Safe Work Practice

Animal Projects that Include Use of Designated Equipment

1.0 Hazard Description

Designated equipment are defined in this context as veterinary X-ray machines and Class 3b or Class 4 lasers. Designated equipment presents a risk of personnel radiation exposure if not used properly.

1.1 Hazard Assessment Considerations

In general, the following should be taken into account when performing hazard assessment of work with animal undergoing procedure involving use of designated equipment:

- Type of designated equipment used for the animal study,
- Animal immobilization method (e.g., animal is sedated or restrained), and,
- The procedure that animal is undergoing (e.g., imaging, therapy or surgery).

2.0 Minimum Hazard Controls

The control measures that are required when working with Class 3b and 4 lasers are described in the Laser Safety Manual available on the Environmental Health and Safety (EHS) website. The control measures that are required when working with veterinary X-ray machines are described in the Safety Code 28 Radiation Protection in Veterinary Medicine that is available on the Health Canada website. Other valuable resources are available via Alberta Veterinary Medical Association website.

2.1 Engineering Controls

1. X-ray machines
   A design of the facility must meet the requirements of Safety Code 28 mentioned above before Registration Certificate can be issued to operate the equipment. This will include facility layout as well as shielding considerations assessment.

2. Class 3b and 4 lasers
   A design of the facility must meet the requirements of the CSA standard “Safe use of lasers in health care”. Selected requirements and recommendations noted in the ANSI Z136.1 – 2014 American National Standard for Safe Use of Lasers are also taken into the consideration when assessing facility layout and shielding barrier considerations before Registration Certificate can be issued to operate the equipment.
2.2 Administrative Controls

1. Personnel operating designated equipment must undergo radiation hazard training as well as training on safe operation of the equipment. Personnel using designated equipment on animals usually have an existing medical or veterinary training. In case of X-ray equipment, personnel usually obtained some level of training in radiation technology.

2. A valid Registration Certificate for designated equipment must be obtained from EHS prior to operating the device.

2.3 Personal Protective Equipment (PPE)

1. PPE is determined based on the hazard assessment performed by the equipment owner (usually PI) or designate.

2. If the hazard assessment of the work in the facility identifies the possibility of generation of air contaminants (for example particulate organic matter, including viral bodies and bacteria during laser surgery), the equipment owner or designate must assess whether fit-tested N-95 respirators are required for personnel.

3. Personnel working in an X-ray facility must be issued a personal radiation dosimeter from the CNSC licenced dosimetry service.

3.0 Emergency Preparedness/Response

1. Any incidents must be reported by the PI using EHS Incident Portal within 24 hours of occurrence.

4.0 Applicable Legislation and Regulations

1. Radiation Protection Act, Revised Statutes of Alberta 2000, Chapter R-2, Canadian Nuclear Safety Commission

2. Radiation Protection Regulation, Alberta Regulation 182/2003, Canadian Nuclear Safety Commission

3. CSA Standard, Safe Use of Lasers in Health Care, CSA Group, Mississauga, Ontario


5. Safety Code 28, Radiation Protection in Veterinary Medicine, Health Canada

5.0 Related Resources

1. Laser Safety Manual, University of Alberta

2. Safe Work Practice: How to Use Animal Safe Work Practices (EHS-SWP-100), Environment, Health & Safety, University of Alberta
4. Safe Work Practice: Needle Safety (EHS-SWP-120), Environment, Health & Safety, University of Alberta

6.0 Document Management

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