

Multihazardous Waste

Examples of Multihazardous Waste

Multihazardous waste is waste containing two or more of the following: radioactive material, infectious agent(s), or hazardous chemical(s). One type of multihazardous waste is Mixed Waste: Waste that contains both a hazardous component and radioactive material regulated by the NRC. "Mixed Waste" is a subset of multihazardous waste

- Aqueous radioactive wastes containing chloroform or heavy metals
- Methanol/acetic acid solutions from electrophoresis procedures containing radioactive material
- Hazardous liquid scintillation counting fluids with radioactive content
- Radioactive trichloroacetic acid solutions
- Phenol/chloroform mixtures used to extract DNA from radio labeled cells
- Vacuum pump oil contaminated with radioactive material
- Chemical or radioactive wastes containing infectious agents
- Used animal bedding contaminated with at least two of the above listed hazard types (chemical, radioactive and infectious)
- Lead contaminated with radioactive material
- Aqueous radioactive liquids with pH = <2 or >12.5

General Information

Mixed waste containers (4L, 10L, and 20L) and spill trays are available by calling Radioactive Waste Service at (301) 496-4451. Caution-Radioactive Material labels (NSN-7690-00-833-0318), Radioactive Waste Pickup Receipts (NSN-7530-00-L07-8835), and Chemical Waste Tags (NSN-7530-00-L07-5985) are available at the self-service store. Call (301) 496-4451 or log on to <http://drsportal.ors.od.nih.gov/> to request your mixed waste pickup.



Avoid Generating

- Avoid generating multihazardous wastes as disposal can be difficult and expensive. For help in avoiding generation of multihazardous waste, call the Division of Environmental Protection (DEP), (301) 496-7990 or the Division of Radiation Safety (DRS), (301) 496-5774

Minimize Generation Inactive Waste

- Minimize volumes generated if generation of multihazardous waste cannot be avoided
- PRIOR to beginning work activities which will generate multihazardous waste, call DEP or DRS for waste management information
- Inactivation of the agent(s) is usually the first step in the disposal process if the multihazardous waste contains an infectious agent(s). Contact your Health and Safety Specialist in DOHS at (301) 496-2346, for appropriate inactivation methods
- Specific procedures for autoclaving radioactive waste must be approved by your Area Health Physicist prior to use of an autoclave to inactivate the waste. (see [Radioactive Waste Section](#))

Security

- Mixed waste must be secured or held under constant surveillance to prevent unauthorized removal or access. Consult your Area Health Physicist in DRS at (301) 496-5774, for more information

Incompatible Mixture

Don't Mix

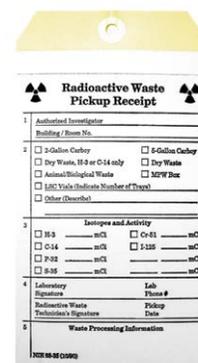
- Liquid mixed waste with solid radioactive waste
- Hazardous chemicals with radioactive aqueous wastes
- Segregate by isotope half-life: very short (<30 days), intermediate (30-120 days), and long (>120 days)
- Flammable liquids with radioactive material
- Radioactive aqueous wastes with high organic content mixed waste
- Infectious agents with non-infectious materials

Multihazardous Waste

Identify and Label

Identification and labeling

- List on the Radioactive Waste Pickup Receipt an estimate of radionuclide(s) and activity present at time of pick-up
- Record on the Chemical Waste Tag each chemical added to the container and the concentration and volume
- Ensure that all mixed waste containers have a:
 - Caution-Radioactive Material label (NSN-7690-00-833-0318)
 - Radioactive Waste Pickup Receipt (NSN-7530-00-L07-8835)
 - Chemical Waste Tag (NIH 2459, (NSN-7530-00-L07-5985))



Radioactive Waste Pickup Receipt

1. Authorized Investigator
Building / Room No. _____

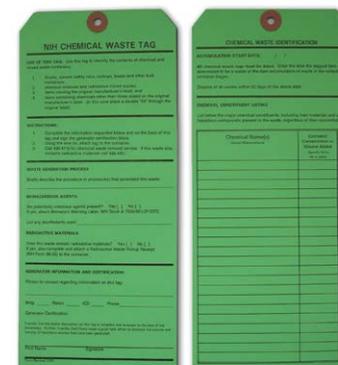
2. Solution Container Solid Container
 Dry Waste, SS or O-14 only Dry Waste
 Animal/Biological Waste MFW Box
 SRC Vials (Indicate Number of Vials) _____
 Other (describe) _____

3. Isotopes and Activity
 U-235 _____ mCi Cr-51 _____ mCi
 U-238 _____ mCi T-125 _____ mCi
 P-32 _____ mCi _____ mCi
 S-35 _____ mCi _____ mCi

4. Laboratory Signature _____ Lab _____
Radioactive Waste _____ Room # _____
Technician's Signature _____ Pickup _____
Date _____

5. Waste Processing Information

NSN 7530-00-L07-8835



NIH CHEMICAL WASTE TAG

1. CHEMICAL WASTE IDENTIFICATION

2. LABORATORY SIGNATURE

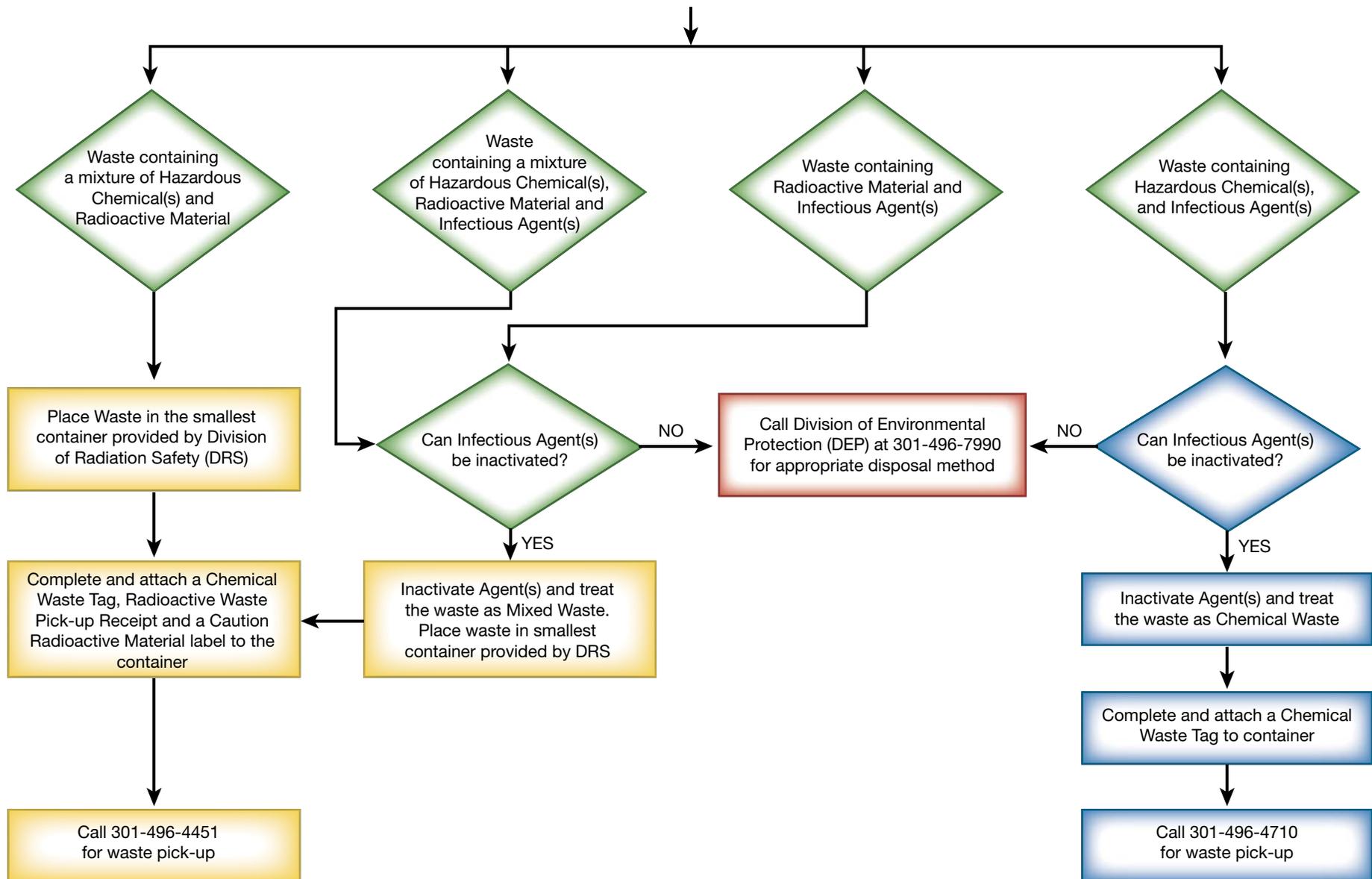
Shielding Requirements

- Shield radioactive material such that:
 - Radiation levels are less than 2 millirem/hour @ 10 cm within a posted laboratory, AND radiation levels are less than 0.5 millirem/hour or 50 millirem in a year in any unrestricted area (e.g., space adjacent to a posted laboratory or corridor)
- The Radioactive Waste Service recycles beta/plastic and lead shielding – call (301) 496-4451 and inquire if shielding is available

Waste Storage

- Mixed waste containing radioactive material must only be stored in laboratories posted for use of radioactive material
- NEVER place mixed waste in corridors- even while awaiting pickup
- Ensure that all waste containers are closed securely to prevent leaks, spills or escape of vapors
- Mixed waste must be stored in appropriate spill containment trays or devices
- Mixed waste must be picked up within 60 days of the collection start date

Waste Management and Disposal Procedures for Multihazardous Waste



Liquid Scintillation Vials With Flammable Material

Specific Types of Mixed Waste

- Ensure vials caps are securely tightened
- Place vials in original tray or box (with plastic liner)
- Separate by radionuclide - Vials with the same nuclide may be grouped together and H-3 & C-14 may be grouped together
- Attach to tray or box:
 - Caution-Radioactive Material label (NSN-7690-00-833-0318)
 - Radioactive Waste Pickup Receipt (NSN-7530-00-L07-8835). Add name of Scintillation Cocktail to Pickup Receipt



Lead Contaminated With Radioactive Material

- Place lead in box and attach:
 - Caution-Radioactive Material label (NSN-7690-00-833-0318)
 - Radioactive Waste Pickup Receipt (NSN-7530-00-L07-8835)
 - Chemical Waste Tag (NSN-7530-00-L07-5985)