Introduction: The following outlines the standard operating procedures of the NC State University Veterinary Health Complex regarding large animal nuclear medicine.

Procedures:

A. Animal Handling and Management Protocol

1. Nuclear Medicine operational hours M-Th 8:00 am- 5:00pm. Phone 3-6309
2. Nuclear image patients will be ordered in RIS. Requests for Hospital 99mTechnetium and other radionuclides (131Iodine, 67Gallium citrate, 111Indium and 201Thallium) should be submitted by 4:00pm the day before the procedure. Cases for Monday must be order the Friday before study date.
3. Large Animal Clinical Services are required to provide Signed Flow sheet or PICO for sedation and lasix, IV catheter if required, personnel for animal transportation and restraint during procedures.
4. Talk to the nuclear imaging radiologist or the nuclear imaging technologist, to determine any special arrangements before the exam is done.
5. Some procedures are done at the time of radiopharmaceutical injection Soft Tissue phase. and-some have an interval of time between injection and scanning this will be the Bone Phase. In either case the stall will be labeled with a radioactive area or radioactive materials sign at the time of radioactive animal occupancy.
6. A set of equine stalls has been identified as those to be used by horses injected with a radiopharmaceutical drug. These will be as far apart from human working areas as possible. The stalls for this are in the north-central of the equine barn.
7. After injection with the radiopharmaceutical a radioactive sign will be posted on the stall or cage.
8. The animal will be monitored by the nuclear medicine technician, so that, when the Geiger-Mueller survey meter readings are 1mR/hr or less for LA patients continuing treatment at the surface of the patient, the radioactive materials sign will be removed. (see line 16. For Large Animal Owner release readings)
9. The time period between injection and the time of removal of the sign will vary depending on the radionuclide used and the radiopharmaceutical. This could be less than 12 hours to greater than several days.
10. During the time the radioactive materials sign is posted on the cage, animals should not be handled for any non-medical reasons.
11. They may be handled for medically necessary work, feeding and watering remembering to keep the time spent and distance next to the animal at a minimum
12. The injection times will be clearly marked on the Isotope Administration Form with the radioactivity sign.
13. Blood, feces and especially urine are radioactive.
14. Gloves/protective clothing (Lab Coat or Disposable Plastic Chemo Gowns) and booties are to be worn if there is any possibility of being in direct contact with these materials.
15. If medical procedures have produced contaminated items, they are to be placed in a marked bag and taped to the stall/cage for monitoring and collection.

16. Release of the animal to its owner can occur when the surface dose rate is less than or equal to 5R/hr for LA. This is a dose rate considered safe for public exposure.

17. It is also anticipated that equine patients also meet this standard well before 24 hours post-injection. Because of the 5mR/hour standard for patient release, the nuclear imaging technologist will need to monitor these patients with a rate meter the day after the procedure to determine the dose rate and the decision on release will be dependent on this monitoring.

18. Any procedural question or concerns should be directed to Nuc Medicine Technician or Imaging Supervisor.

19. If during the first 24 hours, an animal develops a life threatening condition, the Nuc Med technologist 3-6590 must be notified so that there is proper handling of the waste materials (monitoring of contaminated instruments, gloves, drapes, etc.) and / or the Radiation Safety Office for monitoring of contaminated individuals. If after normal business hours the radiation protection office must be contacted through Campus Police 5-3000 or by dialing 911 from a house phone and they will contract the appropriate Radiation Safety Personnel.  

B. Management of Waste

1. Animal technicians should not attempt to change bedding until the area is cleared by the Nuclear Medicine Technologist.

2. Solid waste is usually not radioactive but should be treated as if it is since a few procedures will make it radioactive.

3. After the animal and the area have been cleared, stalls can be cleaned and disinfected with the following provisions.
   a. Urine can be rinsed into the drains with no radioactive hazard.
   b. Large Animal solid waste and bedding is to be collected and disposed of in the designated gray, labeled container outside the LA hospital.

4. After the solid waste has been taken from the area and the area rinsed down, normal disinfection procedures can be started.

5. Large Animal designated container will be taken to the incinerator after any residual radioactivity has decayed to background levels (60 hours) post injection.