



CLINICAL RADIOACTIVE WASTE DISPOSAL PROCEDURE

1. Scope

This procedure applies to the disposal of radioactive waste within the Nuclear Medicine, Nuclear Cardiology, Radiation Oncology, and PET Departments under license GA 153-1.

2. Equipment/Materials

The following equipment is needed to complete the items referred to in this procedure:

- 2.1. A radiation detection survey instrument.
- 2.2. Radioactive waste survey and disposal forms.

3. Procedure

3.1. To minimize the volume of waste that is stored, one should segregate waste into one of four categories according to the radiological half-life of the isotope, e.g.:

CATEGORY	HALF LIFE
< 3 days	(18F, 166Ho, 111In, 123I, 99Mo, 153Sm, 99mTc, 90Y)
> 3 days but < 15 days	(67Ga, 131I, 32P, 201Tl)
> 15 days but < 120 days	(51Cr, 125I, 89Sr)
> 120 days	(3H, 14C, 57Co)

- 3.2. Material with a half-life of < 120 days may be disposed of by DIS (decay in storage) or returned to manufacturer as negotiated with the commercial pharmacy.
- 3.3. Arrangements must be made with the Radiation Safety Office or the manufacturer of the material for the disposal of material with a half-life of > 120 days.
- 3.4. Deface all radioactive material labels prior to disposal, unless waste is to be incinerated.
- 3.5. Do not mix non-radioactive waste with radioactive waste.
- 3.6. When the waste container is full, or the radiation levels are higher than normal, seal it and attach an identification tag that includes the following information:
 - 3.6.1. Date sealed (storage date),
 - 3.6.2. Listing of radionuclide(s) present or a "Bin" number, if a complete list of radioisotopes in container is located on the computer according to Bin number.
 - 3.6.3. Exposure readings of the container,
 - 3.6.4. Initials of the person sealing the container
- 3.7. Transfer the sealed container to an appropriate DIS storage area.

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- 3.8. Sealed waste containers are held until the radioactivity levels cannot be distinguished from the background radiation level with an appropriate radiation detection survey instrument set on its most sensitive scale.
 - 3.9. After the appropriate storage time, perform the following steps to discard the decayed waste as in-house trash.
 - 3.9.1. Remove any shielding from or around the container.
 - 3.9.2. In a low background area, monitor each container with radiation detection survey meter set on the most sensitive scale. Monitor all surfaces of the container. Discard as in-house waste only those containers which cannot be distinguished from background.
 - 3.9.3. Generator columns must be individually separated and all radiation shielding removed to ensure that the contents have decayed to background radiation levels.
 - 3.9.4. Record background and the highest waste container surface dose rate measurement. If highest surface dose rate measurement exceeds background radiation level, hold for further decay.
 - 3.9.5. Remove the radioactive waste container identification tag and any additional radioactive material labels.
 - 3.9.6. Record the disposal date, the model and serial number of the survey instrument used, and your name with the container identification information.
- NOTE:** Used Mo-99/Tc-99m generators may be returned to the manufacturer in accordance with 10 CFR 71 (5) and DOT regulations, or may be held for DIS prior to return.
- 3.9.7. If generators are not held for DIS:
 - 3.9.7.1. The package must qualify as a DOT type 7A container and must be kept according to regulation or Emory Policy, whichever is longer. Generators must be packaged in accordance with the manufacturer's instructions.
 - 3.9.7.2. Package dose rate and removable contamination measurements as required by 49 CFR 173 must be performed and recorded, and
 - 3.9.7.3. Package shipping papers must be completed in accordance with the manufacturer's instructions and DOT regulations.
 - 3.9.8. Contact the Radiation Safety Office for assistance.

4. Records

- 4.1. Waste disposal records for decay in storage must include the following information:
 - 4.1.1. Waste container ID #
 - 4.1.2. storage date;
 - 4.1.3. radionuclides present in the container;
 - 4.1.4. disposal date;
 - 4.1.5. model and serial number of the radiation detection survey instrument;
 - 4.1.6. background dose rate;
 - 4.1.7. radiation dose rate at the surface of each waste container prior to disposal;

- 4.1.8. name of the individual who performed the disposal.
- 4.2. Waste disposal records must be kept according to [Record Retention for Radiation Safety Office](#).

5. Responsibilities

5.1. Area Supervisor

The Area Supervisor is responsible for:

- 5.1.1. Monitoring all procedures to ensure that radioactive waste is not created unnecessarily, and
- 5.1.2. Reviewing new procedures to ensure that waste is handled in a manner consistent with established procedures.

5.2. Associate Radiation Safety Officer

- 5.2.1. It is the responsibility of the Associate Radiation Safety Officer to review waste disposal records for completeness.

6. References

- 6.1. GA Rule 391-3-17-.05(40).