

- a. All CO₂ tanks must be stored in an upright position and be attached to a wall mounted bracket or secured properly to a portable cart.
- b. Connecting the unit: Attach the regulator to the main tank valve by advancing the nut and hand-tightening. Tighten the nut securely with the appropriate wrench supplied. Note: Affixed to the regulator are two gauges, one indicates the level of CO₂ remaining in tank by PSI (pounds/square inch) and the other shows the flow rate of the gas into the dessicator.
- c. By turning the "T" valve on the top of the regulator, the desired flow rate (10psi) to the dessicator can be maintained. When the system is not in use, the regulator flow should read zero.

B. System Operation

- a. Line the euthanasia compartment with a small trash liner (this will serve as containment for the feces and urine expelled during process).
- b. Open the main tank valve and check the supply for adequate level of CO₂.
- c. Place the animal(s) into the dessicator and replace lid. Check the lid for proper seal to ensure no gas leaks. You might have to hold lid down during process. NOTE: DO NOT OVERCROWD CHAMBER.
- d. Turn the main valve on to the tank rotating counter-clockwise (located on top of tank). Then Turn the "T" valve clockwise until the regulator reads 10psi. Make sure the small valve to the dessicator (located at the end of the flow tube nearest to the dissector) is on by turning valve counter-clockwise. You should hear air-flow.

- e. Gas flow should remain for at least 1 minute after apparent clinical death. **WARNING:** Most rats are able to hold their breath and “play dead”, therefore, they will require a longer gas induction time. Animals should be observed closely to ensure they are euthanized, when in doubt, euthanasia should be confirmed by a secondary physical method such as cervical dislocation.
- f. To turn off the system, repeat steps in section D starting with the main tank valve except rotating all valves in opposite directions. Turning off the system in this order will ensure the flow tube has been “bleed” of all gas.
- g. Use the Euthanasia Record form to record the appropriate data required. Then discard the carcass appropriately according to *SOP, LARC-10 Process and Disposal of Animal Carcasses*.

C. System Maintenance

- a. On a monthly basis the regulator is to be wiped down with mild detergent solution and wiped dry. Never place system in a rack washer, tunnel washer or autoclave.