STANDARD OPERATING PROCEDURES

DIVISION OF COMPARATIVE MEDICINE
UNIVERSITY OF SOUTH FLORIDA

TITLE:	**SurgiVet Multi-Station Lab Research Anesthesia System**
SCOPE:	Research and Animal Care Personnel
RESPONSIBILITY:	Facility Manager, Technical Staff, and Professional & Administrative Staff
PURPOSE:	To Outline the Proper Procedures for Use and Maintenance of the SurgiVet Anesthesia System

I. PURPOSE

1. Isoflurane inhalation provides safe general anesthesia for a variety of animal species. This procedure outlines the use and maintenance of a veterinary inhalation anesthesia machine that incorporates an oxygen flow meter, anesthetic vaporizer, and a non-rebreathing system with a waste gas scavenging system.

II. RESPONSIBILITY

1. The Facility Manager ensures that equipment is appropriately cleaned, maintained in good working order, and available for research personnel as requested.

2. The veterinary professional, administrative, and managerial staff ensures that all research and technical staff are adequately trained to use the SurgiVet Multi-Station Lab Research Anesthesia System.

III. EQUIPMENT SET- UP

1. **Assemble equipment** and ensure all necessary supplies are available (e.g., Isoflurane, oxygen tank).

2. Check to **ensure all control dials are in the off position**. Primary and station flow meters, and vaporizer settings should be at zero.

3. **Check that the isoflurane level** is adequate for the procedure, if not fill to appropriate level (see Maintenance section regarding filling procedure).

4. **Weigh the charcoal filter** to ensure it is within the manufacturer's weight parameters. Refer to manufacturer's recommendations.

5. **Check that all hose connections** are made between scavenging unit and station outlets. Check that all anesthesia circuits are properly connected between the scavenging unit and patient mask.

6. Clean machine surfaces, hoses, circuits, and masks/nosecones with chlorhexidine solution (1 ounce/1 gallon water).

7. **Attach an "E" tank** to the oxygen yoke located beneath the Station Flow Console, **secure and strap in position** utilizing provided hardware. Do not use a tank with a damaged or broken valve stem. Using a tank wrench, turn knob on the oxygen tank counter-clockwise and check pressure. A full tank will register ~2000 psi, the tank should be replaced when the pressure gauge reads 200 psi or less.

8. **Turn on the oxygen flow meter** on the Primary Flow assembly to check that gas supply is operational. Open individual Station Flow Outlets one at a time and listen for movement of gas.

9. Close all of the flow meters and observe the primary pressure manometer, pressure readings at the oxygen tank and primary flow assembly should remain constant. Failure to maintain pressure indicates malfunction. This unit has an automatic Relief Valve designed to protect the components of the machine from over pressurization.

10. If unit appears to be non-operational, contact the Facility Manager for assistance.

IV. EQUIPMENT USE

1. **Connect delivery lines from the station flow meters to the anesthesia circuit-assembly at the Fresh Gas Port**. The evacuation connection of each circuit assembly then fits into the Gas Evacuation System ports.

2. The Coax tube is then hooked up to an anesthetic cone, mask, endotracheal tube, or induction chamber.

3. **Set the vaporizer dial for 5% Isoflurane** at the Primary Flow meter. Oxygen flow to the primary vaporizer will be determined by the number of stations run throughout the procedure. Each station flow meter requires a minimum of 500ml to operate. Thus if one would like to run all six stations, then the primary flow meter must be set at 3 liters (L) (500 ml x 6 = 3L).

4. **Induction is normally performed at 3-4%.** To deliver this percentage, the individual flow meter is set to ½ liters per minute (LPM).

5. **Maintenance anesthesia is normally delivered at between 1 and 3%.** To achieve a concentration of ~2.5%, the flow meter is set to 1 LPM. A concentration of ~1.25% requires 2 LPM flow and ~.75% concentration requires 3 LPM flow.

6. **Rodent is placed within the induction chamber** and allowed to reach appropriate anesthetic depth prior to moving to an individual nose cone, mask or intubation hook up.

7. To **recover the animal**, turn off individual station (flow meter ball must be completely seated!) to stop isoflurane delivery, move the animal to warmed recovery area/cage.

V. MAINTENANCE

1. Weigh the charcoal scavenging device to ensure weight is below the manufacturer's recommended threshold for replacement. Refer to manufacturer's directions. **Note:** if the unit is vented to the outside/hood then the charcoal need not be replaced – however, the unit is balanced to pull with the restriction load provided by the charcoal, so it must be run full.

2. To fill vaporizer: remove the filler cap and carefully pour Isoflurane into vaporizer, observe proper fill level of Isoflurane through the sight glass. Replace cap.

3. To drain vaporizer: remove the filler cap to reveal the drain plug. Using the inverted filler cap, unscrew the plug but do not remove it. Drain only into a properly marked container.

4. Inspect the anesthesia machine connections and rubber parts before each use for looseness, damage, cracks, or wear, and replace when necessary. Detach induction box, hoses, and evacuation unit from the anesthesia machine, wipe all components with Sporicidin.

5. The vaporizer should be certified annually by an authorized technician.

6. Certification is documented by labeling the equipment with the date of certification and the date when certification is due.

7. Facility Managers are responsible for maintaining current records of Division-owned equipment inspections, calibrations, maintenance, non-routine repairs, and current inventory for their facility on the division's ***Equipment Maintenance Log*** **(CMDC#192)**.

VI. REFERENCES

1. Refer to the two manufacturer's manuals for additional information:
    a. Multi-Station Lab Research Anesthesia System Operations Manual
    b. Lab Animal Evacuation System Operations Manual –V7301

Approved: **Date:**