

Radioactive Waste Disposal

The disposal of radionuclides is strictly regulated by federal and state laws and requires careful documentation. The release of radionuclides to the environment is permitted only as outlined in the UWM NRC license. All radionuclides which are no longer in use must be turned over to the Radiation Safety Program for disposal. Only in certain cases, when authorized by the Radiation Safety Officer, can radioactive materials be disposed of otherwise.

Transfer of Radioactive Wastes to the Radiation Safety Program

The Authorized User or their representative should contact the Radiation Safety Program when they need to dispose of radioactive wastes. A radioactive waste disposal form must be completed so the Authorized User's inventory records can be updated. The "copy" (yellow) part of the form should be forwarded to the Radiation Safety Program and the "original" (white) should be filed in the laboratory's radionuclide inventory log. All wastes must be packaged and labeled following the guidelines listed below. Improperly packaged or labeled wastes will not be accepted for disposal until they are properly packaged and appropriately labeled.

Waste Packaging - Solids

1. Solid and liquid wastes are handled differently at disposal time, therefore they must be packaged differently. All vials, test tubes, etc., packaged as solid waste must not contain any liquid.
2. Solid wastes should be packaged in the plastic bags provided by the Radiation Safety Program. The attached Radioactive Waste Label must be filled out completely. All labels and radioactive material markings on solid waste material inside the bag must be removed or defaced.
3. Carbon-14 and Tritium wastes are processed similarly and may be packaged together. Wastes from all other isotopes must be packaged separately.
4. Wastes containing lead are very difficult to dispose of. This includes lead "pigs" or containers, as well as radioactive lead ore. Call Radiation Safety for information on the disposal options for radioactive lead ores.
5. All needles, syringes, pasteur pipette tips, sharps, blades, etc. must be placed in a sharps container. These containers are provided by the Radiation Safety Program. Once filled, the container should be sealed and disposed of as solid low level radioactive waste. Report sharps container disposals on the appropriate line of the disposal form.
6. Stock solution vials and other source containers should be packaged separately from other solid wastes. Report source vial disposal on the appropriate line of the disposal form.
7. Complete a radioactive waste disposal form and contact the Radiation Safety Program to schedule a waste pick up.



Waste Packaging - Liquids

1. Liquid wastes should be contained in plastic jugs or carboys furnished by the Radiation Safety Program. When requested jugs are delivered during waste pick-ups. A complete radioactive waste label and a liquid waste tag must be attached to each jug.
2. Aqueous wastes must be kept separate from organic solvent wastes.
3. Neutralize all aqueous liquids: $5.5 < \text{pH} < 8.5$.
4. Do not fill containers above the "Full Line"; allow room for thermal expansion.
5. Do not put solids in liquid waste containers.
6. Complete a radioactive waste disposal form and contact the Radiation Safety Program to schedule a waste pick up.

Waste Packaging - Liquid Scintillation Vials

1. Liquid scintillation wastes must be kept separate from other wastes. Additionally, liquid scintillation wastes must be segregated by cocktail type, i.e., sewer disposable or organic hydrocarbon.
2. Keep vials separated by size and type (e.g., plastic, glass, film).
3. Sewer disposable liquid scintillation solutions may either be put into aqueous liquid containers (see above) or be kept in their original vials and packaged in boxes for pick-up.
4. Organic hydrocarbon cocktails (e.g. toluene, xylene, pseudo-cumene based) must be kept separate from sewer disposable cocktails. Organic hydrocarbon cocktails must be kept in their original counting vials and packaged in boxes for pick-up.
5. Affix a completed radioactive waste label to each box. Mark the cocktail brand name and any biological or chemical hazard that might make sewer disposal inappropriate.
6. Complete a radioactive waste disposal form and call the Radiation Safety Program to schedule a pick-up.

Disposal of Radioactive Animal Wastes

All animals which have been injected with or administered radioactive materials must be disposed of through Radiation Safety at the end of the project or when sacrificed. When disposing of animal carcasses, tissues, or animal wastes which contain radioactivity, these guidelines should be followed:

1. All tissue and carcass wastes should be frozen prior to pick up.
2. Place no more than 5.0 mCi of combined total activity of C-14 and H-3 into one container (plastic bag).
3. Place no more than 1.0 mCi of any other radionuclide in one container.
4. All animal tissues and bedding wastes must be double bagged and tied closed. Disposal bags provided by the Radiation Safety should be used. A completed radioactive waste label must be attached to the waste bag. Special notice should be made if biohazardous materials are included in the wastes.
5. Blood and urine wastes may be disposed of in the municipal sewer system. These disposals must be reported at least monthly to the Radiation Safety Program (nuclide, activity, and date) on a radioactive waste disposal form.
6. Complete a radioactive waste disposal form and contact the Radiation Safety Program to schedule a pick up.