

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 shipment over public roadways, in compliance with appropriate regulations. Also included is a schedule of waste pick-ups, based upon laboratory location. Please review and become familiar with the requirements contained in this section prior to packaging radioactive waste for transfer to Radiation Safety Office staff to assure that radioactive waste is securely and safely packaged for transport, and that documentation requirements are met. Your adherence to the details contained herein will help to keep you and the University in compliance with safety and transportation requirements for radioactive shipments.

If you have any questions regarding the technical details, contact the Radiation Safety Office. We are eager to guide and assist you in the proper preparation and disposal of your radioactive waste.

(Updated June 2010)

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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) The Radiation Safety Office staff will inform you of/confirm the radioactive waste pick-up date and any other instructions that you may need.
- (4) Please be sure to have someone available in your laboratory during the scheduled pick-up time.

(D) RADIOACTIVE WASTE PICK-UP SCHEDULE:

- (1) Radioactive waste pick-ups will normally be on Thursdays.
- (2) Pick-ups will typically be between 1:00 p.m. and 3:00 p.m.
- (3) A detailed schedule is included as an appendix to this section. (See appendix 19 - B for details.)

III. INSTRUCTIONS FOR COMPETING THE RADIOACTIVE WASTE TRANSFER FORMS

Refer to appendix 19 - A to facilitate the following instructions.

- (A) Identify and indicate the appropriate waste category and waste transfer form based on the definitions given in the attached "Packaging Instructions".
- (B) Enter the radionuclide(s) contained in the waste in the "Radionuclide" column.
- (C) Determine the uCi content of the waste and enter it in the "uCi" column.
 - (1) **For bulk liquid waste (Form A):**
 - (b) Take a 1 ml sample and assay it on a Liquid Scintillation Counter or Gamma Counter (whichever is appropriate) and determine the activity in dpm. *If you are assaying aqueous liquid waste use a 20ml vial with 10ml of scintillation fluid.*
 - (c) Multiply the activity (dpm) by the number of gallons of liquid in the container, and then multiply by the conversion factor 0.0017. This will give you the total uCi content of the container.

$\text{Activity (uCi)} = \text{ ______ dpm/ml } \times \text{ ______ gallons } \times 0.0017$

- (d) Attach a copy of the assay system printout to the transfer form.
 - (2) **For liquid scintillation vials (Form B):**
 - (a) Take 10 vials at random from your waste and assay them on a Liquid Scintillation Counter
 - (b) To get total dpm, multiply the average dpm of the ten vials by the number of vials (e.g., for 20 ml vials, 530 vials per cubic foot; for 6 ml vials, 1,470 vials per cubic foot).
 - (c) Divide the total dpm by 2.22E-6 (2,220,000) to determine the total uCi content of the 1 cu. ft. container.
 - (d) Attach a copy of the assay system printout to the transfer form.
 - (e) Important: Based on your experiment data/notes, confirm that the activity arrived at in step 1 is an accurate representation of activity.
- (D) Multiply the uCi content of the waste by 0.037 to get MBq and enter it in the "MBq" column. This is a D.O.T. requirement.
- (E) Enter the chemical content of the waste in the "Chemical Content" column (for Form B specify the scintillation fluid trade name, manufacturer and flash point).
- (F) If the flash point is \leq 140 degrees Fahrenheit, check the "Hazardous" box. Otherwise check the Non-"Hazardous" box.
- (G) Enter the quantity or volume of the waste as appropriate.
- (H) Enter the name of the Permit Holder, the applicable department or division and the phone number of the laboratory in the upper section of the "Laboratory/Generator" column.
- (I) In the middle section of the column enter the results of the meter readings and exterior wipe tests that must be performed on the container (meter readings are not required for H-3).
- (J) In the lower section of the column the individual who prepared the waste transfer form must sign it.
- (K) The Permit Holder must also sign the form in this section.
- (L) After properly packaging your radioactive waste and completing the waste transfer form, contact the Radiation Safety Office to request a waste pick-up.

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 involving radioactive materials and which are likely to have become contaminated. Stock vials containing greater than 1 ml of liquid and/or greater than 1 mCi of activity must be emptied into an appropriate liquid radioactive waste container prior to disposal into the dry radioactive waste receptacle (*all radioactive labels must be defaced or removed from stock vials and other materials prior to placement in the decay - in - storage dry solid radioactive waste container*).
- (B) **What is prohibited?** *All biological and carcass radioactive waste is prohibited from disposal as dry solid radioactive waste (this includes syringe needles which must be removed from the syringes, placed in puncture proof containers and disposed of as biological radioactive waste). Absolutely no liquid scintillation vials, or vials containing any type of fluid are to be disposed of in the dry solid radioactive waste receptacle.*
- (C) **Packaging instructions:**
- (1) *Dry solid radioactive waste must be segregated by isotope (with the exception of H-3 and C-14, which may be packaged together).*
 - (2) Dry solid waste must be packaged in the dry solid radioactive waste container (see Figure 3), lined with the two plastic bags provided by the Radiation Safety Office (the heavier, clear plastic bag must be placed inside the thinner yellow bag).
 - (3) Each bag must be tied, taped, or wired shut (see Figures 1 and 2).
 - (4) The containers must be taped shut to prevent loss of contents during transport (see Figure 3).
 - (5) A separate Waste Transfer Form must be completed for each properly packaged parcel of waste being transferred. Place the completed Radioactive Waste Transfer Form into the pouch located on the side of the dry solid radioactive waste container (see Figure 4).



Figure 1



Figure 2



Figure 3



Figure 4

V. PACKAGING SCINTILLATION VIAL RADIOACTIVE WASTE

- (A) **What does scintillation vial waste include?** Scintillation vial waste includes vials generated during the liquid scintillation counting process, that contain radioactive material and scintillation cocktail. The vials must be “scintillation vials” (vials used specifically for the purpose of scintillation counting).
- (B) **What is prohibited?** *Absolutely no stock vials, dilution vials or any other type of non-scintillation vials are to be disposed of in the scintillation vial radioactive waste. Do not include pipet tips, gloves, absorbent pads, paper, paper products, etc. with your vials.*
- (C) **Packaging instructions:**
- (1) Scintillation vials must be segregated by radionuclide category into:
 - (a) “Category one Scintillation Vials; 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 Scintillation Vials; 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 Scintillation Vials; 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 average 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 vials.*
 - (3) *Liquid scintillation vials must be further segregated by scintillation fluid category into:*
 - (a) *vials containing toluene/xylene based scintillation fluid and*
 - (b) *Vials containing biodegradable scintillation fluid*
 - (4) *Liquid scintillation vials containing toluene/xylene based fluid must never be mixed with vials containing biodegradable scintillation fluid.*
 - (5) Scintillation vial radioactive waste must be packaged in the scintillation vial radioactive waste container (see Figure 5), lined with the two plastic bags provided by the Radiation Safety Office (the heavier, clear plastic bag must be placed inside the thinner yellow bag).
 - (6) Each bag must be tied, taped, or wired shut (see Figure 6).
 - (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 into the

pouch located on the side of the scintillation vial 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 mixed hazard bulk liquid waste is prohibited from disposal as bulk liquid aqueous radioactive waste (i.e., no radioactive and chemical hazard or radioactive and biological hazard). Absolutely no scintillation media may be mixed with bulk liquid aqueous radioactive waste. All acidic or basic bulk liquid aqueous radioactive waste must be neutralized in the laboratory prior to transfer. The pH must be adjusted to between 5.5 and 11.5.*
- (C) **Packaging instructions:**
- (1) *Bulk liquid radioactive waste must be segregated by isotope (with the exception of H-3 and C-14, which may be packaged together).*
 - (2) Bulk liquid aqueous radioactive waste must be packaged in either the one gallon (see Figure 7) or the five gallon (see Figure 8) bulk liquid waste containers.
 - (3) ***Each container must be tightly capped to prevent leakage during transport*** (see Figures 9 & 10).
 - (4) 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 aqueous radioactive waste container (see Fig. 8).

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.*



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) **Packaging instructions:**

- (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.*

VIII. PACKAGING ANIMAL CARCASS RADIOACTIVE WASTE

(A) **What does animal carcass radioactive waste include?** Animal carcass waste includes animals or parts of animals that contain radioactivity.

(B) **What is prohibited?** *Anything other than animal carcasses (bedding and excreta can currently be packaged for disposal along with the carcasses)*

(C) **Packaging instructions:**

- (1) Animal carcasses must be segregated into one of two categories. They are:
 - (a) **“Animal Carcasses; Deregulated”** (those which contain only H-3 and/or C-14 in concentrations not exceeding 0.05 uCi/gram of tissue) and
 - (b) **“Animal Carcasses; Short - Lived”** (those which contain radionuclides with half - lives less than 120 days).
- (2) Animal carcass waste ***must be frozen solid*** and packaged in the animal carcass radioactive waste container (see Figure 11), lined with the two plastic bags provided by the Radiation Safety Office (the heavier, clear plastic bag must be placed inside the thinner yellow bag).
- (3) Each bag must be tied, taped, or wired shut (see Figure 12). The animal carcass radioactive waste container must also be lined with absorbent pads to contain carcass fluids that may thaw during transport (see Figure 11).
- (4) The containers must be taped shut to prevent loss of contents during transport (see Figure 13).

- (5) A separate Waste Transfer Form must be completed for each properly packaged parcel of waste being transferred. Place the completed Radioactive Waste Transfer Form into the pouch located on the side of the animal carcass radioactive waste container (see Figure 14).

Special arrangements must be made with the Radiation Safety Office prior to the transfer of animals which are too large to fit into the standard containers or which contain long - lived radioisotopes (those with half - lives greater than 120 days) in concentrations in excess of the deregulated concentration specified above.



Figure 11



Figure 12



Figure 13



Figure 14

IX. PACKAGING BIOLOGICAL RADIOACTIVE WASTE

(A) **What does biological radioactive waste include?** Biological radioactive waste contains biological, pathogenic, or infectious material e.g., items known to contain pathogens, blood, blood products, items contaminated with blood, tissue, test tubes, capillary tubes and syringes used for injection (*syringes must be placed in puncture proof containers*).

(B) **What is prohibited?** *Absolutely no animal carcasses may be disposed of in the biological waste receptacle.*

(C) **Packaging instructions:**

- (1) *All pathogenic or infectious materials must be rendered non-pathogenic prior to transfer. All syringes must be placed in puncture proof containers* (see Figure 15).
- (2) All biological waste must be segregated by radionuclide (with the exception of H-3 and C-14 which may be packaged together).
- (3) Biological waste ***must be frozen solid*** and packaged in the biological radioactive waste container (see Figure 11) lined with the two plastic bags provided by the Radiation Safety Office (the heavier, clear plastic bag must be placed inside the thinner yellow bag).
- (4) If the biological radioactive waste contains fluids or tissue, the waste container must be lined with absorbent pads to contain any waste that may thaw during transport (see Figure 11).
- (5) Each bag must be tied, taped, or wired shut (see Figure 12).
- (6) The container must be taped shut to prevent loss of contents during transport (see Figure 13).
- (7) A separate Waste Transfer Form must be completed for each properly packaged parcel of waste being transferred. Place the completed Radioactive Waste Transfer Form into the pouch located on the side of the biological radioactive waste container (see Figure 14).



Figure 15

X. **PACKAGING BETA PLATES**

- (A) **What does beta plate waste include?** Beta plate waste includes only beta plates generated from use of a beta plate system (e.g., Top Count) and the scintillation fluid contained in those plates.
- (B) **What is prohibited?** *Absolutely nothing other than beta plates. Do not include pipet tips, gloves, absorbent pads, paper, paper products, scintillation vials etc. with your beta plates.*
- (C) **Packaging instructions:**

- (1) Beta plates must be segregated by radionuclide category into:
 - (a) "Beta Plates; 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 109 days).
 - (b) "Beta Plates; 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 109 days).
- (2) *The average concentration of H-3 and/or C-14 must never exceed the concentration limit specified above whether contained in Deregulated or Regulated beta plates.*
- (3) *Beta plates must be further segregated by scintillation fluid category into:*
 - (a) *Beta plates containing toluene/xylene based scintillation fluid and*
 - (b) *Beta plates containing biodegradable scintillation fluid*
- (4) *Beta plates containing toluene/xylene based fluid must never be mixed with Beta plates containing biodegradable scintillation fluid.*
- (5) Beta plate radioactive waste must be packaged in the Beta Plate radioactive waste container (see Figure 16), lined with the two plastic bags provided by the Radiation Safety Office (the heavier, clear plastic bag must be placed inside the thinner yellow bag).
- (6) Each bag must be tied, taped, or wired shut (see Figure 6).



Figure 16

- (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 into the pouch located on the side of the beta plate radioactive waste container (see Figure 4).

APPENDIX 19 - A
RADIOACTIVE WASTE TRANSFER FORMS

(See following inserts)

Nov. 2004 Revision

Saint Louis University – Radiation Safety Office
RADIOACTIVE WASTE TRANSFER FORM A
 (Use one form & attach copy of assay system printout for all bulk liquids)

Page: _____

✓ ONE ONLY	WASTE CATEGORY	RADIO-NUCLIDE	ACTIVITY $\mu\text{Ci} \times 0.037 = \text{MBq}$	CHEMICAL CONTENT	QUANTITY or VOLUME
	Dry Solid (Non-Biological); Long-Lived (for shipment to disposal site)	H-3 C-14 Ca-45	_____ _____ _____		_____ (Cu. ft.)
	Dry Solid (Non-Biological); Short-Lived (must have a half life ≤ 120 days)				_____ (Cu. ft.)
	Bulk Liquid Aqueous; Long-Lived (contains H-3, and/or C-14; must be readily soluble in water and have a pH between 5.5 and 11.5)	H-3 C-14	_____ _____	Measured pH: _____	_____ (gallons)
	Bulk Liquid Aqueous; Short-Lived (must be readily soluble in water and have a pH between 5.5 and 11.5; must have a half life ≤ 120 days)			Measured pH: _____	_____ (gallons)
	Animal Carcasses; Deregulated (any animal or portion thereof containing H-3 and/or C-14 in concentrations $< 0.05 \mu\text{Ci/g}$ of animal tissue; must be frozen)	H-3 C-14	_____ _____		Weight: _____ lbs. (Species & Number)
	Animal carcasses; short-lived (radionuclide must have a half-life ≤ 120 days; must be frozen)				_____ (Species & Number)
	Biological (Non-Carcass); Long-Lived (contains biological, pathogenic, or infectious material e.g., syringes, test tubes, capillary tubes, animal bedding or excreta; must have been rendered non-infectious prior to packaging; must be frozen)	H-3 C-14	_____ _____		Weight: _____ lbs. (Cu. ft.)
	Biological (Non-Carcass); Short-Lived (contains biological, pathogenic, or infectious material e.g., syringes, test tubes, capillary tubes, animal bedding or excreta; radionuclide must have a half-life ≤ 120 days; must be frozen)				_____ (Cu. ft.)

LABORATORY/GENERATOR INFORMATION
_____ (Name of Permit Holder)
_____ (Department/Division)
_____ (Phone)
CONTAINER SURVEYS
(A) EXTERNAL WIPE TEST: _____ Dpm/100 cm ²
(B) METER SURVEY: Surface: _____ @ 1 meter: _____
GENERATOR/PERMIT HOLDER CERTIFICATION
I certify that the identity, estimated activity, chemical content and other information pertaining to this waste is as specified on this form. All waste has been rendered non-infectious.
_____ (Individual Who Prepared Waste & Form)
_____ (Signature of Permit Holder)

RSO USE ONLY
Date Received: _____
Received By: _____

Saint Louis University – Radiation Safety Office

RADIOACTIVE WASTE TRANSFER FORM B (SCINTILLATION MEDIA)

(Use one form & attach copy of assay system printout for all beta plates, scintillation vials, and bulk liquids)

✓ ONE ONLY	WASTE CATEGORY	CONTAINER SPECIFIC INFORMATION	LABORATORY/GENERATOR INFORMATION
	Category One Scintillation Vials; Deregulated < 0.05 uCi/ml of ³ H and/or ¹⁴ C, and/or any amount of any radionuclide with a half-life < 30 days (e.g. ³² P, ³³ P, ⁵¹ Cr)	RADIO-NUCLIDE(S) _____ ACTIVITY _____ _____ uCi x 0.037 = _____ MBq _____ uCi x 0.037 = _____ MBq _____ uCi x 0.037 = _____ MBq _____ uCi x 0.037 = _____ MBq	(Name of Permit Holder) _____ (Department/Division) _____ (Phone) _____ CONTAINER SURVEYS (A) <u>EXTERNAL WIPE TEST:</u> _____ Dpm/100 cm ² (B) <u>METER SURVEY:</u> _____ Surface: _____ @ 1 meter: _____ GENERATOR/PERMIT HOLDER CERTIFICATION I certify that the identity, estimated activity, chemical content and other information pertaining to this waste is as specified on this form. All waste has been rendered non-infectious.
	Category Two Scintillation Vials; Deregulated < 0.05 uCi/ml of ³ H and/or ¹⁴ C, and/or any amount of any radionuclide with a half-life > 30 days and < 109 days (e.g. ¹²⁵ I, ³⁵ S)		
	Category Three Scintillation Vials; Radioactive/Regulated < 0.05 uCi/ml of ³ H and/or ¹⁴ C, and/or any amount of any radionuclide with a half-life > 109 days (e.g. ⁴⁵ Ca)		
	Beta Plates; Deregulated < 0.05 uCi/ml of ³ H and/or ¹⁴ C, and/or any amount of any radionuclide with a half-life < 109 days		
	Beta Plates; Regulated < 0.05 uCi/ml of ³ H and/or ¹⁴ C, and/or any amount of any radionuclide with a half-life > 109 days (e.g. ⁴⁵ Ca)		
	Category One Bulk Scintillation Fluid; Deregulated < 0.05 uCi/ml of ³ H and/or ¹⁴ C, and/or any amount of any radionuclide with a half-life < 30 days (e.g. ³² P, ³³ P, ⁵¹ Cr)	A: Fluid Manufacturer: _____ B: Fluid Trade Name: _____ C: Flash Point: _____ °F <input type="checkbox"/> Non-Hazardous (≥ 140 °F) <input type="checkbox"/> Hazardous (< 140 °F)	
	Category Two Bulk Scintillation Fluid; Deregulated < 0.05 uCi/ml of ³ H and/or ¹⁴ C, and/or any amount of any radionuclide with a half-life > 30 days and < 109 days (e.g. ¹²⁵ I, ³⁵ S)	VOLUME _____ gallons _____ Cu. ft.	
	Category Three Bulk Scintillation Fluid; Radioactive/Regulated < 0.05 uCi/ml of ³ H and/or ¹⁴ C, and/or any amount of any radionuclide with a half-life > 109 days (e.g. ⁴⁵ Ca)		

RSO USE ONLY

Date Received: _____
 Received By: _____

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	4 th 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