

Module 3

Radioisotope Acquisition and Disposition

Radiation Control Office, March 2022



ENVIRONMENTAL
HEALTH SERVICES
COLORADO STATE UNIVERSITY

What we are trying to Avoid



What we are trying to Avoid



Outline of Module 3

1. Radioactive Material Usage Process
2. Ordering Radioactive Material
3. EHSA Database Introduction
4. Radioactive Material Package Check-in
 - a) How to Perform an Interior Package Wipe
 - b) Principles of the LSC
 - c) How to Enter the Interior Package Wipe in EHSA
5. Tracking and Separating Radioactive Material and Waste
6. Submitting for a Radioactive Waste pickup

Radioactive Material Usage Process

Principal and Qualified Users Responsibilities

1 – Ordering RAM

- Radioactive material (RAM) is ordered through Kuali by the Principal User (PU), Qualified User, or accountant
- RCO approves all RAM that arrives on campus
- RAM Packages are delivered to the RCO
- RCO surveys the exterior package, inventories, and delivers RAM to laboratory

2 – In lab RAM Usage

- Qualified User or PU completes an internal package survey and enters survey results in EHSA database upon delivery
- Qualified User or PU accounts for and tracks inventory usage.
- Qualified User or PU oversees RAM in lab waste and accounts for all rad inventory

3 – RAM Waste Disposal

- Qualified User or PU enters inventory usage into the EHSA database
- Qualified User or PU submits RAM waste containers for a pickup in the EHSA database
- RCO picks up RAM waste containers and processes them for final disposal



Ordering Radioactive Material through Kual

Step by step instructions found on the RCO Website:
[Kuali Radioactive Orders Tutorial](#) Link

Ordering Radioactive Material

through Kuali

- Radioactive Material must be purchased through CSU's Kuali financial system
 - There are some exceptions which require the approval by the RCO prior to purchase or transfer
- The RCO approves all RAM orders in Kuali before the order is sent to the vendor by adding object code 6226 to the order
- All Radioactive Material is shipped to the RCO address
- The RCO completes the DOT required exterior package survey and assigns a CSU Inventory number
 - DOT Regulations require that radioactive packages be surveyed for contamination no later than 3 hours after receipt during normal working hours
 - If received outside after normal business hours packages must be surveyed no later than 3 hours after the beginning of the next business day.
- The RCO delivers RAM package(s) to laboratory

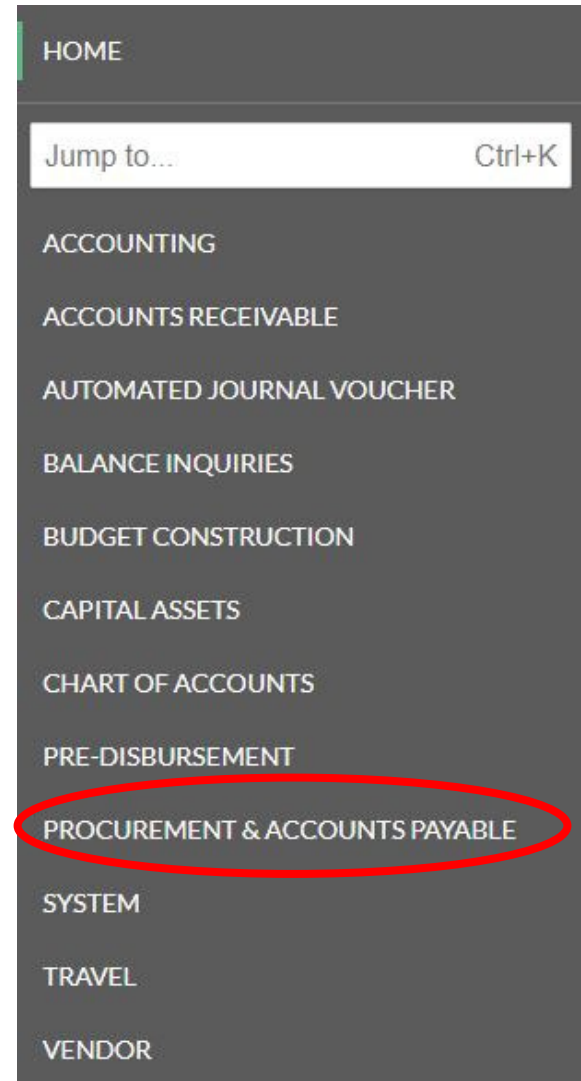
Ordering Radioactive Material

through Kuali

The Kuali Tutorial is intended to illustrate the required information for ordering radioactive material. It is not intended to provide step by step directions for the general use of the Kuali Financial System.

If you need generalized Kuali training, please refer to the various sections from [CSU Procurement Services](#).

Access the [Kuali website](#) by using your eID and password and click on “Procurement and Accounts Payable”



Home

My Favorites

NO FAVORITES

You don't have any favorites.

Ordering Radioactive Material

through Kual

The screenshot shows a web application interface for 'Procurement & Accounts Payable'. On the left is a dark sidebar with a 'HOME' link at the top. Below it is a search bar labeled 'Jump to...' with 'Ctrl+K' to its right. A list of menu items follows: ACCOUNTING, ACCOUNTS RECEIVABLE, AUTOMATED JOURNAL VOUCHER, BALANCE INQUIRIES, BUDGET CONSTRUCTION, CAPITAL ASSETS, CHART OF ACCOUNTS, PRE-DISBURSEMENT, and PROCUREMENT & ACCOUNTS PAYABLE (which is highlighted with a green bar). The main content area has a title 'Procurement & Accounts Payable'. It contains two panels: 'ACTIVITIES' on the left and 'REFERENCE' on the right. The 'ACTIVITIES' panel lists 'Disbursement Voucher', 'Line Item Receiving', 'Requisition', and 'Shop Catalogs'. The 'Shop Catalogs' item is circled in red. A red arrow points from a red-bordered callout box to this circle. The callout box contains the text: 'Once on the Procurement and Accounts Payable page opens, click on “Shop Catalogs”'. The 'REFERENCE' panel shows a single item: 'Training- Capital Asset Tab'.

HOME

Jump to... Ctrl+K

ACCOUNTING

ACCOUNTS RECEIVABLE

AUTOMATED JOURNAL VOUCHER

BALANCE INQUIRIES

BUDGET CONSTRUCTION

CAPITAL ASSETS

CHART OF ACCOUNTS

PRE-DISBURSEMENT

PROCUREMENT & ACCOUNTS PAYABLE

Procurement & Accounts Payable

ACTIVITIES

Disbursement Voucher

Line Item Receiving

Requisition

Shop Catalogs

REFERENCE

Training- Capital Asset Tab

Once on the Procurement and Accounts Payable page opens, click on “Shop Catalogs”

Ordering Radioactive Material

through Kuali

Users will have access to hosted catalogs and can search for products

The screenshot displays the Kuali procurement system interface. At the top, there is a search bar with a dropdown menu set to 'Everything' and a 'Go' button. Below the search bar, navigation links are provided: 'Go to: advanced search | favorites | forms | non-catalog item | quick order' and 'Browse: suppliers | categories | contracts'.

On the left side, there is a sidebar with two sections:

- CAMS is Live!**
The Chemical Acquisition and Management System (CAMS) is Live! Please visit the EHS website for additional information, to access the required training and schedule of informational sessions.
If you have questions about CAMS functionality or product availability, please contact [Procurement Services](#).
- Need Training?**
Expecting new faculty or staff members who will need to know the basics of procurement processes at CSU? Would your area benefit from a refresher on processes, or a general question and answer session? Please reach out to the Procurement Services team for help. We are happy to assist in education efforts across campus.

The main content area is divided into four sections, each with a dropdown arrow and a question mark icon:

- Lab Supply/Equipment Catalogs**
This section contains six supplier logos: CAMS, Fisher Scientific, VWR, Airgas, MWT, and McKesson. Each logo is accompanied by the text 'Uniform Guidance Compliant'.
- Computer/IT Catalogs**
This section contains five supplier logos: CDWG, Connection, BH, Dell, and Edgeworks. Each logo is accompanied by the text 'Uniform Guidance Compliant'.
- Office Supply Catalogs**
This section contains two supplier logos: Office Depot and Staples. Each logo is accompanied by the text 'Uniform Guidance Compliant'.
- Toner/Ink Catalogs**
This section contains one supplier logo: SOURCE. It is accompanied by the text 'Uniform Guidance Compliant'.

Users will also have access to Punchout catalogs and can click on the supplier logo to access their website

Ordering Radioactive Material

through Kual

Requisition ?

Doc Nbr : 23025453

Initiator :

Requisition # : 613334

Status : FINAL

Created : 01:53 PM 07/13/2020

Requisition Doc Status : Closed

Copied from Document Id : 22170257

EXPAND ALL

COLLAPSE ALL

DOCUMENT OVERVIEW

OVERVIEW

*Description : Eckert & Ziegler radioactives

Organization Document Number :

FINANCIAL DOCUMENT DETAIL

*Year : 2021

Total Amount : 2,120.00

REQUISITION DETAIL

*Chart/Org : CO / 1681

Receiving Required : No

Account Distribution Method : Proportional

*Funding Source : INSTITUTION ACCOUNT

Payment Request Positive Approval Required : No

Under "Explanation" please include the following information:

1) Principal User

2) Isotope

3) Activity

Explanation :

Principal User: Marie Curie

Isotope: Eu-152

Activity: 370.00 kBq (10.00 uCi)

Ordering Radioactive Material

through Kual

DELIVERY

Delivery To: Radiation Control Office/ Principal User's name

FINAL DELIVERY

* Delivery Campus : MC - CSU Main Campus
Building : General Services Building
* Address 1 : 1251 S. MASON ST.
Address 2 : 6021 Campus Delivery
* Room : 133
* City : FORT COLLINS
State : CO
Postal Code : 80523
* Country : United States

Make sure the final delivery address is for the Radiation Control Office:

General Services Building
6021 Campus Delivery
1251 S. Mason St
Room 133

* Delivery To : Radiation Control Office/Marie Curie
Phone Number :
Email :

Delivery Instructions :

RECEIVING ADDRESS

6021-2
Radiation Control Office
Receiving Address : 133 GSB
Fort Collins , CO 80523-6021
United States

ADDRESS TO VENDOR

Use Receiving Address as Shipping Address Presented to Vendor? Yes

Ordering Radioactive Material

through Kual

Accounting distribution should be set up for radioactive orders according to the steps below

Setup Distribution

Remove Accounts From All Items

Remove Commodity Codes From All Items

Expand All Accounts

Collapse All Accounts

CURRENT ITEMS

ITEM TYPE	QUANTITY	UOM	CATALOG #	COMMODITY CODE	DESCRIPTION	UNIT COST	EXTENDED COST	ACTIONS	
QUANTITY	10.00	EA EACH							
1									
* CHART	* ACCOUNT	SUB-ACCOUNT	* OBJECT	SUB-OBJECT	PROJECT	ORG REF ID	PERCENT	AMOUNT	ACTIONS
CO Colorado State University							100.00		
TOTALS									
Grand Total :									
APO Limit :									

The Chart Code for CSU Is "CO"

Add your departmental Account number here

The object code for radioactive material is: **6226**

Ordering Radioactive Material

through Kuali

ACCOUNT SUMMARY

VIEW RELATED DOCUMENTS

VIEW PAYMENT HISTORY

GENERAL LEDGER PENDING ENTRIES

Warning: This includes all notes on the PO, not just up to this document.

NOTES AND ATTACHMENTS (1)

* Note Text :

Attachment :

Choose File No file chosen

Remove Attachment

Send to Vendor?

ADD

POSTED TIMESTAMP

AUTHOR

NOTE TEXT

ATTACHED FILE

SEND TO VENDOR?

NOTIFICATION RECIPIENT

ACTIONS

After all the necessary information is completed, you will need to attach any notes and order documents to the “Notes and Attachments” section.


You will then click “Submit” at the bottom of the page to complete the order.

EHSA Database Introduction


[EHS Website](#)

EHSA Database Introduction

Login to HPA
on the [EHS
Website](#)

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HEALTH
SERVICES

[LOGIN](#)
[TRAINING](#)
[REPORT A CONCERN](#)
[NEW JOBS](#)
[ADMINISTRATIVE SUPPORT](#)
[CHEMICAL MANAGEMENT](#)
[COMMERCIAL MOTOR VEHICLE](#)
[EMERGENCY MANAGEMENT](#)
[OCCUPATIONAL HEALTH](#)
[PUBLIC HEALTH](#)
[RADIATION MANAGEMENT](#)
[SAFETY & INDUSTRIAL HYGIENE](#)
[WATER QUALITY LAB](#)
[HELPFUL LINKS](#)



EHS

understanding positive quality knowledge professional service. integrity flexible helpful teaching dependable committed inclusive


RADIATION CONTROL OFFICE


Introduction:

The Radiation Control Office (RCO) provides technical assistance for the use of radioisotopes and radiation producing machines here at Colorado State University.

This office provides training for the safe use, and regulates all inventories, of radioactive materials on campus. The University provides this service in compliance with the State of Colorado's Rules and Regulations Pertaining to Radiation Control. In addition, the RCO oversees the Radiation Safety Program, Laser Safety Program, and Magnetic Resonance Safety.

Radiation Control Office Programs		
Radiation Safety Program	Laser Safety Program	Magnetic Resonance Safety

 [Request a Radiation Badge](#)
[Principal User Logon](#)



COVID-19 Questions and Concerns:
Contact [Jeannine Riess 491-6121](#)
or [EHS Public Health Office](#)

CSU is closely monitoring and following COVID-19 (Coronavirus) guidance as outlined by public health experts.
[More Information](#)

Or select to
Login Here

EHSA Database Introduction

Authentication Required

Colorado State University



eID Login

eName:

Password:

☐ Disable Single Sign-On for this session

Login

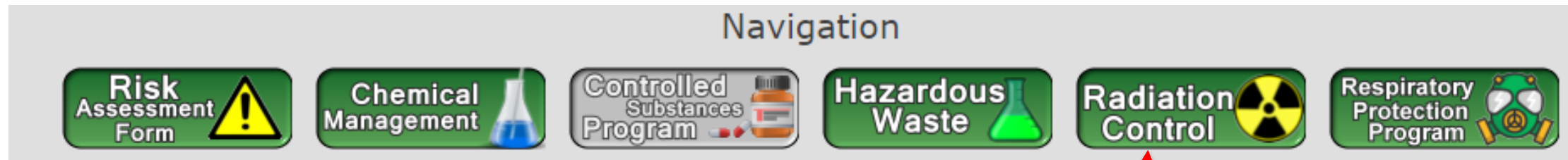
Important!

Bookmarks

- Never bookmark this page.
- This is the CSU federated authentication service. Future attempts to access `hpaserver.acns.colostate.edu` with a bookmark to this login page will fail.

**Enter your CSU
username and
password**

EHSA Database Introduction



Select "Radiation Control"

EHSA Database Introduction

Please Select the Desired Link

[Log into Principal User and Qualified User RCO Account.](#)
(Only PUs and Qualified Users should use this link)

[Log into Radiation Worker Portal](#)
(Provides access Radiation Exposure History - Dosimetry Records)

Select "Log into Principal User and Qualified User RCO Account"

EHSA Database Introduction

Welcome to the EHS database. Please contact EHS at 491-6745 if you have questions or concerns.

Quick Links

[EHS Home Page](#)

[Chemical Management](#)

[Occupational Health](#)

[Radiation Control Office](#)

Links to EHS Websites.



Welcome to Colorado State University's Environmental Health Services database. Using your CSU username and password, you can log into your portal that links live to our office database. Get information on your safety plan(s), personnel training progress, and up to the minute inventory by accessing your site. If you do not have access, contact EHS to set up an account.



Waste Supply
Requests



Training
Records



Safety
Inspections



Radiation
Safety Plans



Registration
Forms



Inventory



Permits



Document
Library



Equipment

Home Page Menu Icons

EHSA Database Introduction

From the EHSA database you can access:

- Waste Supply Requests: Request new RAM waste containers
- Training Records: Review lab personnel training records
- Safety Inspections: Review and respond to laboratory evaluations
- Radiation Safety Plans: Review and renew your Radiation Safety Plan
- Inventory: Review RAM inventory, complete a package check-in, and submit for a waste pickup
- Equipment: Review in-lab survey meters and wipe counters and their calibration history

Step by step instructions can be found on the [RCO Website](#) for quick reference on how to complete a RAM package check-in, respond to a lab eval, and submit for a waste pick-up.

Online Radioactive Material Package Check-in

Instructions can be found on the RCO Website for future reference:
[RAM Package Check-in Instructions](#) Link

EHSA Database – Online Package Check-in

How to perform an Interior Package Wipe

- Wear proper PPE: lab coat, double gloves, safety glasses, dosimetry badge, and ring badge (if applicable).
- QA/QC survey meter and place next to radiation work area.
- Use shielding to reduce your exposure (if applicable).
- Verify you received the correct isotope, compound, and activity with the shipping papers.
- Always assume that the interior of the package is contaminated until determined otherwise.
- Open the outer packaging and check inside for possible damage.
- Peel back the layers of packaging like an onion and survey the inner packaging once it's been removed checking for contamination with your survey meter.
- Check your hands with the survey meter periodically for contamination.
- Wipe the interior packaging, inner package (pig), and primary container (stock vial).
- Run a blank and the interior package wipe in your LSC or package counter instrument, assume the interior of the package is contaminated until verified otherwise.
- Perform a personnel exit survey on yourself before leaving the rad work area.
- Enter your interior wipe test results online in HPA.





Liquid Scintillation Counting (LSC)

Liquid Scintillation Counting (LSC) measures ionizing radiation

There are many applications for LSCs, one being to test for removable radioactive contamination by completing wipe tests

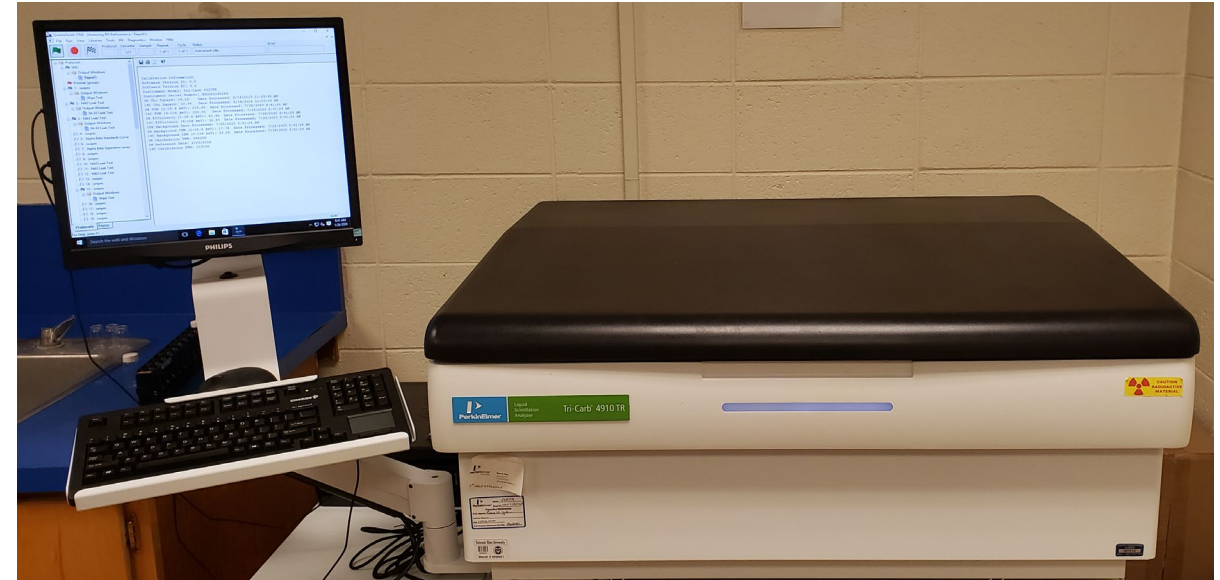
The RCO requires wipe tests for:

- Interior package check-in
- Monthly or weekly laboratory wipe tests (depending on the ALI for the activity used)
- Waste container surveys

It is the responsibility of the PU to train the Qualified User how to operate their specific LSC instrument

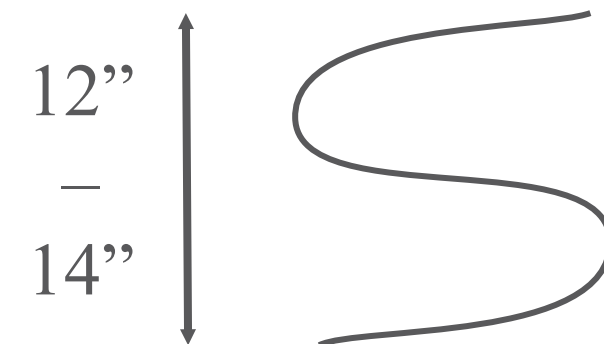
How to perform a wipe test:

- Using a piece of Whatman filter paper wipe the surface in an S pattern roughly 12 inches in height, applying medium pressure
- Using tongs place the filter inside an LSC vial (dirty side facing in) and add LSC cocktail



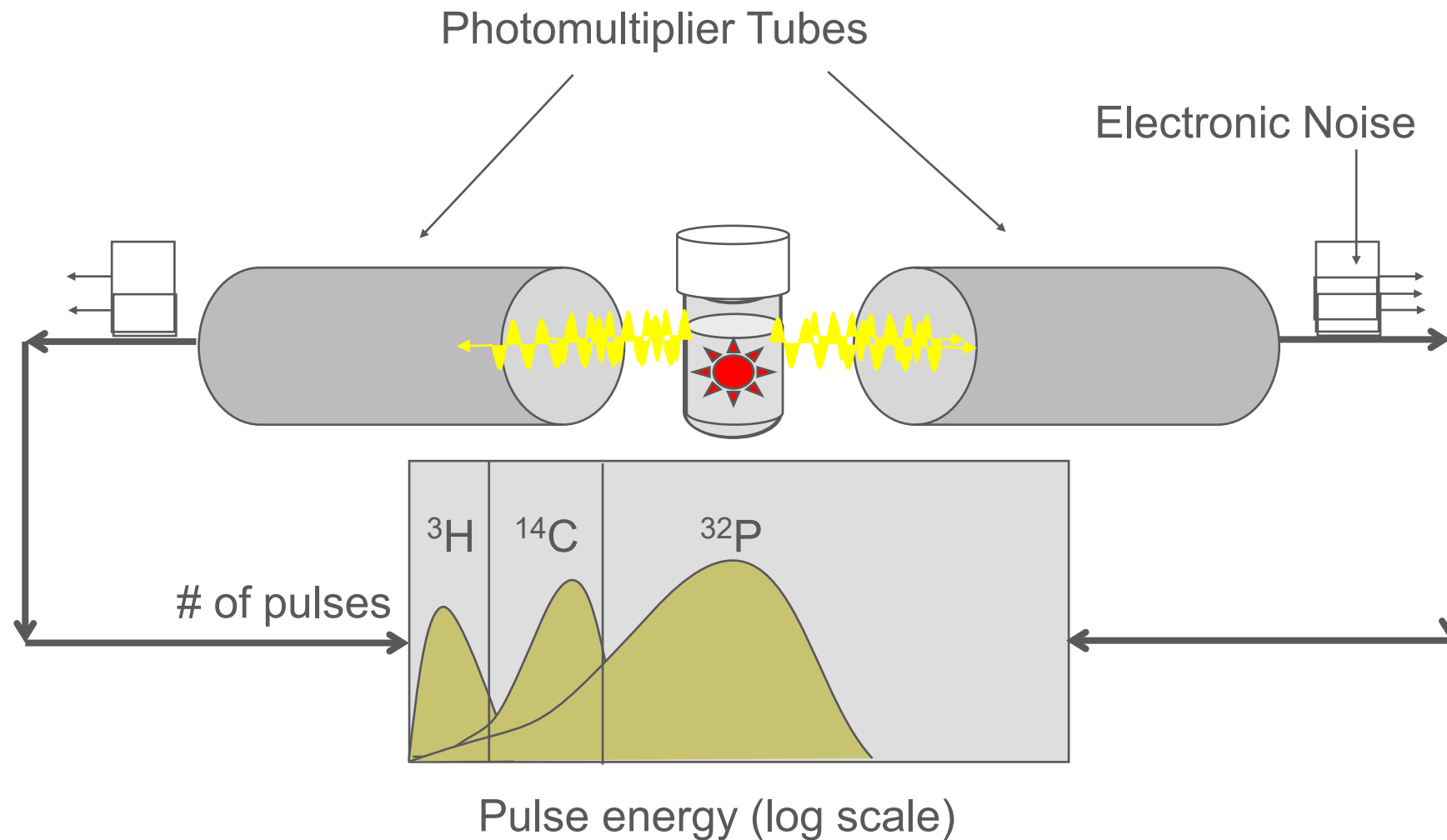
Wipe Tests

Standard industry practice 100 cm²



Liquid Scintillation Counting

Theory



LSC have high counting efficiencies for many nuclides

- The LSC cocktail absorbs the energy from a radioactive decay through heat, ionization or excitation and converts it into photons of light
- The intensity of light is proportional to the initial energy
- The photomultiplier tubes inside the liquid scintillation counter detects the light and converts it into an electrical signal in the form of electrons.
- Electrons are ejected producing an electrical pulse which is then amplified
- The electrical pulses are then sorted and counted



Liquid Scintillation Counting

Troubleshooting

Light interacts with samples (photoluminescence) which can cause the first sample to appear contaminated (“hot”)

- Dark adapt samples – up to 30 minutes before running in the LSC
- You can run your LSC standards before you run your samples or you can program the LSC to run the 1st sample (the blank) for 30 minutes to dark adapt

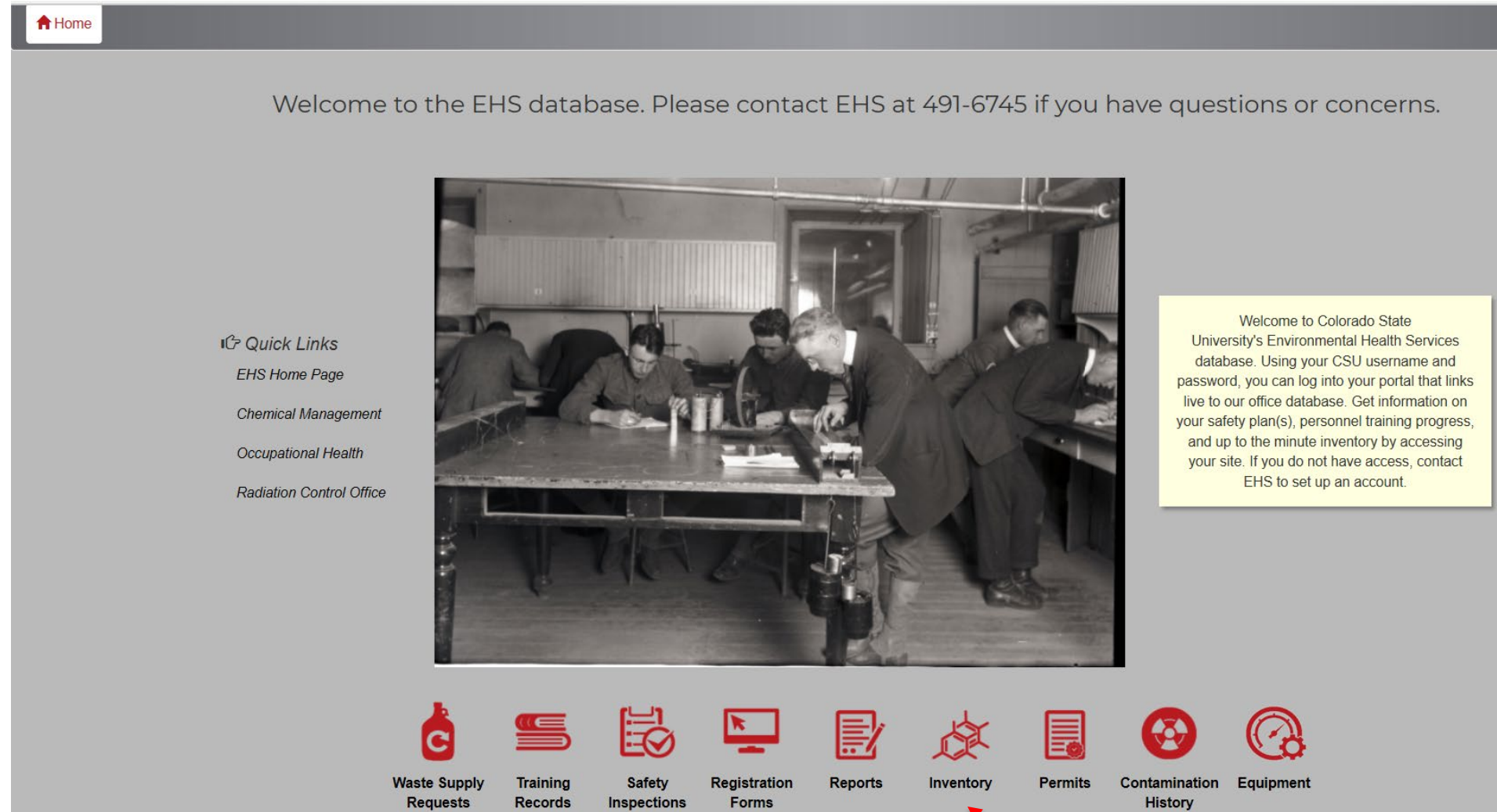
Chemical interaction or (chemiluminescence) can cause spurious pluses of light

What is considered contamination?

- Set up a QA/QC chart for the LSC (found under Lab Resources – Helpful Tools on [RCO Website](#))
- Run 20 blank samples or program the LSC to run one blank sample 20 times
- Enter the 20 background counts in the QA/QC chart “Setup Data” tab to determine your upper control limit
- Any wipe samples that are greater than your background upper control limit of **3 standard deviations above your mean background** on the QA/QC chart is then considered contaminated
- All areas wiped that are above your upper control limit must be cleaned and rewiped until they come back clean

Please contact the RCO directly if you have specific questions on to how to operate or set up your specific LSC

EHSA Database – Online Package Check-in



The screenshot shows the EHSA Database Home Page. At the top left is a 'Home' button with a house icon. Below it is a welcome message: 'Welcome to the EHS database. Please contact EHS at 491-6745 if you have questions or concerns.' In the center is a black and white photograph of several people working at a long table in a laboratory or office setting. To the left of the photo is a 'Quick Links' section with the following links: 'EHS Home Page', 'Chemical Management', 'Occupational Health', and 'Radiation Control Office'. To the right of the photo is a yellow box containing a welcome message from Colorado State University's Environmental Health Services, explaining how to log in and what information is available. At the bottom is a row of nine red icons, each with a label below it: 'Waste Supply Requests' (a bottle with a 'C'), 'Training Records' (a book), 'Safety Inspections' (a checklist with a checkmark), 'Registration Forms' (a computer monitor), 'Reports' (a document with a pencil), 'Inventory' (a shelf with boxes), 'Permits' (a document with a red circle), 'Contamination History' (a radiation symbol), and 'Equipment' (a gear).

Home

Welcome to the EHS database. Please contact EHS at 491-6745 if you have questions or concerns.

Quick Links
EHS Home Page
Chemical Management
Occupational Health
Radiation Control Office

Welcome to Colorado State University's Environmental Health Services database. Using your CSU username and password, you can log into your portal that links live to our office database. Get information on your safety plan(s), personnel training progress, and up to the minute inventory by accessing your site. If you do not have access, contact EHS to set up an account.

Waste Supply Requests Training Records Safety Inspections Registration Forms Reports Inventory Permits Contamination History Equipment

Select "Inventory" from the EHSA Database Home Page


EHSA Database – Online Package Check-in

The screenshot shows the EHSA Database interface. At the top, there is a header bar with the EHSA logo and the text "EHSA". Below this is a navigation bar with a home icon and the text "Home". The main content area features a section titled "RAM Inventory" with a radiation symbol icon. Under this section, there is a list of options: "Ram Requisition Entry", "Ram Receipt Entry", "Removal of Isotope from PI's Inventory", "Package Receipt Survey", "View In-Lab Waste Containers", and "RAM Inventory Review Statement". A red callout box on the left contains the text "Select 'Package Receipt Survey'" with a red arrow pointing to the "Package Receipt Survey" option in the list.

Select "Package Receipt Survey"

EHSA

Home

 RAM Inventory

- Ram Requisition Entry
- Ram Receipt Entry
- Removal of Isotope from PI's Inventory
- Package Receipt Survey
- View In-Lab Waste Containers
- RAM Inventory Review Statement

EHSA Database – Online Package Check-in

PI:

Drag a column header and drop it here to group by that column

Inventory #	PI Name	Isotope	Receipt Date ↓	Permit #		Package Processed By	Package Wipe Counter	Package Wipe Interior
<input type="text" value="0015072"/>	<input type="text" value="Curie, Marie"/>	<input type="text" value="P-32"/>	<input type="text" value="05-05-2020"/>	<input type="text" value="19R-032-01"/>	<input type="text" value="Wipe Test"/>	<input type="text" value="SGLO22160263"/>	<input type="text" value="0.47000"/>	
0015073	Curie, Marie	S-35	05-05-2020	19R-032-01	<input type="text" value="Wipe Test"/>	<input type="text" value="SGLO22160263"/>	<input type="text" value="0.28000"/>	

Select “Wipe Test” for the inventory number you wish to check-in.

EHSA Database – Online Package Check-in

1. Enter your interior package & blank wipe test results
2. Enter the instrument efficiency into the calculator.
3. Select 'Calc DPM'
4. Select your "Package Wipe Counter" from the dropdown
5. Enter any package comments
6. Select update to automatically enter that you processed the package
7. Select Save

Wipe Test

DPM Calculator

(Package wipe (cpm) 32.00000 - Blank wipe (cpm) 30.00000) ÷ Efficiency (cpm/dpm) 0.97000 ÷ cm² 300.00000 = Calc DPM = dpm/cm2 0.00687

Package Wipe Counter SGLO22160263 : Perkin Elmer Precisely : TI

Package Wipe Interior 0.00687 dpm/cm2

Package Comments Interior packaging in good condition.

Package Processed By [Redacted] Update

Save Cancel

EHSA Database – Online Package Check-in

What is Considered Contamination?

DOT Regulations require that:

**If your interior package wipe is greater than 20 dpm/cm²
the RCO must be Notified that day!**

EHSA Database – Online Package Check-in

University Policy Requires that:

If contamination is identified inside the package that is **three standard deviations above your mean background** but under the 20 dpm/cm² you must treat the package as contaminated and dispose of the contaminated interior packaging through the radiation waste stream, and clean & rewipe the contaminated stock vial and/or pig until it's below your 3 standard deviation cut off.

EHSA Database – Online Package Check-in

How to Dispose of Radioactive Material Packaging

Once you've verified the interior packaging is free of contamination:

- Obliterate all evidence that the package contained radioactive material by using a heavy-duty permanent marker to completely mark out all labels and tre-foils.
- And / or remove radiation stickers and shred if possible.
- Dispose of box and packaging through the proper waste stream



Source: Gary V. Heller, Robert C. Hendel: Nuclear Cardiology: Practical Applications, Third Edition. Copyright © McGraw-Hill Education. All rights reserved.

Examples of Radioactive Postings that can be on the shipping box



BEFORE



AFTER

Tracking & Separating Radioactive Material and Waste

Tracking & Separating Radioactive Waste

Colorado State University
Environmental Health Services
Radiation Control Office

All radioactive material inventory must be accounted for and tracked from cradle to grave

- The RCO assigns a unique Inventory Number to all RAM to help identify each one
- The RCO provides an RF-13C Radioisotope Material Acquisition and Disposition form for every assigned inventory number to track inventory usage and disposal
- The RF-13C form must be completed by the Qualified User or PU and the completed copy must be sent to the RCO once the inventory number has been totally disposed

Following instructions listed

RF-13C Page 1: Track Inventory usage (subtract from original activity)

RF-13C RADIOISOTOPE MATERIAL ACQUISITION AND DISPOSITION RECORD

Inventory #: 0015077 Principal User: Marie Curie
Radionuclide: S-35 Department: Environmental Health Services
Activity (mCi): 2.00 No. of Units: 1.000 Building Name: General Service Building
Activity/Unit: 2.00
Compound: Easy Tides dATPaS, [35S] 1250 Ci/mmol Location: 131
Receipt Date: 5/15/2020 Assay Date: 6/1/2020 PO/DPO#:

1. Record all transfers and disposals of the material listed above.
2. **EACH ENTRY SHOULD BE EXPRESSED AS A PERCENTAGE OF THE INITIAL QUANTITY LISTED ABOVE.** Activity units may be used if isotope decay is negligible.
3. For each disposal to a radwaste container or package, **THE RADWASTE CONTAINER NUMBER MUST BE ENTERED AND THE TYPE OF WASTE MATERIAL CIRCLED.** The quantities reported on inventory disposition will be checked against activities entered on radwaste disposal forms.
4. Transfer to another user or location must be approved in advance by the RCO and recorded below.

Waste Tag No., Location, or Name of Recipient	Category	Amount	Circle Units	Container Description	Volume of Liquid	Initials	Date
Receipt Container	Remaining	2.0	% uCi (mCi)	Stock Vial		MC	6/12/20
		1.0	% uCi (mCi)	Vial		MC	6/15/20
		0.6	% uCi (mCi)	Vial		CP	6/16/20
		0.5	% uCi (mCi)	Vial		MC	6/20/20
		0	% uCi (mCi)	Vial		CP	6/22/20
Categories							
T = Transfer to another CSU P.U.							
A = Animal Waste							
D = Dry Waste or Sharps							
F = Flammable or other haz. Liq.							
N = NHNT liquid (bulk or vials)							
R = Remaining Inventory (storage)							
			% uCi mCi				
			% uCi mCi				
			% uCi mCi				
			% uCi mCi				
			% uCi mCi				

Tracking & Separating Radioactive Waste

RF-13C RADIOISOTOPE MATERIAL ACQUISITION AND DISPOSITION RECORD

Inventory #: 0015077

Principal User: Marie Curie

Radionuclide: S-35

Department: Environmental Health Services

Activity (mCi): 2.00

No. of Units: 1.000

Building Name: General Services Building

Activity/Unit: 2.00

Compound: Easy Tides dATPaS [35S] 1250 Ci/mmol

Location: 131



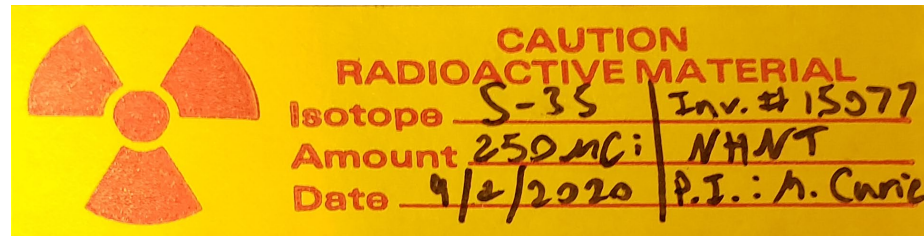
All RCO waste containers are assigned a unique waste tag # (yellow sticker) that can be found on the side of the container

Waste Tag No., Location, or Name of Recipient	Circle One Category	Amount	Circle Units	Container Description	Volume of Liquid	Initials	Date
9995	T A <u>D</u> F N R	1.00	% uCl <u>(mCi)</u>		N/A	MC	6/30/20
Categories T - Transfer to another CSU P.U. A - Animal Waste D - Dry Waste or Sharps F - Flammable or other haz. Liq. N - NHNT liquid (bulk or vials) R - Remaining Inventory (storage)			% uCl mCi				
			% uCl mCi				
			% uCl mCi				
			% uCl mCi				
			% uCl mCi				
			% uCl mCi				
			% uCl mCi				
			% uCl mCi				
9996	T A D F <u>N</u> R	0.1	% uCl <u>(mCi)</u>	Bottle A	3.0 L	MC	7/3/20
		0.5	% uCl <u>(mCi)</u>	Bottle B	3.8 L	MC	7/3/20
			% uCl mCi				
			% uCl mCi				
			% uCl mCi				
			% uCl mCi				
			% uCl mCi				
			% uCl mCi				
9997	T A D F <u>N</u> R	0.4	% uCl <u>(mCi)</u>	4L Bottle	3.75L	MC	7/6/2020
			% uCl mCi				
			% uCl mCi				
			% uCl mCi				
			% uCl mCi				
			% uCl mCi				
			% uCl mCi				

RF-13C Page 2:
Track the activity
placed each in
waste container

Tracking & Separating Radioactive Waste

Storing Viable RAM Samples



All samples containing radioactive material must be identified with a “Caution Radioactive Material” label and should include the following information to prevent unknown legacy waste:

- Isotope
- Activity
- Assay Date
- Person responsible
- Inventory number
- Contents

Dispose of all nonviable samples in the RCO provided RAM waste containers to prevent legacy waste from accumulating in the laboratory

All radioactive caution postings, stickers, and trefoils must be obliterated before placing in trash and/or short half-life waste containers.

Tracking & Separating Radioactive Waste



CSU's approved RAM waste containers are provided by the RCO

RCO provides the following container sizes:

- 5-gallon bucket
- 5-gallon carboy (bulk liquid)
- 30-gallon drum
- 55-gallon drum

All radioactive waste must be submitted to the RCO for disposal. It is not permitted for PI's to decay radioactive waste in their laboratories and dispose of waste themselves through the landfill and/or sewer.

Tracking & Separating Radioactive Waste



The RCO will deliver your waste containers

Inside the “Empty” waste containers you will find:

- Plastic Liner
- “Caution Radioactive Material” sticker
- Radiation waste tag
- Zip tie (to attach the waste tag to the outside of the container)

Before placing waste inside container remove the “EMPTY” sticker on the top of the container and replace it with the “Caution Radioactive Material Sticker”

Always line the inside of the waste container with the plastic liner before adding waste

Tracking & Separating Radioactive Waste

Radioactive Waste must be separated into RCO provided designated waste containers; radioactive waste is separated by:

1. Long from Short half-life Radioisotopes
 - a. Short half-life – radioisotopes with a half-life of <90 days
 - b. Long half-life – radioisotopes with a half-life >90 days
2. Solid (Dry) from Liquid waste
3. Mixed waste from non-hazardous waste
 - a. Definition of mixed waste: Radioactivity that is mixed with any material classified by the EPA as hazardous (example: P-32 and Formamide)
 - i. Ignitable
 - ii. Corrosive
 - iii. Reactive
 - iv. Toxic
 - b. Only compatible mixed waste contents can be placed in the same radioactive mixed waste containers (example: separate acids and basis into two mixed waste containers)

Tracking & Separating Radioactive Waste

RAM Waste Container Color Codes

Waste containers are color coded so RAM users can easily identify and separate their waste into the appropriate containers

<div>Short Half-Life</div> <div>Liquid</div> <div>Non-Hazardous</div>	<div>Short Half-Life</div> <div>Solid</div> <div>Non-Hazardous</div>	<div>Short Half-Life</div> <div>Liquid</div> <div>Mixed (Hazardous)</div>	<div>Short Half-Life</div> <div>Solid</div> <div>Mixed (Hazardous)</div>
<div>Long Half-Life</div> <div>Liquid</div> <div>Non-Hazardous</div>	<div>Long Half-Life</div> <div>Solid</div> <div>Non-Hazardous</div>	<div>Long Half-Life</div> <div>Liquid</div> <div>Mixed (Hazardous)</div>	<div>Long Half-Life</div> <div>Solid</div> <div>Mixed (Hazardous)</div>

Short Half-life, Dry, Non-Hazardous Waste Containers

Radioisotopes with a half-life of < 90 days

Examples: ^{32}P , ^{125}I , ^{131}I , & ^{35}S



Examples of acceptable waste items are: Dry solids such as gloves, paper towels, absorbent paper, pipette tips, glass, empty vials and test tubes that are contaminated or potentially contaminated.

NO LIQUIDS

- transfer all liquids into the appropriate radiation waste container
- No free-standing liquid (even drops of liquid)
- Leave lids to vials and test tubes uncapped



NO RAM LABELING

All evidence of radiation labeling such as stickers and trefoils must be defaced and or obliterated from all vials, trays, bags, and boxes before being placed in waste containers



NO HAZARDOUS WASTE OF ANY KIND!

Including lead pigs

SHARPS

Any sharps that may potentially puncture the skin, example include needles, broken glass, pasteur pipettes need to be placed inside cardboard boxes or coffee cans



NO BIOHAZARDOUS WASTE

- Biohazards or infectious waste must be disinfected before placing it in the waste pail
- The approved method of disinfecting is stated in the PI's radiation safety plan.

Short Half-life, Liquid, Non-Hazardous Waste Containers

Radioisotopes with a half-life of < 90 days

Examples: ^{32}P , ^{125}I , ^{131}I , & ^{35}S



NO RAM LABELING

All evidence of radiation labeling such as stickers and trefoils must be defaced and or obliterated before placed in waste containers

Separate waste containers into two types of liquids:



BULK LIQUID

- Any liquid >40 ml or carboys
- All containers must be tightly capped



NO HAZARDOUS WASTE OF ANY KIND!

pH must be ≥ 2 and ≤ 12.5



LIQUID VIALS

- Any liquid <40ml
- All containers must be tightly capped



NO BIOHAZARDOUS WASTE

- Biohazards or infectious waste must be disinfected before placing it in the waste pail
- The approved method of disinfecting is stated in the PI's radiation safety plan.

Tracking & Separating Radioactive Waste

Bulk Liquid Disposal



- Label each bulk liquid bottle so the RCO can easily identify the different containers and their contents (example A, B, & C)
 - Bottle A
 - 2x SSC buffer, 0.100 mCi S-35
- Do not overfill containers, leave head space
- Secure the lids on each bottle
- Use newspaper or packing material to secure the bottles inside the container
- No peanuts or other packing material

Tracking & Separating Radioactive Waste

Bulk Liquid Disposal - Carboys



- Never remove carboy from secondary container
- Do not overfill carboy, leave plenty of head space
- Always secure carboy cap when waste is not being added
- Always close the secondary container lid when not adding waste

Tracking & Separating Radioactive Waste

Liquid Scintillation Cocktail Vials



- Separate LSC vials containing nonradioactive LSC cocktail from LSC vials containing RAM
 - Do not pour nonradioactive LSC cocktail down the drain
 - Nonradioactive LSC cocktail can be submitted to Hazardous waste for disposal
 - Radioactive LSC cocktail can be placed in the liquid RAM waste containers
- Classical LSC cocktail solvents are aromatic organic solvents and can contain Toluene, Xylene, mixture of isomers, or Pseudocumene. These LSC cocktails must be disposed of in Mixed waste containers
- Safer LSC cocktail solvents have a lower toxicity, for RCO's disposal purposes these LSC cocktails need to be placed in the Nonhazardous waste containers
- Include the LSC cocktail brand and manufacturer used in the "Description of Waste" when submitting for a waste pickup.

Short Half-life, Liquid, Mixed Waste Containers

Radioisotopes with a half-life of < 90 days

Examples: ^{32}P , ^{125}I , ^{131}I , & ^{35}S

HAZARDOUS WASTE

- All mixed waste must be approved by the RSC in the RAM Safety approval before use
- Personnel who generate mixed waste will need to complete [Hazardous Waste Generator Training](#) in addition to this training
- **DO NOT** mix or combine any incompatible chemicals together
- It's considered a mixed waste if it has a pH of ≤ 2 or ≥ 12.5
- Separate incompatible hazardous waste into different RAM waste containers - i.e. separate acids and bases into different RCO waste containers
- Refer to Hazardous Waste Manual [Appendix B](#), page 9



NO BIOHAZARDOUS WASTE

- Biohazards or infectious waste must be disinfected before placing it in the waste pail
- The approved method of disinfecting is stated in the PI's radiation safety plan
- No biohazardous waste bags

Separate waste containers into two types of liquids:



BULK LIQUID

- Any liquid >40 ml or carboy
- All containers must be tightly capped



LIQUID VIALS

- Any liquid <40ml
- All containers must be tightly capped



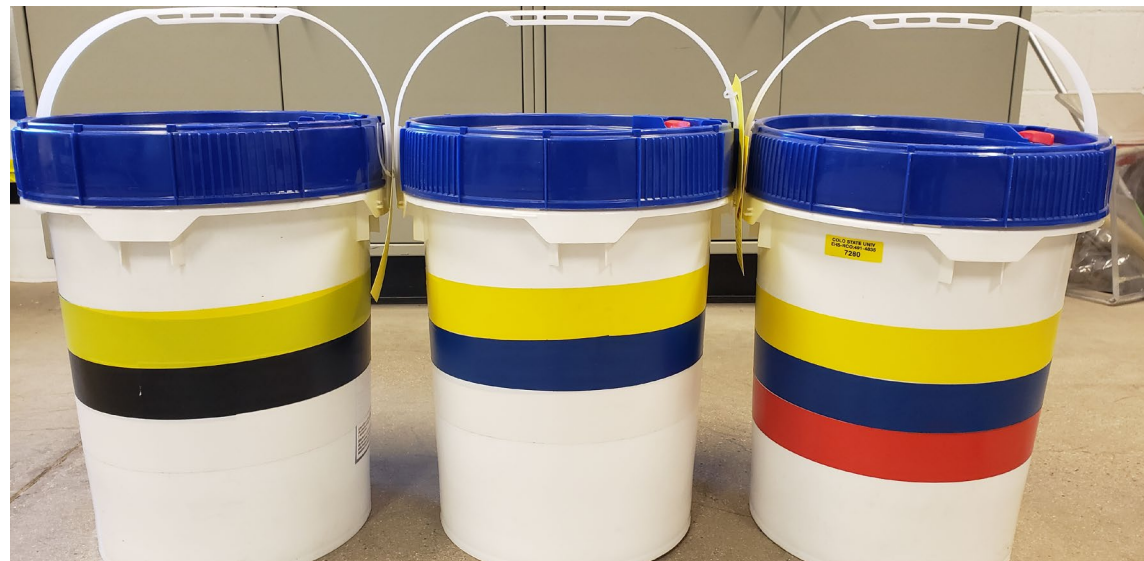
NO RAM LABELING

All evidence of radiation labeling such as stickers and trefoils must be defaced and / or obliterated before placed in waste containers

Tracking and Separating Radioactive Waste

Long half-life Waste Containers

- Long half-life waste containers are separated the same way short half-life waste are from the previous slides, the only exception is that you do not have to remove or obliterate radioactive material labels or trefoils
- Long half-life waste is consolidated by the RCO into 55 gallon drums at our waste facility and picked up by our waste broker for final disposal
- The cost to dispose of long-half waste is substantial to the University therefore it is requested that you try to minimize the activity you use for each experiment as much as possible



Tracking & Separating Radioactive Waste

Long half-life waste goes for shallow Burial

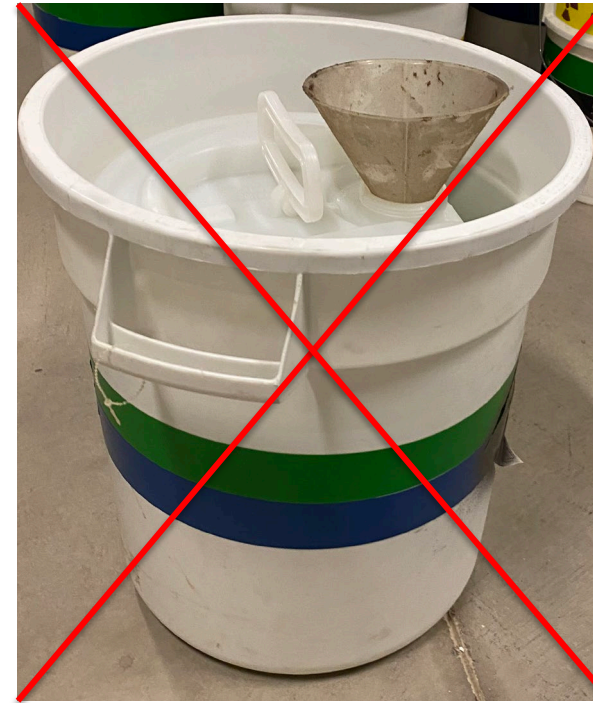


Tracking & Separating Radioactive Waste

In-lab container safety



Do not store waste containers with their liners exposed, this can cause tears in the liner and may spread contamination



Do not store funnels inside carboys or bulk liquid waste, always screw the caps on tightly when waste is not being added to prevent accidental spills

To prevent accidental spills always secure the lids to the waste containers when waste is not being added!

Tracking & Separating Radioactive Waste

In-lab container safety



Seal the liner with adhesive tape when bucket is full



30 or 55 gallon Drums –
Tighten the nut and bolt in the orientation shown above

Complete the waste tag:

- Isotope(s) inside the waste container
- Amount - total activity inside waste container
- Pail # - Number on the yellow sticker found on the side of the waste container
- Assay – Assay date of the Inventory
- PU – Principal User
- Type – description of waste contents inside waste container

Tracking & Separating Radioactive Waste

In-Lab Waste Container Storage

RAM waste containers must be submitted for a waste pickup when:

- Waste container(s) are full
- Waste container(s) have been in the lab for 6 months
 - To prevent legacy waste
 - Can submit waste even when container is not full
- Radiation work has been completed and there are no immediate plans to work with RAM within the next month

Online RAM Waste Disposal


1. Add all Inventory into waste containers online
2. Request a waste pickup

Instructions can be found on the RCO Website for future reference:
[RAM Waste Disposal Instructions](#) Link

EHSA Database – Online RAM Waste Disposal

Step 1: Add Inventory into Waste Containers

Welcome to the EHS database. Please contact EHS at 491-6745 if you have questions or concerns.



Quick Links

- [EHS Home Page](#)
- [Chemical Management](#)
- [Occupational Health](#)
- [Radiation Control Office](#)

Welcome to Colorado State University's Environmental Health Services database. Using your CSU username and password, you can log into your portal that links live to our office database. Get information on your safety plan(s), personnel training progress, and up to the minute inventory by accessing your site. If you do not have access, contact EHS to set up an account.

Navigation Icons:

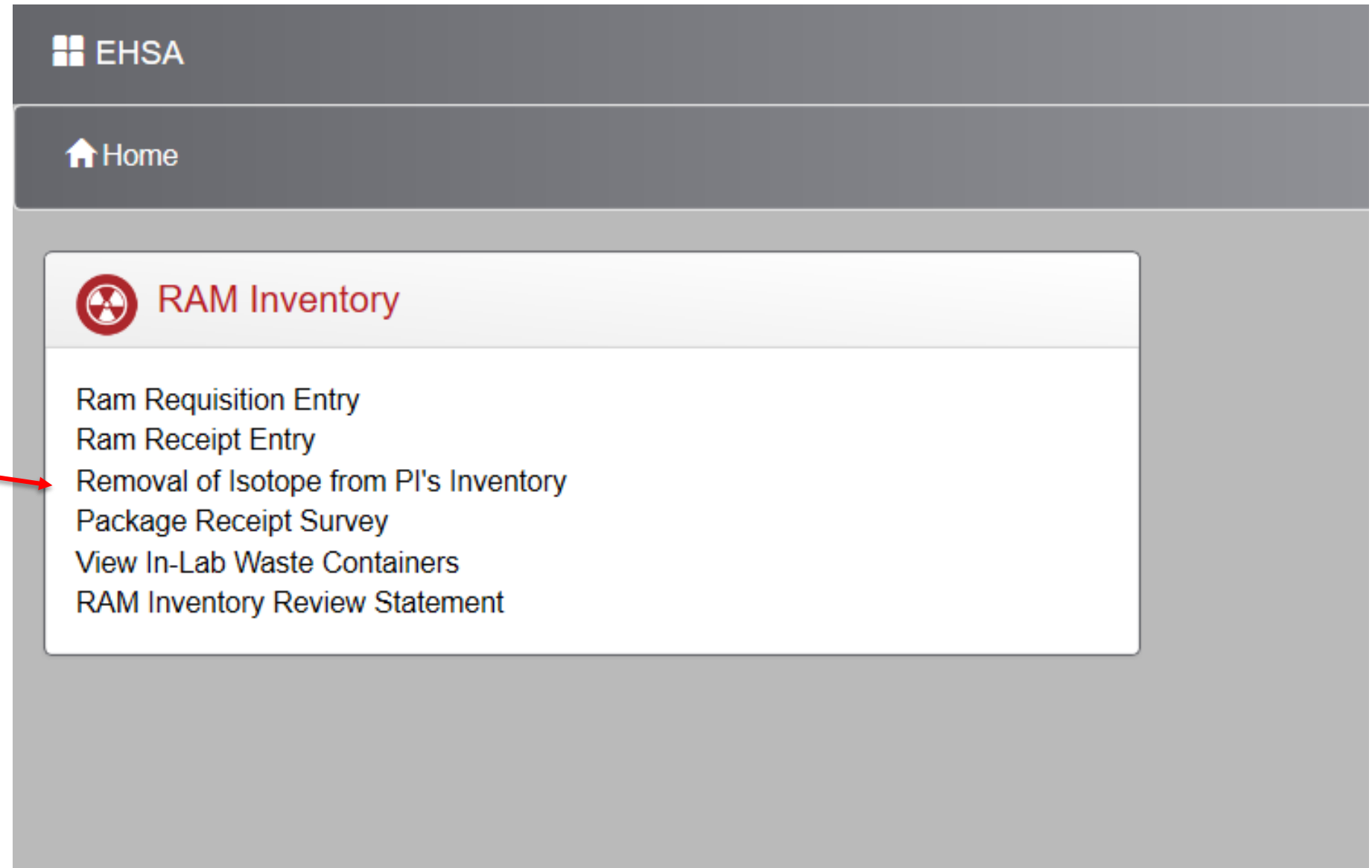
- Waste Supply Requests
- Training Records (2)
- Safety Inspections (3, 6)
- Radiation Safety Plans
- Registration Forms
- Inventory**
- Permits
- Document Library
- Equipment

Select "Inventory" from the EHSA Database Home Page

EHSA Database – Online RAM Waste Disposal

Step 1: Add Inventory into Waste Containers

**Select “Removal
of Isotope from
PI’s Inventory”**



EHSA Database – Online RAM Waste Disposal

Step 1: Add Inventory into Waste Containers

Helpful tip: to view your In-Lab Waste Containers select “View In-Lab Waste”

EHSA Inventory / Ram Inventory Usage

Usage Log PI: Curie, Marie Inventory: Current Inventory View In-Lab Waste

Drag a column header and drop it here to group by that column

Inventory #	PI Name	Isotope	Receipt Activity	Unit	Receipt Date ↓	Lab/Location	Lic. Line #	Permit #
<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>
0015077	Curie, Marie	S-35	2	mCi	05-15-2020	General Services Building:133	1A	19R-032-01
0015074	Curie, Marie	S-35	3	mCi	05-12-2020	General Services Building:133	1A	19R-032-01
0015075	Curie, Marie	P-32	4	mCi	05-12-2020	General Services Building:133	1A	19R-032-01
0015072	Curie, Marie	P-32	5	mCi	05-05-2020	General Services Building:133	1A	19R-032-01
0015073	Curie, Marie	S-35	5	mCi	05-05-2020	General Services Building:133	1A	19R-032-01

Double click on the inventory number you wish to make a disposal for

EHSA Database – Online RAM Waste Disposal

Step 1: Add Inventory into Waste Containers

Usage for Inventory #: 0015070

+ Add

Edit

Delete

Options ▾

Isotope	Disposal Date	Usage ID ▾	Percent	Container	Usage Category	Usage Activity	Unit	Usage Volume	U U
---------	---------------	------------	---------	-----------	----------------	----------------	------	--------------	--------

Scroll down to the bottom of the screen to “Usage for Inventory #” and select “Add”

EHSA Database – Online RAM Waste Disposal

Step 1: Add Inventory into Waste Containers

1. Select Usage Category drop down – Solid or Liquid.

2. Add percent of the inventory put into the waste container

3. Select the waste container No.

Enter Usage Information

By Percentage

*Your selection of By Volume or By Activity cannot be varied once usage for this vial has been saved.

Disposal Date

5/28/2020

Disposed By

Original Activity

2.00000

mCi

Activity Used

mCi

Add

Usage Category

Percent

Usage Activity

1

Solid

2

50.00 %

1.00000

mCi

3

9995

Container

Totally Used?


Save

Cancel

EHSA Database – Online RAM Waste Disposal

Step 1: Add Inventory into Waste Containers

Enter Usage Information By Percentage ▾

Disposal Date 

Disposed By

Original Activity mCi

Activity Used mCi

Add Usage Category Percent Usage Activity

<input type="checkbox"/>	<input type="text" value="Liquid"/> ▾	<input type="text" value="20.00 %"/>	<input type="text" value="0.40000"/> mCi	Container <input type="text" value="9997"/> ▾	Solvent Used <input type="text" value="70% Ethanol"/>
<input type="checkbox"/>	<input type="text" value="Liquid"/> ▾	<input type="text" value="5.00 %"/>	<input type="text" value="0.10000"/> mCi	Container <input type="text" value="9996"/> ▾	Solvent Used <input type="text" value="SSC Buffer"/>

Totally Used? ☐

Select “Add” to enter activity into a different waste container

Select SAVE!

Do not check until you’ve entered the very last amount of activity for the inventory # into the final waste bucket that will be submitted for a waste pickup. Don’t check if inventory remains.

EHSA Database – Online RAM Waste Disposal

Step 1: Add Inventory into Waste Containers

✓ Done

Usage Activity by Category

Category	Usage Activity
Liquid	1.0
Solid	1.0

Usage for Inventory #: 0015077

Reactivate

Options ▾

Isotope	Disposal Date	Usage ID ↓	Percent	Container	Usage Category	Usage Activity	Unit	Usage Volume	U U
S-35	05-28-2020	44958	5	9996	Liquid	0.1	mCi	0	
S-35	05-28-2020	44958	20	9997	Liquid	0.4	mCi	0	
S-35	05-28-2020	44957	25	9996	Liquid	0.5	mCi	0	
S-35	05-28-2020	44956	50	9995	Solid	1	mCi	0	

1. Verify that you entered the correct activity into the correct waster container
2. Once you verified everything is correct select “Done”

EHSA Database – Online RAM Waste Disposal

Step 2: Request for a Waste Pickup

Once you've entered every inventory number into the corresponding waste container submit for a waste pickup.

First - Complete a Container Survey:

1. Wearing proper PPE wipe the outside of the waste container using a filter. Include the lid, bottom, sides, & handle; then run the wipe in the LSC with a blank to check for removable contamination.
 - If there is removable contamination, clean & rewipe the waste bucket until below your background upper control limit.
2. Survey the outside of the waste container with your survey meter at the surface of the container, record the highest CPM reading.







EHSA Database – Online RAM Waste Disposal

Step 2: Request for a Waste Pickup


Welcome to the EHS database. Please contact EHS at 491-6745 if you have questions or concerns.


 Quick Links


- [EHS Home Page](#)
- [Chemical Management](#)
- [Occupational Health](#)
- [Radiation Control Office](#)





Welcome to Colorado State University's Environmental Health Services database. Using your CSU username and password, you can log into your portal that links live to our office database. Get information on your safety plan(s), personnel training progress, and up to the minute inventory by accessing your site. If you do not have access, contact EHS to set up an account.



Waste Supply Requests



Training Records



Safety Inspections



Radiation Safety Plans


Registration Forms


Inventory


Permits

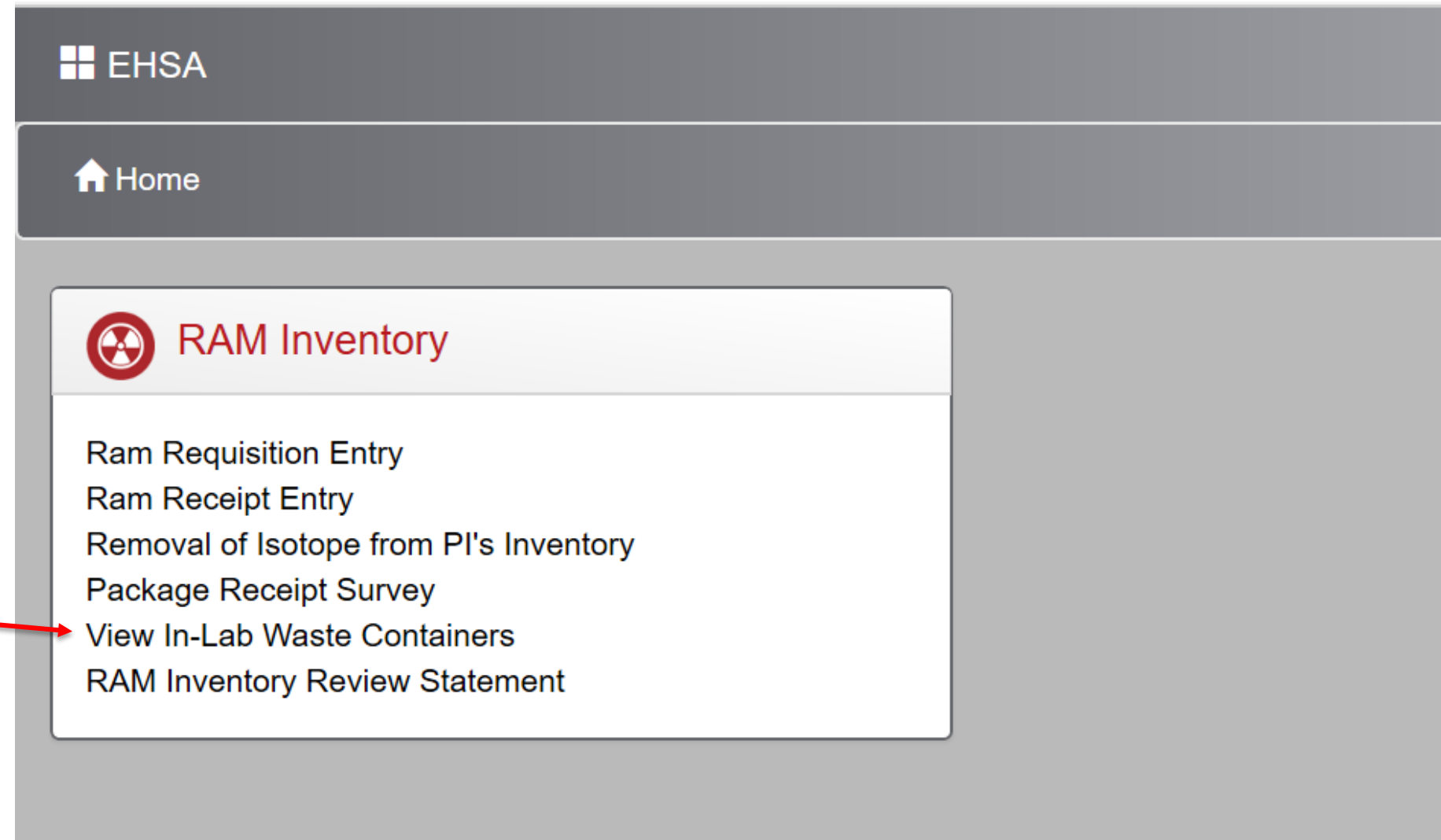

Document Library


Equipment

Select "Inventory"

EHSA Database – Online RAM Waste Disposal


Step 2: Request for a Waste Pickup



The screenshot shows the EHSA database interface. At the top, there is a header bar with the EHSA logo and the text "EHSA". Below this is a navigation bar with a home icon and the text "Home". The main content area features a "RAM Inventory" section with a red radiation symbol icon. This section contains a list of options: "Ram Requisition Entry", "Ram Receipt Entry", "Removal of Isotope from PI's Inventory", "Package Receipt Survey", "View In-Lab Waste Containers", and "RAM Inventory Review Statement". A red box on the left side of the image contains the text "Select 'View In-Lab Waste Containers'" with a red arrow pointing to the corresponding option in the list.

EHSA

Home

 RAM Inventory


- Ram Requisition Entry
- Ram Receipt Entry
- Removal of Isotope from PI's Inventory
- Package Receipt Survey
- View In-Lab Waste Containers
- RAM Inventory Review Statement

Select "View In-Lab
Waste Containers"

EHSA Database – Online RAM Waste Disposal

Step 2: Request for a Waste Pickup

Here you can view all your in-lab waste containers

 EHSA Waste / In Lab Containers

In Lab Container Reports ▾ PI: ▾ View: ▾ Container Category: ▾

Drag a column header and drop it here to group by that column

Container / Drain # ↑	Volume	Disposal Volume Unit	Waste Type	Container Category				Contents Description	Isotope
<input type="text"/> ▾	<input type="text"/> ▾	<input type="text"/> ▾	<input type="text"/> ▾	<input type="text"/> ▾				<input type="text"/> ▾	<input type="text"/> ▾
▶ 9995	5	GAL	SDN	RAM	+ Add Container Survey	Seal	+ Request Pickup	TEST Bucket	P-32,S-35
▶ 9996	5	GAL	SLN	RAM	+ Add Container Survey	Seal	+ Request Pickup	TEST Bucket	P-32,S-35
▶ 9997	5	GAL	SLM	RAM	+ Add Container Survey	Seal	+ Request Pickup	TEST Bucket	P-32,S-35

EHSA Database – Online RAM Waste Disposal

Step 2: Request for a Waste Pickup





In Lab Container Reports ▾

PI: Show All ▾

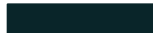



View: In-Lab Waste ▾

Container Category: RAM ▾

Drag a column header and drop it here to group by that column

Container / Drain # ↑	Volume	Disposal Volume Unit	Waste Type	Container Category				Contents Description	Isotope	Storage Type	PI Name
<input type="text"/> ▾	<input type="text"/> ▾	<input type="text"/> ▾	<input type="text"/> ▾	<input type="text"/> ▾				<input type="text"/> ▾	<input type="text"/> ▾	<input type="text"/> ▾	<input type="text"/> ▾
 9996	5	GAL	SLN	RAM				TEST Bucket	P-32,S-35	I-RAM	Curie, Ma

+ Add Edit

Isotope ↑	PI Origin	PI Name	Orig Inventory #	Disposal Date	Est. Disposal Date	Waste Code	Disposed?	Receipt Activity	Unit
<input type="text"/> ▾	<input type="text"/> ▾	<input type="text"/> ▾	<input type="text"/> ▾	<input type="text"/> ▾	<input type="text"/> ▾	<input type="text"/> ▾	<input type="text"/> ▾	<input type="text"/> ▾	<input type="text"/> ▾
P-32		Curie, Marie	0015075	05-28-2020	03-22-2021		<input type="checkbox"/>	3	mCi
S-35		Curie, Marie	0015077	05-28-2020	05-28-2020		<input type="checkbox"/>	0.5	mCi
S-35		Curie, Marie	0015077	05-28-2020	05-28-2020		<input type="checkbox"/>	0.1	mCi
S-35		Curie, Marie	0015074	05-28-2020	05-28-2020		<input type="checkbox"/>	0.75	mCi

- Select the yellow arrow to view all the contents in that waste container and verify that everything is correct.
- Once you've verified everything is correct select "Add Container Survey" red button

EHSA Database – Online RAM Waste Disposal

Step 2: Request for a Waste Pickup

Survey Calculator - Exposure Rate Determination

Counts Per Minute (cpm)	÷	Correction Factor (cpm) [=1 mR/hr]		Exposure Rate (mR / hr)
<input type="text"/>		<input type="text"/>	Calculate =	<input type="text"/>

DPM/cm2 Calculator

(Container Wipe (cpm)	-	Background Wipe (cpm))	÷	Efficiency (cpm/dpm) (ex. 50% = 0.5)	÷	cm ²		Calc DPM =	Disintegrations/Minute
	<input type="text"/>		<input type="text"/>			<input type="text"/>		<input type="text"/>			<input type="text"/>


Use the calculators to determine your Highest Exposure rate at the surface of the container in mR/hr
And the highest wipe Activity in DPM/cm²

EHSA Database – Online RAM Waste Disposal

Step 2: Request for a Waste Pickup

Enter Survey Information:

Container Survey

Container # 9996 

Survey Date 5/29/2020 


Mixed Waste? No 


1. Select Yes or No for Mixed waste in the dropdown menu


2. Complete all the fields - do not leave any blank, enter N/A if not applicable then **select "Save"**

Highest Exposure rate at Surface 0.02 mR/hr 

Highest Wipe Activity 0.0 DPM / cm² 

Survey Meter 

Wipe Test Counter 7069084 : Beckman : LS 6500 

Are Sharps Secured Within Container? N/A 

pH 7 

3. Test the pH using litmus paper (dispose of litmus paper in a Dry waste container)

method of Biohazard Disinfection N/a

Weight 15.0 lbs.  

Surveyor M. Curie

Bulk Liquid - 2 x 4 Liter Glass Bottles with 50% SSC buffer and 50% water

Description of Waste

4. Enter as much information as possible in the description of waste:
(i.e. LSC vials with 7 mL each of Ultima Gold LSC Cocktail)

EHSA Database – Online RAM Waste Disposal

Step 2: Request for a Waste Pickup

Mixed Waste Example:

1. Select “Yes” in the Mixed Waste dropdown
2. Select the mixed waste tab
3. Select “Add”
4. Enter the mixed waste contents in detail
5. Select “Save”

The screenshot shows the 'Add Mixed Waste' form in the EHSA Database. The form is divided into two main sections: 'Survey Information' and 'Mixed Waste'. The 'Mixed Waste' tab is selected, indicated by a red '2'. In the 'Survey Information' section, the 'Mixed Waste' dropdown is set to 'Yes', indicated by a red '3'. The 'Add' button is highlighted, indicated by a red '3'. The 'Waste Description' field is empty, indicated by a red '4'. The 'Physical Form' dropdown is set to 'Liquid', indicated by a red '4'. The 'pH' field is set to '7', indicated by a red '4'. The 'Number & Size of Container' field is set to '1 x 4 Liter Glass Bottle', indicated by a red '4'. The 'Volume or Weight in Container' field is set to 'approx. 3.5 Liters', indicated by a red '4'. The 'Save' button is highlighted, indicated by a red '5'.

Notes:

- Enter percentages to total 100%
- Select “Add” for each bottle in waste container if they are different
- All mixed waste hazardous chemicals must be approved by the RCO in the RAM Safety approval before use
- **DO NOT** mix or combine any incompatible chemicals inside the waste container (Refer to Hazardous Waste Manual [Appendix B](#), page 9) - i.e. separate acids and bases into separate RCO waste containers

EHSA Database – Online RAM Waste Disposal

Step 2: Request for a Waste Pickup

EHSA Waste / In Lab Containers

In Lab Container Reports

PI: Show All

View: In-Lab Waste

Container Category: RAM

Drag a column header and drop it here to group by that column

Container / Drain #	Volume	Disposal Volume Unit	Waste Type	Container Category				Contents Description	Isotope
9995	5	GAL	SDN	RAM	Add Container Survey	Seal	Request Pickup	TEST Bucket	P-32,S-35
9996	5	GAL	SLN	RAM	Add Container Survey	Seal	Request Pickup	TEST Bucket	P-32,S-35
9997	5	GAL	SLM	RAM	Add Container Survey	Seal	Request Pickup	TEST Bucket	P-32,S-35

1. Select “Seal” to seal the waste container

EHSA Database – Online RAM Waste Disposal

Step 2: Request for a Waste Pickup

Confirm

☐ Waste Liner / Carboy lid is sealed

☐ All waste tag entries completed and attached to container

☐ I hereby declare that the identification of the waste materials is categorized properly to the container designation (i.e. Short Half-life/Solid/Non-Hazardous) and activity is accurately described and complete to the best of my knowledge.

Date Sealed

6/8/2020

Are you sure you want to mark Container #: MWF999 as 'Sealed'?

Seal

Cancel

Confirm the requested items by checking them and select Seal

EHSA Database – Online RAM Waste Disposal

Step 2: Request for a Waste Pickup

EHSA Waste / In Lab Containers

In Lab Container Reports ▾

PI:

Show All ▾

View:

In-Lab Waste ▾

Container Category:

RAM ▾

Drag a column header and drop it here to group by that column

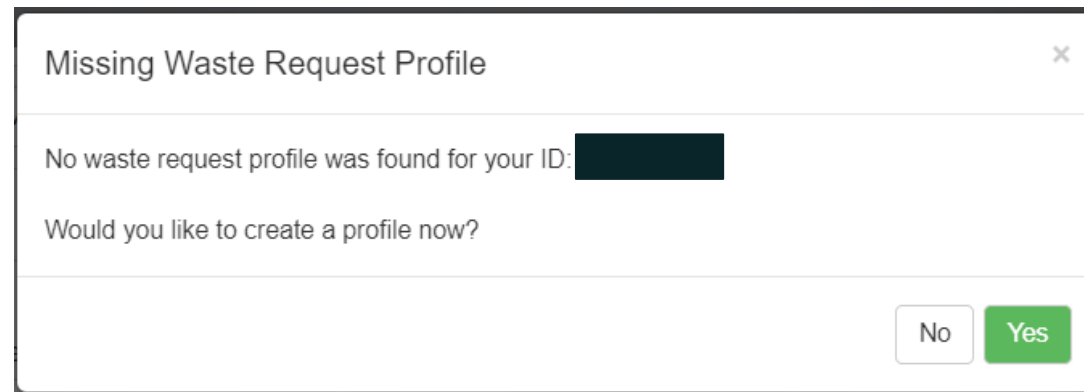
Container / Drain # ↑	Volume	Disposal Volume Unit	Waste Type	Container Category				Contents Description	Isotope
<input type="text"/> ▾	<input type="text"/> ▾	<input type="text"/> ▾	<input type="text"/> ▾	<input type="text"/> ▾				<input type="text"/> ▾	<input type="text"/> ▾
▶ 9995	5	GAL	SDN	RAM	+ Add Container Survey	Seal	+ Request Pickup	TEST Bucket	P-32,S-35
▶ 9996	5	GAL	SLN	RAM	+ Add Container Survey	Seal	+ Request Pickup	TEST Bucket	P-32,S-35
▶ 9997	5	GAL	SLM	RAM	+ Add Container Survey	Seal	+ Request Pickup	TEST Bucket	P-32,S-35

Select "Request Pickup"

EHSA Database – Online RAM Waste Disposal

Step 2: Request for a Waste Pickup

You will need to create a waste request profile if this is your first time submitting for a waste pickup, this is only required to be completed once, if a waste profile has already been created for you and this “Missing Waste Request Profile” pop-up does not appear you may continue to slide #77



The screenshot shows a white rectangular pop-up window with a thin grey border. The title bar at the top left says "Missing Waste Request Profile" and has a small grey 'x' icon at the top right. The main content area has a light grey background. It contains the text "No waste request profile was found for your ID:" followed by a black rectangular redaction box. Below this is the question "Would you like to create a profile now?". At the bottom right, there are two buttons: a white button with the text "No" and a green button with the text "Yes".

Select “Yes” to Create your Waste Request profile.

EHSA Database – Online RAM Waste Disposal

Step 2: Request for a Waste Pickup

Verify User Information
is correct and make
edits here.

User Information

*Waste Profile

*First Name

Marie

*Last Name

Curie

*Phone #

(111)111-1111

*Email

Marie.Curie@colostate.edu

Confirm Email

Marie.Curie@colostate.edu

Select “Add” to Attach
Your Principal User.

Waste Request Information

+ Add

Edit

Delete

Options

Default	PI	Department	Building	Lab / Room

EHSA Database – Online RAM Waste Disposal

Step 2: Request for a Waste Pickup

Enter your PI,
Department,
Building and Lab #

Select “Attach”

Modify

PI: Curie, Marie

Default: Yes

Department: Environmental Health Services

Building: 4724: Administration

Lab / Room: 100 ☐ Allow Any Location

Then **Select “Save”** and
you will be returned to the
User Information Page

EHSA Waste / Waste Request Profile / Add Waste Request Profile

User Information

*Waste Profile: [Redacted]

*First Name: Marie *Last Name: Curie


*Phone #: (111)111-1111

*Email: Marie.Curie@colostate.edu

Confirm Email: Marie.Curie@colostate.edu

EHSA Database – Online RAM Waste Disposal

Step 2: Request for a Waste Pickup

 EHSA

Waste / In Lab Containers

In Lab Container Reports

PI: Show All

View: In-Lab Waste

Container Category: RAM

Drag a column header and drop it here to group by that column

Container / Drain #	Volume	Disposal Volume Unit	Waste Type	Container Category				Contents Description	Isotope
<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>				<input type="text"/>	<input type="text"/>
▶ 9995	5	GAL	SDN	RAM	+ Add Container Survey	Seal	+ Request Pickup	TEST Bucket	P-32,S-35
▶ 9996	5	GAL	SLN	RAM	+ Add Container Survey	Seal	+ Request Pickup	TEST Bucket	P-32,S-35
▶ 9997	5	GAL	SLM	RAM	+ Add Container Survey	Seal	+ Request Pickup	TEST Bucket	P-32,S-35

Final Step: Select “Request Pickup” for the waste container you would like to submit for a waste pickup

EHSA Database – Online RAM Waste Disposal

Step 2: Request for a Waste Pickup


Waste Request Pickup

Container Information

Container #: Test05

Isotope: C-14

Location: Administration : 100

 Order Replacement Containers & Labels

Select “Order Replacement Container” to request a new waste container

Then select the container type and the quantity of replacement containers needed

The RCO will replace the waste container with the same waste type that was submitted for a waste pick unless you request something different in the comments. You will also need to enter the container waste type if you request any additional waste containers.

Waste Container Request

Quantity	Description
0	30 GALLON DRUM
0	55 Gallon Drum
1	5 Gallon Plastic Bucket
0	5 Gallon Steel Bucket
1	5 Gallon Carboy

Comments *Special Request Require Comments

Please Bring an additional long-liquid-nonhazardous carboy as well

Select “Update”

Update Cancel


EHSA Database – Online RAM Waste Disposal

Step 2: Request for a Waste Pickup

Important!

Submit pickup request? *No changes may be made to container contents once request has been submitted

Waste Profile [Edit Profile](#)

Contact Curie, Marie [REDACTED]	Contact Phone (111)111-1111	Contact Email Marie.Curie@colostate.edu
PI Curie, Marie(CURIE)	Department Environmental Health Services (6021)	
Request Date 7/16/2020 	Comments Combo to Rad Waste storage cabinet XX-XX-XX	

Enter any useful
comments for
the RCO

Select “Yes” to
complete your waste
pickup request

☒ Yes ☐ Cancel

EHSA Database – Online RAM Waste Disposal

Step 2: Request for a Waste Pickup

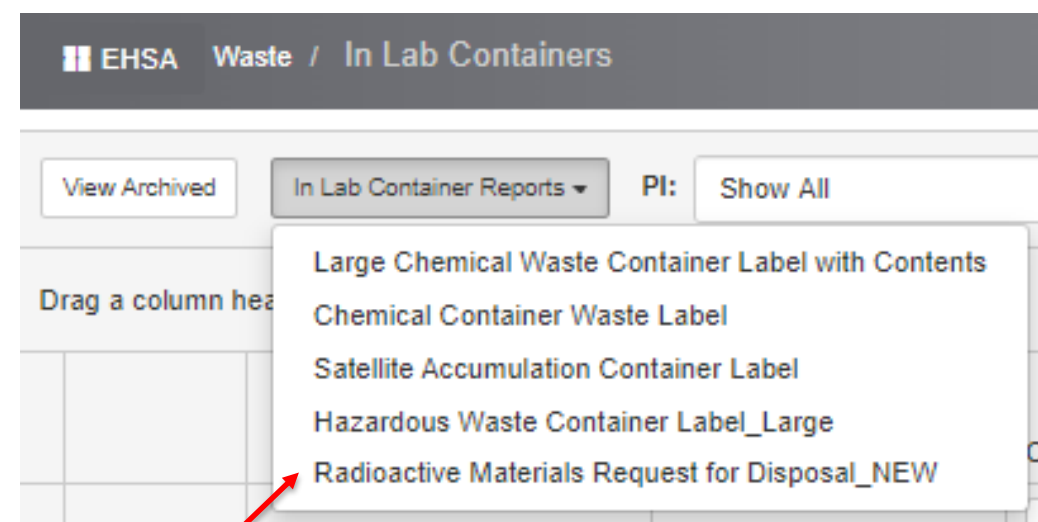
Once Waste pickup is requested highlight the waste container and select “In Lab Container Reports”

EHSA Waste In Lab Containers

In Lab Container Reports ▾ PI: Show All ▾ View: In-Lab Waste

Drag a column header and drop it here to group by that column

Container / Drain # ↑	Volume	Disposal Volume Unit	Waste Type	Container Category
▶ 9995	5	GAL	SDN	RAM
▶ 9996	5	GAL	SLN	RAM
▶ 9997	5	GAL	SLM	RAM



Select “Radioactive Materials Request for Disposal_NEW”
Print the report for each waste container to be picked up
and save the printed report(s) in your Radiation Control
Program Binder

EHSA Database – Online RAM Waste Disposal

- The RCO picks up waste every Wednesday morning
- To ensure that your waste is picked up, please submit waste pick-up requests by Monday at 5:00pm

For more Information:

- Refer to your PI's full radiation safety approval
- The [Radiation Control Manual](#)
- The [RF-13 Acquisition and Disposition](#) form
- Contact the [Radiation Control Office Personnel](#) (Contacts)



Please take the online quiz to receive credit for completing the course. You will need to score at least an 80% to pass and can retake the quiz as many times as needed.

However, if you do not pass on your second attempt, you'll have to wait 24 hours before taking it again.

Thank you



Colorado State University