Saint Louis University

RADIOACTIVE WASTE PACKAGING INSTRUCTIONS FOR LABORATORIES

(Applicable to Radioactive Materials Use Only)

INTRODUCTION

Effective with the opening of Saint Louis University's centralized radioactive waste storage facility in early 1999, radioactive waste is picked up from your laboratory by Radiation Safety Office staff on a regular basis. This section of the Radiation Safety Manual provides important information on how to prepare your radioactive waste for shipme

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I. KEY WORDS & TERMS

animal carcass waste, biological waste, bulk liquid waste, bulk liquid waste - mixed hazard, bulk liquid waste - scintillation fluid, container (dry waste), container (liquid waste), decay-in-storage, decay-in-storage waste, deregulated waste, dry solid waste, liquid waste, mixed waste, scintillation vials, half-life, liquid scintillation vial, long-lived radionuclide, MSD, NRC, radioactive waste, short-lived radionuclide, stock vial, radioactive waste, stock vial, beta plate

II. GENERAL INSTRUCTIONS

(A) HOW TO OBTAIN RADIOACTIVE WASTE CONTAINERS:

Call the Radiation Safety Office and:

(1) Request delivery of waste container(s) on your next pickup date; or

(2) Arrange for a pickup of waste containers(s) from the Radiation Safety Office.

(B) MAINTAINING YOUR WASTE CONTAINERS IN THE LAB:

(1) Complete information on the container label prior to placing any radioactive waste in the container. The following blanks must be completed:
   (b) Permit Holder
   (c) Department
   (d) Radionuclide
   (e) Date Started
   (f) Waste Type

(2) Keep container tightly closed at all times.

(3) Survey and wipe test the container and the area where the container is stored regularly (at least weekly).

(4) When the container is full, seal the liners and the container in accordance with the detailed instructions for that category of waste (provide elsewhere in this section).

(5) After sealing the container, record "Date Sealed" and "Total Activity" on the container label.

(C) ARRANGING FOR PICK-UP OF YOUR RADIOACTIVE WASTE:

(1) Call the Radiation Safety Office.

(2) Have the following information available for each container prior to calling for a pickup:
   (b) Permit Holder
   (c) Department
   (d) Radionuclide
   (e) Activity
   (f) Volume
   (g) Also report how many empty containers you would like to receive at the time of pick-up.

(3)

III. INSTRUCTIONS FOR COMPET

IV. PACKAGING DRY SOLID RADIOACTIVE WASTE

(A) **What does dry solid waste include**? Dry solid waste includes absorbent pads, gloves, empty stock vials and other paper, plastic or glass products which have been used during procedures

Figure 3

Figure 4

V. PACKAGING SCINTILLATION VIAL RADIOACTIVE WASTE

pouch located on the side of the scintillation vial or radioactive waste container (see Figure 4).

Figure 5

Figure 6

VI. PACKAGING BULK LIQUID AQUEOUS RADIOACTIVE WASTE

(A) What does bulk liquid aqueous waste include? Bulk liquid aqueous radioactive waste includes only aqueous based liquid radioactive waste with a pH between 5.5 and 11.5 (i.e., buffer solutions, liquid media, wash solutions, labeling solutions, etc.).

(B) What is prohibited? All mix-.0002 10w [( )o8abeli o Q BT 1.lb. 98-.0vu

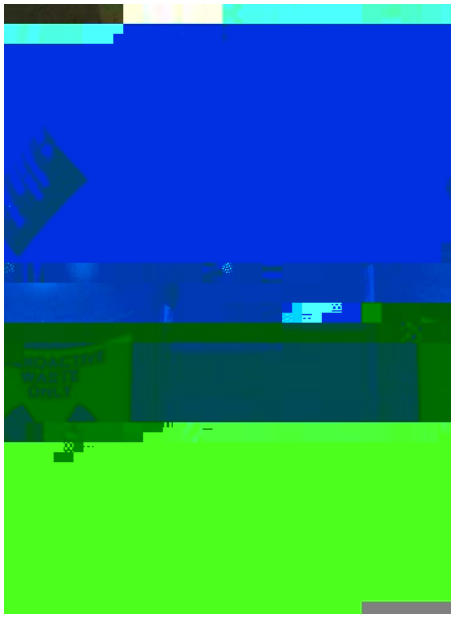


Figure 7

Figure 8

Figure 9

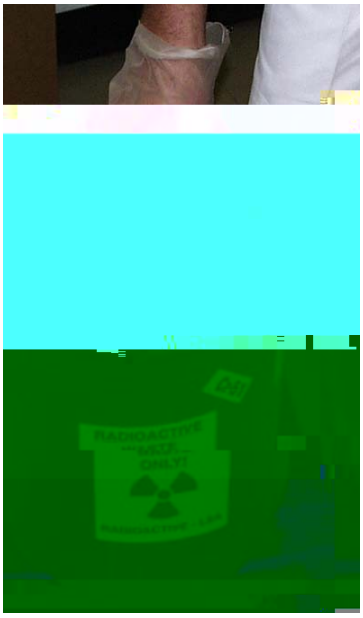


Figure 10

VII. PACKAGING BULK LIQUID SCINTILLATION FLUID RADIOACTIVE WASTE

(A) What does bulk liquid scintillation fluid radioactive waste include? Bulk liquid scintillation fluid radioactive waste includes only bulk liquid scintillation fluid generated through the use of HPLC (High Performance Liquid Chromatography) or the emptying of liquid scintillation vials (this practice is not encouraged, and is permitted only if the scintillation vials are re-used).

(B) What is prohibited? Absolutely no aqueous non-scintillation media may be mixed with bulk liquid scintillation fluid.

(C) [redacted]

(1) Bulk liquid scintillation fluid must be segregated into:
   (a) "Category one Bulk Scintillation Fluid; Deregulated" (those which contain only H-3 and/or C-14 in concentrations not exceeding 0.05 uCi/ml of scintillation fluid and/or any amount of any radionuclide with a half-life less than 30 days).
   (b) "Category two Bulk Scintillation Fluid; Deregulated" (those which contain only H-3 and/or C-14 in concentrations not exceeding 0.05 uCi/ml of scintillation fluid and/or any amount of any radionuclide with a half-life more than 30 days but less than 109 days).
   (c) "Category three Bulk Scintillation Fluid; Radioactive/Regulated" (those which contain only H-3 and/or C-14 in concentrations not exceeding 0.05 uCi/ml of scintillation fluid and/or any amount of any radionuclide with a half-life more than 109 days).

(2) The concentration of H-3 and/or C-14 must never exceed the concentration limit specified above whether contained in category one, two or three scintillation fluid.

(3) Bulk liquid scintillation fluid must be further segregated into categories of:
   (d) toluene/xylene based scintillation fluid and
   (e) biodegradable scintillation fluid

(4) Bulk liquid scintillation fluid containing toluene/xylene must never be mixed with biodegradable scintillation fluid.

(5) Bulk liquid scintillation fluid radioactive waste must be packaged in either the one gallon (see Figure 7) or the five gallon (see Figure 8) bulk liquid waste containers.

(6) Each container must be tightly capped to prevent leakage during transport. (See Figs. 9 & 10).

(7) A separate Waste Transfer Form must be completed for each properly packaged container of waste being transferred. Place the completed Radioactive Waste Transfer Form into the pouch located on the side of the bulk liquid scintillation fluid radioactive waste container (see Fig. 10).

Note: Since bulk liquid radioactive waste containers are very susceptible to external contamination, it is especially important to wipe test them and remove any contamination prior to transfer.

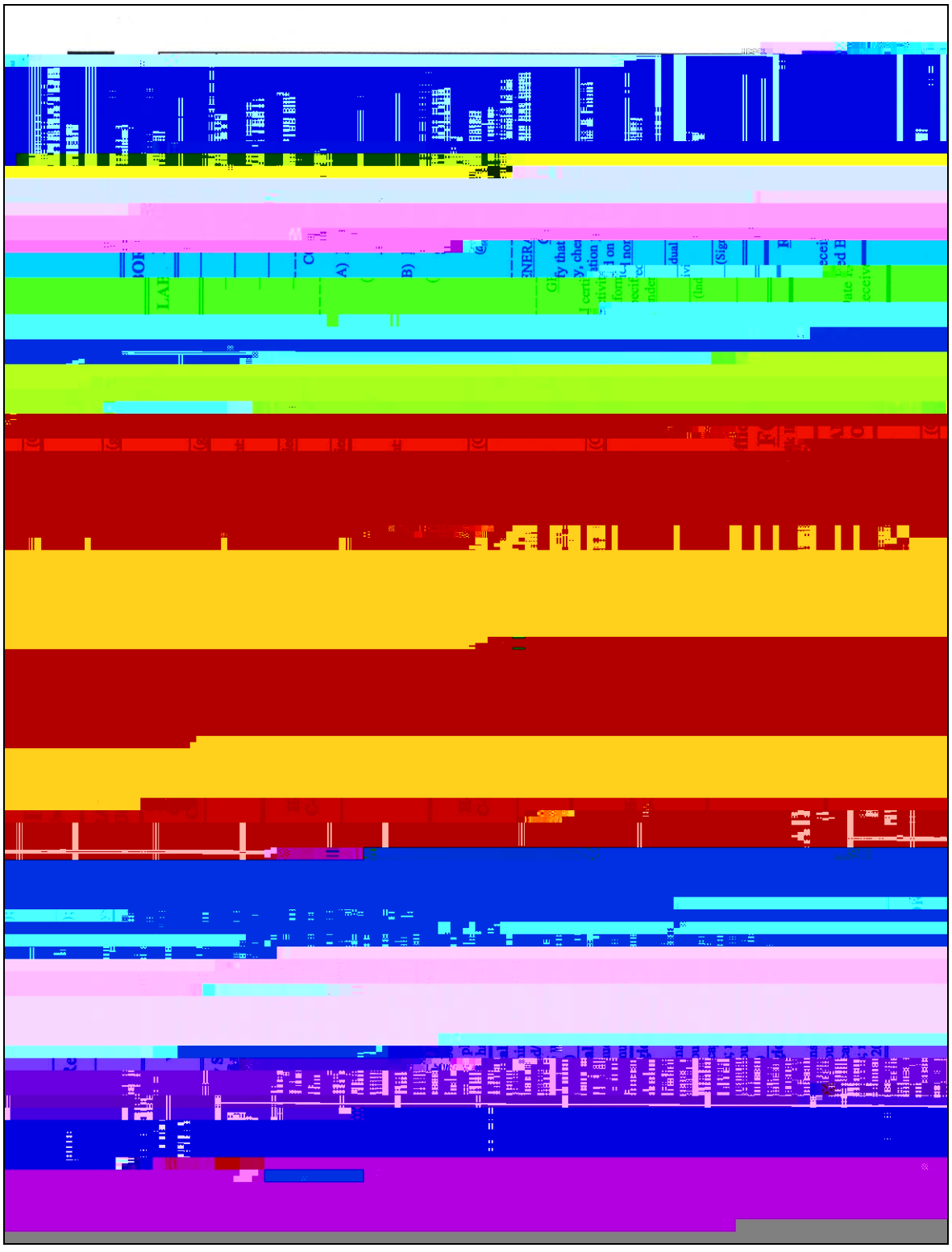
(5) A separate Waste Transfer Form must be completed for each properly packaged parcel of waste being transferred. Place the complete

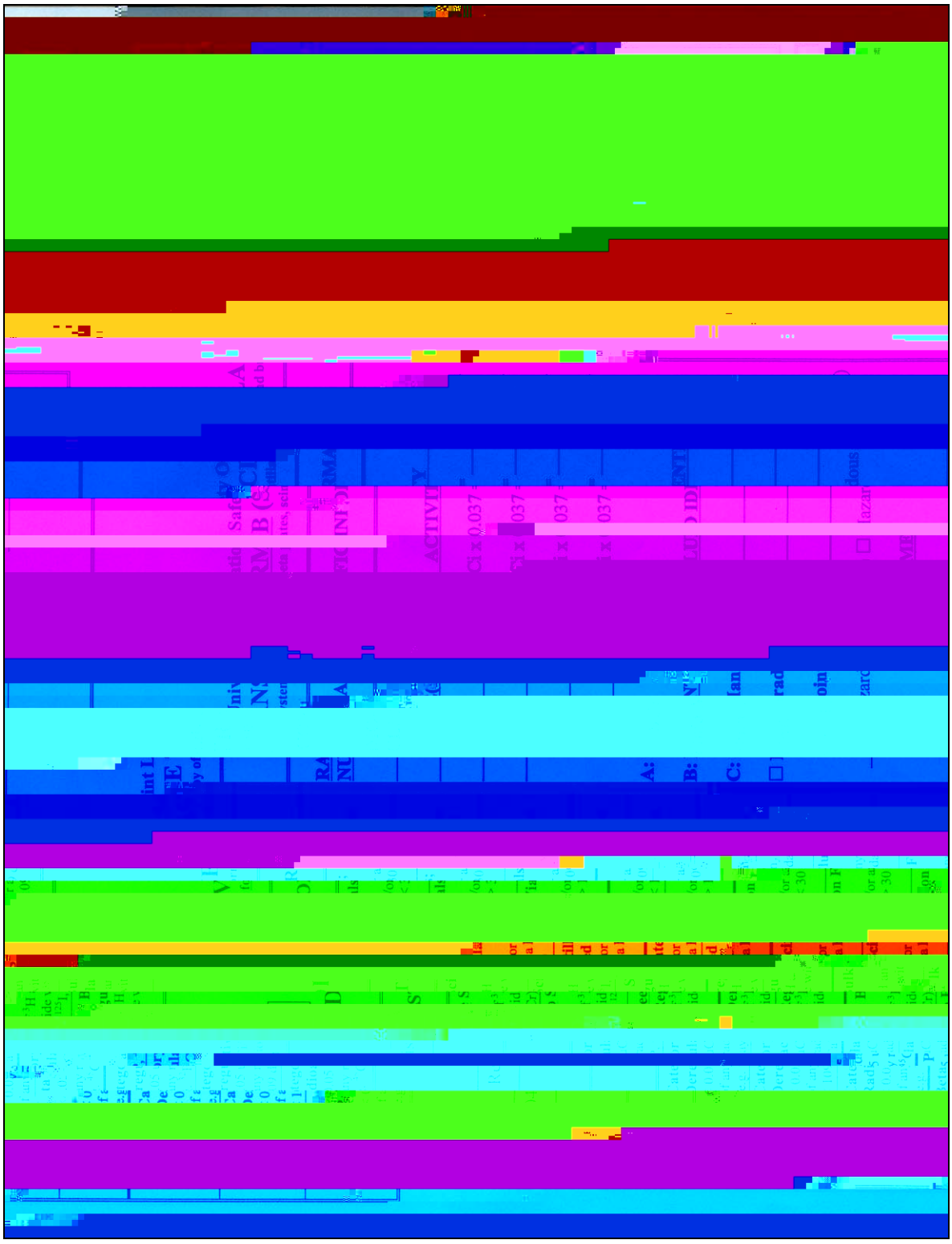
(7) The containers must be taped shut to prevent loss of contents during transport (see Figure 3).
(8) A separate Waste Transfer Form must be completed for each properly packaged parcel of waste being transferred. Place the completed Radioactive Waste Transfer Form i.7(sfer3 8 0 TD.3yan)-4.7

APPENDIX 19 - A

RADIOACTIVE WASTE TRANSFER FORMS

(See following inserts)





APENDIX 19 - B

RADIOACTIVE WASTE PICK-UP SCHEDULE

(See following insert)

Saint Louis University - Radiation Safety Office

RADIOACTIVE WASTE PICK-UP SCHEDULE
(Effective June 1, 2010)

Radioactive waste pick-ups will occur according to the following schedule. Please follow these basic steps in scheduling your pick-up.

A. All paperwork, proper packaging, labeling, etc. must be completed before the scheduled pick-up.
B. Exterior surfaces of waste containers must be free of contamination.
C. All radioactive waste packaging instructions must be followed.
D. Call the Radiation Safety Office at 977-8609 at least 1 day prior to the scheduled waste pick-up for your building to arrange for a pick-up of your radioactive waste.

If it is not possible for you to work within the format of this schedule, or you have an urgent need to have radioactive waste removed from your laboratory, please call the Radiation Safety Office at 977-8609. We will make every effort to be flexible within the constraints of our other Radiation Safety support functions in order to accommodate your needs. Thanks for your cooperation!

Your Lab Location	**Day of Week & Frequency**	**Time of Pick-up**	**Location Of Pick-up**
Cardinal Glennon Basement	Thursdays	1:00 – 3:00 p.m.	Your Laboratory
Doisy Hall	Thursdays	1:00 – 3:00 p.m.	Your Laboratory
Edward A. Doisy Research Center	Thursdays	1:00 – 3:00 p.m.	Your Laboratory
Macelwane Hall	4th Thursday of month	1:00 – 3:00 p.m.	Your Laboratory
Medical School	Thursdays	1:00 – 3:00 p.m.	Your Laboratory
Saint Louis University Hospital	Thursdays	1:00 – 3:00 p.m.	Your Laboratory