

## Waste Decay Procedures

Some short half-life wastes, e.g. those at medical facilities, may be disposed of as non-radioactive waste if the waste is allowed to decay for a sufficient period, e.g. 10 half-lives, and all radiation labels and markings removed or obliterated.

The waste must be properly surveyed prior to disposal to verify the absence of radioactivity. Procedures of gamma emitting radionuclides must specify that residual radioactivity indistinguishable when measured in a low background area. Survey records must properly document these surveys. There is always some residual radioactivity and its detection depends on the sensitivity of the equipment used to perform the surveys.

Operators of landfills and medical waste incinerators and autoclaves may use very sensitive detection equipment (e.g. Sodium Iodide crystal detectors) to survey shipment of waste to be processed.

If surveys of waste are performed using an instrument such as a side window GM detector, findings of gamma-emitting waste could be indistinguishable from background at levels of radiation that would be detectable with more sensitive equipment.

This becomes more likely if short half-lived waste contents are to be disposed as biomedical waste, since this type of waste is often handled individually and a survey is made at the surface of the container as opposed to several feet outside a vehicle or metal container.

Operational policies of landfill operators, waste haulers and waste processors may require them to either return the waste to the generator or have the generator retrieve the waste.

Significant costs may be incurred by the generator and recovering the radiologically "hot" items may be difficult or dangerous. To avoid these complications, the Nevada Radiological Health Section suggests the following:

- Store all wastes to be disposed by the decay-in-storage method at least 10 half-lives before releasing and consider storage for an additional 10 half-lives if radioactivity is detected or if surveys are performed with instruments less sensitive than a scintillation (sodium iodide crystal) detector;
- Segregate the waste by half-life to minimize the space required for storage;
- Ensure the waste is decayed to levels indistinguishable from background and that the results of the survey are documented;
- Survey the waste in a low background area with appropriate technique and with the most sensitive radiation detection instrument available;
- Know where the waste is going and how it is surveyed;
- Handle all articles involved with radiopharmaceutical administration as contaminated until surveys confirm otherwise (i.e. IV tubing, gloves, EKG pads, alcohol preps, lab specimens, therapy patients wastes items)
- Develop your own detection systems and procedures to monitor all waste for radioactivity before it leaves the facility.

The licensee is required to follow specific radiation safety procedures. Ultimate responsibility for control of radioactive material and decayed waste falls to the generator. If you have any questions, please contact the Radiological Health Section at 775-687-7550.