

	Title: Anesthesia Machine Quality Assurance	SOP #	AV 60-107
		Version #	1
		Implementation Date	11/4/2016
Page #	1 of 4	Next Review Date	11/4/2019
Department	Attending Veterinarian		

Standard Operating Procedure

1. Purpose

To provide guidelines regarding recommended scheduling for anesthesia machine/vaporizer calibration and maintenance. All users are advised to follow the manufacturer's recommendations if they differ from this document.

2. Scope

All animal care units using anesthesia machines.

3. Responsibilities

The Principal Investigator (PI) or facility manager is responsible for ensuring that each piece of equipment involved in the delivery of inhalant anesthetics must be evaluated regularly to assure its proper function and integrity.

The PI or facility manager is responsible for ensuring that personnel are trained in the proper use of anesthetic machines and vaporizers prior to operation.

4. Procedure

Anesthesia machines and vaporizers must be in good working condition to reduce anesthetic gas leaks, to ensure the best performance of scavenging equipment, and provide the appropriate percentage of anesthetic delivery.

Personnel must be trained in the proper use of anesthetic machines and vaporizers prior to operation.

An effective method of scavenging waste gases must be used at all times.

Each piece of equipment involved in the delivery of inhalant anesthetics must be inspected and serviced by an authorized anesthetic machine service provider annually to assure its proper function and integrity.

	Title: Anesthesia Machine Quality Assurance	SOP #	AV 60-107
		Version #	1
		Implementation Date	11/4/2016
Page #	2 of 4	Next Review Date	11/4/2019
Department	Attending Veterinarian		

Vaporizer Service:

- Accuracy of anesthetic agent delivery must be verified annually or any time the vaporizer has not been in service for more than a year. If the verified delivery is +/- 15% out of calibration, the unit should be serviced by an authorized service center.
- All anesthetic vaporizers should be serviced by qualified personnel (authorized service center) as recommended by the manufacturer. Manufacturer recommendations range from one to three years depending on the model.
- Discoloration (yellowish-brown) in the “Fill” sight glass of a vaporizer is an indication of need for service by an authorized service center.
- Vaporizers must have documentation of a date of delivery test with the initials for the person who performed the test and the test results. Vaporizers must have a certificate of the calibration date affixed after each service.

Waste Gas Scavenging Systems:

- Anesthetic machines must have an effective mechanism of waste gas scavenging because waste anesthetic gases may adversely affect liver, kidney, or the central nervous system of chronically exposed personnel and animals. Scavenging systems may be active or passive and could include the use of an absorber.
 - Charcoal canisters (e.g. F/AIR, ENVIRO-PURE) may be used to absorb halogenated waste gases, but not nitrous oxide. Manufacturer’s guidelines must be followed and usage must be documented either with a log indicating the hours used or weight of the canister (pre and post use) which must be indicated on the side of the canister.
 - CO2 absorbers should be changed regularly. The pH change when saturated with CO2 will activate a change in the ethylene violet dye indicator contained in these absorbers. These indicators can change back to white-grey if enough time is allowed, but this does not indicate the absorbers are still functional. Therefore, the absorbers must be changed as soon as a color change is noted. CO2 absorbers should be changed, at a minimum, after every 12 hours of use unless a color change indicates a need to change the absorber sooner.

5. References

1. OSHA Health Care Workers Guidelines/Chap5b

	Title: Anesthesia Machine Quality Assurance	SOP #	AV 60-107
		Version #	1
		Implementation Date	11/4/2016
Page #	3 of 4	Next Review Date	11/4/2019
Department	Attending Veterinarian		

2. Institute of Laboratory Animal Resources: Guide for the Care and use of Laboratory Animals, National Academy Press, Eighth Edition (http://www.nap.edu/catalog.php?record_id=12910).
3. Animal Welfare Act and Animal Welfare Regulations. United States Department of Agriculture, 2013 (https://www.aphis.usda.gov/animal_welfare/downloads/Animal%20Care%20Blue%20Book%20-%202013%20-%20FINAL.pdf).
4. National Institutes of Health: Public Health Service Policy on Humane Care and Use of Laboratory Animals (<http://grants.nih.gov/grants/olaw/references/phspol.htm>).
5. The Federation of Animal Science Societies: Guide for the Care and Use of Agricultural Animals in Research and Teaching, 3rd Edition, 2010 (http://www.fass.org/docs/agguide3rd/Ag_Guide_3rd_ed.pdf).

6. **Definitions**

1. AV – Attending Veterinarian – responsible for the health and well-being of all laboratory animals used at the institution
2. AVMA – American Veterinary Medical Association – a not-for-profit organization for advancing the science and practice of veterinary medicine to improve animal and human health
3. SOP – Standard Operating Procedure – established or prescribed methods to be followed routinely for the performance of designated operations or in designated situations
4. IACUC – Institutional Animal Care and Use Committee – responsible for assessment and oversight of the institution’s animal care program components and facilities
5. Chair – Chairperson of the IACUC
6. PI – Principal Investigator – a Central Oregon Community College employee having the background and training in scientific and administrative oversight necessary to conduct and manage the proposed study
7. AUP – Animal Care and Use Protocol – protocol created by the principal investigator of the proposed research, testing, or educational study
8. Protocol – Animal Care and Use Protocol – protocol created by the principal investigator of the proposed research, testing, or educational study
9. COCC – Central Oregon Community College
10. Guide – the *Guide for the Care and use of Laboratory Animals*
11. AWA – Animal Welfare Act – requires that minimum standards of care and treatment be provided for certain animals bred for commercial sale, used in research, transported commercially, or exhibited to the public



Title: Anesthesia Machine Quality Assurance

SOP #	AV 60-107
Version #	1
Implementation Date	11/4/2016
Next Review Date	11/4/2019

Page #	4 of 4
Department	Attending Veterinarian

- 12. PHS – Public Health Service – establishes guidelines for the proper care of animals to be used in research
- 13. Clinical veterinarian – the Attending Veterinarian or designee

Revision	Author	Revisions Made	Effective Date	Approval
1	Cindy Elston	<ul style="list-style-type: none"> • New SOP 	11/4/16	Cindy Elston (AV)
		<ul style="list-style-type: none"> • 		