

# XXXX Nuclear Laboratory

## Radioactive Waste and Disposal Policy

1. Return of Radiopharmaceuticals to Commercial Radiopharmacy
  - a. Only unused materials from the supplier of radiopharmaceuticals will be returned to the company in their designated shipping cases. These shipments must comply with both DOT and NRC regulations for limited quantity shipments. Unused doses must be held for decay until the activity to be returned is less than the limits listed in the following table. Contaminated lead shields and pigs must be held for decay until no appreciable difference from background is noted.

<u>Radionuclide</u>	<u>Limited shipment quantity (mCi)</u>
Ga67	8.1
I123	123
I <sup>131</sup> liquid	1.9
In111	8.1
Tc99m	11
Tl201	11
Xe133	270

- b. Exposure levels at any point on the surface of the package must not exceed 0.5 mR/hr. (0.7 mR/hr with a pancake GM probe)
  - c. Assure that external surfaces of the dose shields and case have less than 2000 dpm/100 cm<sup>2</sup> or 6600 dpm/300 cm<sup>2</sup> (A wipe test of 300 cm<sup>2</sup> (about the size of a sheet of paper) must indicate <100 cpm using a pancake probe)
  - d. Record all appropriate information in SI units (Sv) on the outgoing package log and initial all entries.
  - e. Contaminated or used doses may not be returned to the radiopharmacy as per OSHA regulation. Radioactive used or contaminated syringes will be stored in the shielded red pickup truck or biohazard sharps container located in the radioactive “hot” waste in the hot lab as per the policy described in this manual.
2. Radioactive Decay
  - a. Radioactive waste material will primarily be disposed of by decay in storage in the locked hot lab. After decay in storage to background levels, the material will be sent to a qualified medical biohazard waste removal company.
  - b. Waste in the form of old sources will be returned to the manufacturer or radiopharmacy as per their guidelines and regulations.
  - c. All radioactive materials shall be stored in appropriate shielded waste containers bearing labels indicating “Radioactive Waste Do Not Dispose”. These materials shall be held for at least 10 half lives in the hot lab and surveyed with a GM meter prior to final disposal.
  - d. Procedure Decay in Storage:
    - i) Waste will be sorted using separate containers for needles and syringes in one container and swabs and gauze in another.
    - ii) Waste containing radionuclides with half-lives less than or equal to 120 days are to be held for decay prior to disposal as regular biohazardous trash. All Tc99m, Tl201, and I123 trash will be collected and treated according to the material with the longest half-life being disposed. In the rare event of other isotope waste, the waste will be separated and treated accordingly.
    - iii) When the waste receptacle is full, the bag will be sealed.

- iv) The material will be labeled and stored behind appropriate shielding for greater than 10 half-lives of the isotope with the longest half-life. This area must be secured and locked.
- v) After 10 half-lives, the material may be disposed of as regular biohazardous trash. The date, background rate and exposure rate of the waste should be surveyed again and recorded. In addition, the survey instrument and name of the individual performing the survey must also be recorded. The exposure rate must be equal to background.
- vi) All radioactive material labels should be removed or obliterated. The material may now be disposed of as biohazardous trash. See biohazardous policy
- vii) Non-radioactive waste such as boxes and packing materials should be surveyed to assure the material is not radioactive and disposed of as ordinary trash.
- viii) Occasionally, disposal procedures should be monitored and evaluated to ensure that radioactive or biohazardous waste is not created unnecessarily. In all cases, consider the entire impact of various available disposal routes. Consider the occupational and public exposure to radiation, other hazards associated with the material and routes of disposal and expense.

SAMPLE

Written: _____	Date: _____
Revised: _____	Date: _____
Reviewed: _____	Date: _____
_____	Date: _____