COLUMBIA UNIVERSITY
IN THE CITY OF NEW YORK

Columbia University Environmental Health & Safety
Radiation Safety Program

Radioactive Material Module User Manual for Laboratory Information Online Network

Table of Contents*

*Contact Radiation Safety at rso-ehrs@columbia.edu for additional assistance.

Managing Radioactive Material Permits

A radioactive material (RAM) permit is issued by Radiation Safety that allows a user to order and use radioactive materials. A permit application can be submitted through LION (Laboratory Information Online Network) system.

Submitting a New RAM Permit Application

1. Log into LION with your Columbia University UNI and password
2. Go to "**LATCH**" in the left hand menu and select "**Permits**" on the right hand screen. Click on "**Apply for New Permit**"

3. Select "**RAM Permit Application**" by clicking on the tab in the pop-up dialogue box

4. Fill out the required fields for information on the authorized user and attach a copy of CV and a diagram of the lab

5. Fill out the required fields for isotope and activity, order and possession limits, the physical form of the material, etc.

Radioisotope Usage Information

Isotope

Search for Isotope

Carbon-14

Limits Unit of Measure

mCi

Estimated Maximum Activity Per Procedure

5

Maximum Quantity Purchased at Any One Time

25

Maximum Possession Limit on Permit

100

Estimated Total Activity to be Ordered per Year

200

Chemical Compound or Physical Form

GLUCOSE, D- [U-14C]-

Procedure(s) in which the Isotope Will Be Used

Estimated Frequency of Procedure (per month)

× Remove

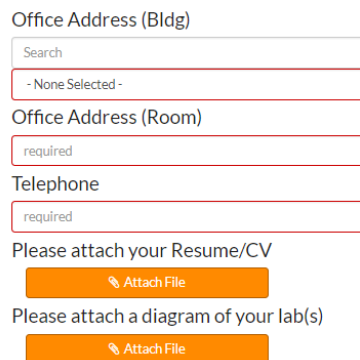**+ Add Additional Radioisotope**

6. Describe RAM use in experiment

Please include the following information when completing the "**Explain Reason for Application**" section.

- Name of protocol or experiment (e.g. Northern Blot, DNA Labeling, etc.)
- Isotope
- Activity to be used in the experiment (e.g. 100uCi, 1mCi, etc.)
- Estimated amount of total time spent handling radioactive material
- A brief summary of the steps in the protocol or experiment

Explain Reason for Application

The labeling is according to the Dideoxy Method. The label is added a reaction mix of less than 50 ul and incubated at 37 C for 30 to 45 minutes. The samples are boiled and fractionated by gel electrophoresis (Rm. VC3), dried (Rm. VC4) and autoradiograms (freezer in Plant Growth Area) prepared. Unincorporated label in the electrophoresis buffer chamber is stored as liquid waste.

7. Select RAM use and storage spaces by checking the boxes in front

Requested RAM Use and Storage Spaces

☑ 601 W. 168th St: 44

8. Provide additional information on radiation detection instruments that will be used and lab personnel who will use RAM. Your lab must have access to a liquid scintillation counter (LSC). If high energy beta and gamma emitters such as F-18, Na-22, P-32, Cr-51, Co-57 will be used, please state what Geiger Müller (GM) detector is available to your lab. If low energy gamma emitters such as Fe-55 and I-125 will be used, please state what sodium iodide (NaI) detector is available to your lab.

Radioisotope Usage Information

＋Add Additional Radioisotope

Radiation Detection Instruments Available

＋Add Additional Instrument

Laboratory Workers Using Radioactive Materials / Equipment

9. If mixed waste will be generated from research, provide additional information on the hazardous chemicals, how the mixed waste will be generated and a plan to minimize volume of the mixed waste (when hazardous chemical waste (e.g., flammable, corrosive, toxic, reactive, heavy metals, etc.) and radioactive waste are mixed together, it is known as mixed waste. Mixed waste is specially regulated.)

Will your lab generate any combination of radioactive and hazardous chemical waste mixed together? ❓

⊙ Yes
○ No

▸ Please list the names and estimated concentrations of hazardous chemicals and radiochemicals.

> required

▸ Please explain how the mixed waste will be generated.

> required

▸ Please explain how your lab will minimize the volume of mixed waste generated.

> required

10. Click on **Submit for Approval** to submit the application or **Save Changes** to save changes for futher edits.

Once the application has been submitted in LION, a Radiation Safety Officer and a Chair of the Radiation Safety Committees will review and approve or deny the permit application. The status of your application will be available under the "**Permit Request**" tab.

Viewing a RAM Permit

1. Log into LION with your Columbia University UNI and password
2. Go to "**LATCH**" in the left hand menu and click on "**Permits**" on the right hand screen. Find the RAM permit in the list and click on "**View**"

Issue Date	Amendment Date	Campus	Building	Room		
Nov 10, 2017		Columbia University Medical Center Morningside	601 W. 168th St 419 W 119th Street	44 LowerLevel	ℹ️ View	✏️ Amend

Submitting an Amendment Request for an Existing RAM Permit

1. Log into LION with your Columbia University UNI and password
2. Go to "**LATCH**" in the left hand menu and click on "**Permits**" on the right hand screen. Find the RAM permit in the list and click on "**Amend**"

3. Click on the [Amend] button to modify the permit status, expiration dates, locations, isotopes, equipment, and special conditions of a RAM permit.

Renewing a RAM Permit

You can request a renewal of a RAM permit by amending the permit and selecting a new expiration date (up to 5 years from current expiration date).

Amending a RAM Permit

To **add a RAM-use location to a permit**, search for and select the new space from the drop-down list and then click on the "**Add+**" button.

To **remove a RAM-use location from a permit**, click on the ✖ in front of the location.

To add an isotope to a permit, search for and select the new isotope from the drop-down list and then click on the "**Add+**" button. Next, enter the order and possession limits.

To **remove an isotope from a permit**, if the isotope is not present in the lab (as vials or waste), click on the ✖ in front of the isotope. If there is a ⊘ in front of the inventory, it means that the isotope is present in the lab as vials or waste. Contact Radiation Safety at rso-ehrs@columbia.edu for assistance.

To **add a radiation detection equipment** or an X-ray device to a permit, search for and select the equipment from the drop-down list and then click on the "**Add+**" button.

Inactivating, Terminating or Reactivating a RAM Permit

If your lab no longer works with RAM, you can submit a request to **inactivate** or **terminate** your RAM permit. An inactive permit status places the permit on hold, and a terminated permit is often requested when the lab is vacating all current space. Before a permit can be set to "inactive" or "terminated", all RAM inventory must be removed from the permit including RAM waste. Once inactivated, the lab is not allowed to receive new RAM inventory until a reactivation request is submitted. To request a change to the status of your RAM permit, select the new permit status from the drop-down list under "**Permit Status**"
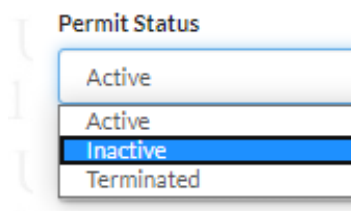
To **reactivate** a permit, please verify that all radiation users including the PI's radiation safety trainings are current. Choose "Active" from the drop down menu under "**Permit Status**" and click on "**Submit for Approval**".

Managing RAM Inventory & Recording RAM Use

To view or manage the radioactive materials inventory of your laboratory, navigate to "**LATCH"** and then go to the "**Inventory**" tab.

The data table will display each item in a separate row. You can use the filters at the top of the page to select the items that you want displayed.

Select "**Show All**" to see all inventory items and change the **Status** to see the inventory items that are **ordered**, **received**, **in stock**, **disposed or decayed**. Click on "**Apply Filters**" to refresh the results. To view details of a specific inventory item and the **usage log**, click on the **down-arrow**.

Status	Code	Principal Investigator	Isotope	Compound	Current Activity	Physical Form	Receipt Date	Last Survey	Permit Number			
In Stock	160412001	⬛	C-14	4,7,10,13,16,19-Docosahexaenoic acid, [1-14C] 10uCi	3.99913 uCi	Liquid			292	Surveys	Dispose	Sub-Vial

Element	Carbon
Quantity	0.00
Total Permit Usage	64.9%
Assay Date	Apr 12, 2016
Assayed Activity	4.00120 uCi
Order Limit	250.00000 uCi
Possession Limit	5.00000 mCi
Manufacturer	
Model/Product Number	
Lot	
Parent Vial	N/A

Usage Log

	Sub-Vial						Inventory Use Detail	
	Code	Isotope	Status	Compound	Lot	Model/Product Number	Activity Used	Quantity Used
	160412001-1	C-14	Disposed	4,7,10,13,16,19-Docosahexaenoic acid, [1-14C] 10uCi			0.00000 uCi	0.99 l

Container Detail	
Notes	

Recording RAM Use after Dose Draw

Sub Vial is used to create virtual smaller vials to reflect samples drawn from a RAM vial. Click on Sub-Vial icon and specify the activity of material that is extracted from the starting material. A new inventory item will be created after this information is submitted.

Current Vial

Isotope	C -14	Code	20170818-2
Manufacturer	Perkin Elmer	Model/Product Number	NEC042V250UC
Compound		Activity	15.00000 mCi
Lot		Quantity	1 ml

New Vial

Code	20170818-2-1
Physical Form	Liquid
Compound	Enter chemical compound
Extracted Activity	5 — mCi
Extracted Quantity	0.33333 — ml
Additional Quantity	Volume of additional solution (if any) — ml
Total Quantity	0.33333 — ml

Cancel   Submit

Recording RAM Use after Disposal

To record the use and disposal of a radioactive material, begin by clicking the "**Dispose**" icon adjacent to the inventory item to get to the following window:

Begin by entering the total activity you are disposing of. Allocate the percentage of material to be disposed of into each waste container. The sum of percentages to be disposed in the selected containers must equal 100%.

If you need to create a new waste container, or add an additional container(s), click the [⊕ Add Container] button, select the container and enter details for Type and Location, and then click the [✓ Create] button.

Create New Container

Container Code:	Select Type:	Location:
Leave Blank to Auto-Generate	[DAW] 10 Gallon Liner ▼	Engineering Terrace: 398 ▼

[✓ Create] [✗ Discard]

The container will now be available to accept waste. Make sure to click [Submit Log] once all the required fields have been entered.

Managing RAM Waste

Users **can view all RAM waste containers** that were entered into LATCH for containers that are currently in the lab's possession. Go to "**LATCH**" and click on the "**Waste**" tab on top.

Creating a New RAM Waste Container

Users can **create a RAM waste container** by clicking on the "**Create New Container**" button.

In the pop-up window, enter the container ID# on the physical waste tag as **Container Code**. Specify type of waste, container type and location. If more than one container needs to be created, click on **New 🗑** and repeat the steps for another container. Click on "**Create New Container**" when completed.

Pickup Details

Request Pickup Now

Yes	No

New Waste Container

Owner

Peter Caracappa (pc2837)

Number of Containers

1

Container Code

Enter container code (optional). Leave it blank for auto generate.

Waste Type

Animal Carcasses

Container Type

1 Gallon Container

Location

Search...

Contents

Add New Item ✚

New 🗑   Copy 🗑

Cancel	Create New Container

Submitting a RAM Waste Pickup Request

Users may **submit a waste pickup request** by using the "**Waste**" tab in "**LATCH**".

Click on the   📅 Pick-Up   icon and fill out the following form. Select the container for pickup, check off any supplies needed and specify quantities.

Waste Pickup Request

Earliest Pickup Date	07/16/2020
Contact Name	
Contact Phone	
Comments ⓘ	Please use the comments to request additional supplies or to provide any additional information about the pickup request, such as a contact phone number.

Select Containers Ready for Pickup   Add ➕   5 Gallon Pail [MC002969] ⌄

🗑 🔍 ▥   5 Gallon Pail [MC002969]   Peter Caracappa (pc2837)   Physicians & Surgeons: LoadDock   Unknown   ⚖
I-125 : 0.01105 uCi

Additional Items Requested

☐ Container: 14 gal (53 L) fiber for beta plates/96-well plates   Qty 1

☐ Container: 1 gal (4L)   Qty 1

☐ Container: 1 gal (4L) solid   Qty 1

☐ Container: 2.5 gal (10 L) - liquid waste only   Qty 1

☐ Container: 30 gal (113.6 L) - liquid/ dry solid/ liquid scintillation vial waste   Qty 1

☐ Container: 5 gal (18.9 L) - LSV or dry solid waste (pail or bucket)   Qty 1

☐ Container: 5 gal (20 L) carboy - liquid waste   Qty 1

☐ Drum Liners   Qty 1

☐ Label : Chemical/ Hazardous Waste   Qty 1

☐ Label : Radioactive Waste   Qty 1

☐ Other (Please specify in the comments)   Qty 1

Exit   **Submit Request**

Select for pickup as many waste containers as you wish in the drop-down menu by clicking on the **"Add+"** button. Click on **Submit Request** when the request is complete.

Submitting a RAM Waste Supplies Delivery Request

Users can also **submit request for waste supplies only** by click on the "**Request Supplies**" button separately from a waste pickup request. Check off any supplies needed and specify quantities. Click on **Submit Supply Request** when the request is complete.

Pickup Details

Location

| Search... |

Contact Phone

| |

Items Requested

☐ Container: 14 gal (53 L) fiber for beta plates/96-well plates   Qty 1

☐ Container: 1 gal (4L)   Qty 1

☐ Container: 1 gal (4L) solid   Qty 1

☐ Container: 2.5 gal (10 L) - liquid waste only   Qty 1

☐ Container: 30 gal (113.6 L) - liquid/ dry solid/ liquid scintillation vial waste   Qty 1

☐ Container: 5 gal (18.9 L) - LSV or dry solid waste (pail or bucket)   Qty 1

☐ Container: 5 gal (20 L) carboy - liquid waste   Qty 1

☐ Drum Liners   Qty 1

☐ Label : Chemical/ Hazardous Waste   Qty 1

☐ Label : Radioactive Waste   Qty 1

☐ Other (Please specify in the comments)   Qty 1

Comments

| Please use the comments to request additional supplies or to provide any additional information about the request. |

| Cancel | **Submit Supply Request** |

Managing Inspections

Managing Corrective Actions

After an EH&S survey visit, the Principal Investigator and a designated lab safety contact will be able to view their Safety Survey report, which may include corrective actions. This chart shows how to manage your laboratory's corrective actions.

There are two ways to manage corrective actions

① Link in Survey Email

② Log in to LION

https://ehs.Columbia.edu/lion

Manage Options!

Inspection Question: Are all compressed gas cylinders secured correctly with a strap, chain, floor stand or bench clamp?

Due: Aug 2, 2018
Assigned: Phylicia Obame (po2241)
Please secure all compressed gas cylinders to a fixed point with a strap, chain, floor stand or bench clamp.

Phylicia Obame [Jul 19, 2018 2:39:49 PM]: This is where the laboratory's comments will appear.

💬 Comment	📷 Photo
👤 Reassign	📅 Extend
✔ Complete	

Click on the link provided, which will prompt you to log in with your UNI, and the page will open directly to your manage options

Once you log in with your UNI, go to Inspection Findings → Corrective Actions to see your lab's list of Open Actions and click the orange file folder icon

Printing Audit Report

1. Click on "**Completed Inspections**" to view your audit reports (make sure that you select the appropriate time interval: start and end dates)

2. Click on the magnifying glass and then on the "**View Full**" button to view the full report

3. Click on **PDF "Export"** icon
4. Print

LATCH

The LATCH has several sections listed at the top of the screen. Begin by going through and updating the "**Personnel**" information.

Managing Personnel

Keeping an up-to-date roster of the personnel working in your lab will let you assign and review safety training later on. If someone is no longer part of the lab, click the red "X" next to their name to remove them. You can **add personnel** by beginning to type in their last name or UNI, and then click the green plus sign.

Name	Email	Allowed
⊗	biosafety@columbia.edu	☐
⊗ Phylicia Obame	po2241@columbia.edu	☑
Lab Member A Test [Co-PI]	test1@test.com	☑
Lab Member B Test [Co-PI]	test2@test.com	☑
New PI Test [PI]	test@test.com	☑

Please keep at least one **Emergency Contact** number at the bottom of your roster. To add an emergency contact number, click on "**Add Phone Number**". Enter the phone number, select the contact person from the drop-down menu and select a room assignment from the drop-down menu. Click "**Save**".

Assigning Roles to Lab Personnel

If anyone in your lab is typically responsible for safety-related activities, the PI and current Lab Manager(s) can designate them as the **Lab Safety Manager** by clicking on the pencil icon under **Role**. The PI and current Lab Manager(s) should designate lab members who use radiation as **Radiation User**. To edit Role of a lab member, click on the pencil icon to the right.

Click on "**+ Add Role**" or "**x Remove Role**" and select the person's role from the drop-down menu and click "**Save**".

Managing Training

Training records are updated automatically by RASCAL and EH&S whenever someone completes a course. The "**Training**" tab also allows you assign courses to your group. Radiation safety training are required for all radiation users and must be refreshed annually. Lab safety training are required for all lab members
.

You can assign safety training to your whole group, or to only certain personnel as needed. To assign safety training, select the training tab from the drop down menu, then you can either click to "**Add Training to All Lab Personnel**" or click the "**Add Training**" button next to their name to assign it individually.