

## **Instructions for Obtaining Authorized User Status for Use of Radioactive Materials/Radiation Producing Machines.**

The application as well as the process for applying for authorization to use radioactive material and radiation producing machines at UCR has been updated. It would serve a new applicant well to discuss his or her intent with the Radiation Safety Officer (RSO) before starting to complete the paperwork.

The application can be found on the UCR website under radiation safety.

Please call the RSO to find out the date of the next Radiation Safety Committee (RSC) meeting. **The completed application is to be returned EVH&S Radiation Safety no later than 2 weeks prior to this date.** The Radiation Safety Officer will contact you to inform you if the package seems acceptable or if specific changes are necessary.

First-time applicants at UCR will be required to meet with the RSO to discuss the application in more detail. The RSO will contact you to arrange an appointment at mutual convenience for you.

When any needed changes are complete, the application is put on the agenda for the Radiation Safety Committee meeting. You will be informed immediately of the Committee's decision, which may require that you incorporate some minor corrections. If so, these are to be made in the final version of the proposal, since the proposal will be used in your laboratory to provide detailed directions to personnel who use the radioactive material it authorizes. Upon receipt of the final proposal by the RSO, a letter of approval will be sent to you authorizing use and purchase of the requested isotopes.

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Complete responses on the Nuclide Request Form and its corresponding nuclide specific protocol description are particularly important since the Radiation Safety Committee will scrutinize these. One Nuclide Request Form must be submitted for each nuclide requested. The Committee's intent is that you produce a working document for use in your laboratory that gives clear, explicit directions to laboratory personnel such that they can perform the experiment described in a radiologically safe manner.

### **Guidance to the Applicant**

Complete all of the seven forms that are applicable. (The Sealed Source Form 4 and the Animal Application Form 6 are usually non-applicable.) Be sure to provide any required signatures. **If this is an amendment to an existing application, please call the RSO to find out which forms need to be completed.**

Note that Form 7, the Standard Laboratory Operating Procedures Form, is prepared for you to simply complete. You are to review the conditions for each of the 13 headings and enter a check mark indicating your acceptance of the specific requirements, or check the "other" box and attach a description of your alternative to the standard requirements. (It would be unusual for anyone to make such modifications.) Please be sure to enter your name, department, signature and date in the appropriate places.

**There must be an experimental protocol provided for each Nuclide Request Form.**

The purpose of the Experimental Protocol written for the purpose of obtaining approval for radioisotope use by the Committee is NOT the same as one you would write in your laboratory notebook! (DO NOT USE A COPY OF A DETAILED LABORATORY PROTOCOL.) What is expected is clearly described in the following section that provides several examples.

If an animal protocol is submitted, an approved Animal Use protocol should also be included. **Vivarium personnel must be notified in writing (e-mail is acceptable) PRIOR to initiating radioactive experiments. The notice must state the duration of the experiment.**

The last item required in your application is a detailed radiation/contamination survey map of the area where the radioactive material is to be used and stored. A sample map and associated survey data sheet are provided following the series of forms. There is no need to produce a computer-generated drawing. However, you are expected to provide information equivalent to what is shown in the example. Identified items must include:

- every piece of laboratory equipment that may become contaminated
- non-radioactive work areas within the laboratory (to assure they are clean)
- every location where radioactive material either is used or stored
- storage unit handles (refrigerators, freezers, etc.)
- floor areas throughout the laboratory, including locations at points of entrance/egress, radioactive waste containers, where radioactive materials are stored, floor areas near benches where radioactive materials are used

Items on the map are to be labeled with numbers corresponding to the entries on the survey data sheet. The data sheet must provide a descriptor for each numbered location. It is suggested that major items also be labeled on the map. (Do not use personal names such as "Victor's bench.")

Note that page numbers for this document are given in the upper right hand corner. However, for convenience of review by the Committee, please enter sequential page numbers in the lower right hand corner of the application, as you assembled it for submittal.

The following list identifies items, frequently overlooked, that will expedite approval of your application:

- **All relevant forms must be completed and signed as indicated on each one.**
- **All boxes on Form 7 must be checked (unless you describe an alternate) and the form must be signed.**
- **The survey map must include all items and areas that may become contaminated, including floor areas both near RAM use locations and at doorways.**
- **A survey data form accurately keyed to the survey map is essential.**
- **Choose your requested radioactive material possession limit (Item 2.c on Form 3) to assure sufficient margin to facilitate ordering. We recommend generally at least twice your estimated individual order amounts (Item 2.b).**
- **Assure your and all your worker radiation safety training is current.**

### Experimental Protocols

The purpose of an experimental protocol written as part of the application is to assure personnel radiation exposure and the probability of contamination are minimal. The protocol should be concise, one or several paragraphs in length. An experimental protocol should also be included if you are submitting an application for radioactive use in animals. It should address the following:

- **The isotope used.**
- **A brief statement of the purpose of the experiment.**
- **The chemical form and total amount of isotope to be used in each experiment**
- **Shielding as necessary.**
- **Any laboratory equipment used in the experiment that may become contaminated. (Note that this equipment should be included on the survey map.)**
- **Whether it is possible for the material to become volatile during the experiment. (Volatility information is available from UCR EVH&S.) If so, how will release or personnel exposure be controlled.**
- **Any radioactive wastes generated during the experiment**
  - **whether chemical hazards will be present**
  - **the disposal methods**
  - **if possible, estimates of the activity and volume of each type of waste that will be generated.**
- **Is transport between laboratories required? If so, describe how this will be done.**
- **Any special security considerations.**
- **If infectious agents are used in the protocol, disposal methods for the waste generated should be included.**

Volatilization of S-35 compounds is always a focal issue in protocol review. During thawing of frozen material pressure may buildup in a vial. Volatile decomposition products may be generated during storage that will be released upon opening the vial. Therefore such vials should be vented in a fume hood through a simple charcoal trap. For in-vivo labeling experiments in which an incubator is used, an empty 100 ml pipette tip tray is very convenient to contain the charcoal.

### Guidance to the Applicant Applying to use Radiation Producing Machines

#### Project summary

The project summary is written for the purpose of obtaining approval for radiation producing machines. **This summary must be written for each individual machine.** What is expected is described in the following section:

- A brief statement of the purpose of the experiment
- A description of the machine (type of machine, manufacturer,

model, year of manufacture, maximum and usual energy, and beam current)

- A description of the facility and any required safety interlocks/ devices

**NOTE: For machines that are manufactured commercially and equipped with engineering controls that will effectively contain the radiation that is produced, provide a copy of the manufacturers specifications and drawings for review.**

- Shielding requirements (if necessary)
- PPE that will be used during the experiment
- How the machine will be secured from unauthorized access.
- Survey requirements (if necessary)
- Dosimetry requirements (if necessary)
- Sample copy of Use Log\*.

**\*The Use Log should include the name of the user, description of use and date of use, Also, if there were any problems/malfunctions, this should be noted as well along with the corrective action along with a record of routine service performed on the machine.**

**APPLICATION FORMS**

**UNIVERSITY OF CALIFORNIA RIVERSIDE  
APPLICATION FOR NON-HUMAN USE OF RADIOACTIVE  
MATERIALS (RAM)  
GENERAL INFORMATION FORM**

Office use only:	Permit # _____
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This application is [  ] new  
 [  ] an amendment to an existing application

1. Name of Applicant: \_\_\_\_\_  
 Title: \_\_\_\_\_ Department: \_\_\_\_\_  
 Laboratory Office: Building \_\_\_\_\_ Room \_\_\_\_\_  
 Dept. Office (if different from above): Building \_\_\_\_\_ Room \_\_\_\_\_  
 Phone #'s: Office \_\_\_\_\_ Lab \_\_\_\_\_ FAX # \_\_\_\_\_ Email \_\_\_\_\_

2. Location of use and storage of Radioactive Material:  
 Building: \_\_\_\_\_ Rooms: \_\_\_\_\_ Rooms: \_\_\_\_\_  
 Rooms: \_\_\_\_\_ Rooms: \_\_\_\_\_ Rooms: \_\_\_\_\_ Rooms: \_\_\_\_\_  
 Building: \_\_\_\_\_ Rooms: \_\_\_\_\_ Rooms: \_\_\_\_\_  
 Rooms: \_\_\_\_\_ Rooms: \_\_\_\_\_ Rooms: \_\_\_\_\_ Rooms: \_\_\_\_\_

3. Radiation Monitoring Devices  
 Liquid Scintillation Counter Used:  
 Manufacturer: \_\_\_\_\_ Model: \_\_\_\_\_ Serial #: \_\_\_\_\_  
 Internal STD: \_\_\_\_\_ Activity: \_\_\_\_\_ Assay Date: \_\_\_\_\_  
 Location: \_\_\_\_\_ Responsible AU: \_\_\_\_\_  
 Gamma Counter Used:  
 Manufacturer: \_\_\_\_\_ Model: \_\_\_\_\_ Serial #: \_\_\_\_\_  
 Location: \_\_\_\_\_ Responsible AU: \_\_\_\_\_  
 Hand Held Survey Meter: (owned by you)  
 Mfg: \_\_\_\_\_ Model: \_\_\_\_\_ Serial #: \_\_\_\_\_ Probe: P-GM \_\_\_ NaI \_\_\_  
 Sandwich \_\_\_\_\_  
 Mfg: \_\_\_\_\_ Model: \_\_\_\_\_ Serial #: \_\_\_\_\_ Probe P-GM \_\_\_ NaI \_\_\_  
 Sandwich \_\_\_\_\_  
 Check Source Available: Y \_\_\_\_\_ N \_\_\_\_\_ Type \_\_\_\_\_

**FORM 1**

**UNIVERSITY OF CALIFORNIA RIVERSIDE  
APPLICATION FOR NON-HUMAN USE OF RADIOACTIVE  
MATERIALS (RAM)  
TRAINING AND EXPERIENCE FORM**

Office use only	Permit # _____
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1. Name of Applicant: \_\_\_\_\_
  
2. Previous Training Record:
  - a. Principles and practices of radiation protection:  
Location: \_\_\_\_\_ Duration: \_\_\_\_\_ Hrs
  - b. Radioactivity measurement, standardization, monitoring, and instrumentation:  
Location: \_\_\_\_\_ Duration: \_\_\_\_\_ Hrs
  - c. Math and calculations basic to the measurement of RAM:  
Location: \_\_\_\_\_ Duration: \_\_\_\_\_ Hrs
  - d. Biological effects of radiation:  
Location: \_\_\_\_\_ Duration: \_\_\_\_\_ Hrs
  - e. Participated in UCR Radiation Safety Course? Y N

3. Previous experience with Radioactive Material:
  - a. Nuclide: \_\_\_\_\_ Quantity: \_\_\_\_\_ mCi experiment  
Type of experiment: \_\_\_\_\_  
Location: \_\_\_\_\_ Duration: \_\_\_\_\_ Yrs
  - b. Nuclide: \_\_\_\_\_ Quantity: \_\_\_\_\_ mCi experiment  
Type of experiment: \_\_\_\_\_  
Location: \_\_\_\_\_ Duration: \_\_\_\_\_ Yrs
  - c. Nuclide: \_\_\_\_\_ Quantity: \_\_\_\_\_ mCi experiment  
Type of experiment: \_\_\_\_\_  
Location: \_\_\_\_\_ Duration: \_\_\_\_\_ Yrs
  - d. Nuclide: \_\_\_\_\_ Quantity: \_\_\_\_\_ mCi experiment  
Type of experiment: \_\_\_\_\_  
Location: \_\_\_\_\_ Duration: \_\_\_\_\_ Yrs

I signify that I have read the Radiation Safety Manual issued by the Radiation Safety Committee of UCR governing the use of radiation sources and radioactive material, and agree to comply with all applicable regulations.

**APPLICANT** \_\_\_\_\_ **DATE** \_\_\_\_\_  
**Signature**

**FORM 2A**

**UNIVERSITY OF CALIFORNIA RIVERSIDE  
APPLICATION FOR USE OF RADIATION PRODUCING MACHINES  
TRAINING AND EXPERIENCE FORM**

Office use only	Permit # _____
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1. Name of Applicant: \_\_\_\_\_
2. Previous Training Record:
  - a. Principles and practices of radiation protection:  
Location: \_\_\_\_\_ Duration: \_\_\_\_\_ Hrs
  - b. Radioactivity measurement, standardization, monitoring, and instrumentation:  
Location: \_\_\_\_\_ Duration: \_\_\_\_\_ Hrs
  - c. Math and calculations basic to the measurement of RAM:  
Location: \_\_\_\_\_ Duration: \_\_\_\_\_ Hrs
  - d. Biological effects of radiation:  
Location: \_\_\_\_\_ Duration: \_\_\_\_\_ Hrs
  - e. Participated in UCR Radiation Safety Course? Y N

3. Previous experience with Radiation Producing Machines

Location: \_\_\_\_\_ Duration: \_\_\_\_\_ Yrs  
 Location: \_\_\_\_\_ Duration: \_\_\_\_\_ Yrs  
 Location: \_\_\_\_\_ Duration: \_\_\_\_\_ Yrs

I signify that I have read the Manual on Radiation Producing Machines issued by the Radiation Safety Committee of UCR governing the use of radiation producing machines and agree to comply with all applicable regulations.

APPLICANT \_\_\_\_\_ DATE \_\_\_\_\_  
Signature

**FORM 2B**



**UNIVERSITY OF CALIFORNIA RIVERSIDE  
APPLICATION FOR NON-HUMAN USE OF RADIOACTIVE  
MATERIALS (RAM) NUCLIDE REQUEST FORM  
(USE ONE FORM FOR EACH NUCLIDE REQUESTED)**

Office use only	Permit # _____
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1. Name of Applicant: \_\_\_\_\_  
(Consult the Authorized User section of the Radiation Safety Manual for instructions on completing the following sections.)  
-----
  2. a. Radionuclide: \_\_\_\_\_  
b. Estimated to be ordered per shipment: \_\_\_\_\_ mCi  
c. Maximum to be possessed at any one time: \_\_\_\_\_ mCi  
(The maximum possession amount should be at least twice the amount ordered per shipment.)  
-----
  3. Chemical Compounds or Physical Forms: \_\_\_\_\_  
\_\_\_\_\_
  4. Isotope storage/security (Lab location): \_\_\_\_\_  
(How secured): \_\_\_ Locked room \_\_\_ Locked Refrig/Freezer \_\_\_ Lockbox
  5. Waste storage location: (Room number): \_\_\_\_\_
  6. Shielding requirements : \_\_\_ Plexiglass \_\_\_ Lead \_\_\_ None required
  7. Bioassay requirements: \_\_\_\_\_
  8. Will any infectious agents be used with this protocol? Yes No
- If "Yes", please list them here: \_\_\_\_\_

**APPLICANT** \_\_\_\_\_ **DATE** \_\_\_\_\_  
**Signature**

**FORM 3**

**UNIVERSITY OF CALIFORNIA RIVERSIDE  
APPLICATION FOR NON-HUMAN USE OF RADIOACTIVE  
MATERIALS (RAM)**

**REQUEST FOR USE OF A SEALED SOURCE/RADIATION PRODUCING MACHINES**

Office use only	Permit # _____
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1. Name of Applicant: \_\_\_\_\_

2. Sealed Sources:

a. Radionuclide: \_\_\_\_\_ Form: \_\_\_\_\_  
Activity: \_\_\_\_\_ mCi Assay Date: \_\_\_\_\_  
Serial number: \_\_\_\_\_  
Location: Building \_\_\_\_\_ Room: \_\_\_\_\_



b. Radionuclide: \_\_\_\_\_ Form: \_\_\_\_\_  
Activity: \_\_\_\_\_ mCi Assay Date: \_\_\_\_\_  
Serial number: \_\_\_\_\_  
Location: Building \_\_\_\_\_ Room: \_\_\_\_\_



c. Radionuclide: \_\_\_\_\_ Form: \_\_\_\_\_  
Activity: \_\_\_\_\_ mCi Assay Date: \_\_\_\_\_  
Serial number: \_\_\_\_\_  
Location: Building \_\_\_\_\_ Room: \_\_\_\_\_

3 Radiation Producing Machines to be used (if applicable):  
Make \_\_\_\_\_ Model: \_\_\_\_\_ SN: \_\_\_\_\_ Location \_\_\_\_\_  
Make \_\_\_\_\_ Model: \_\_\_\_\_ SN: \_\_\_\_\_ Location \_\_\_\_\_  
Make \_\_\_\_\_ Model: \_\_\_\_\_ SN: \_\_\_\_\_ Location \_\_\_\_\_

APPLICANT \_\_\_\_\_ DATE \_\_\_\_\_  
**Signature**

FORM 4

**UNIVERSITY OF CALIFORNIA RIVERSIDE  
APPLICATION FOR NON-HUMAN USE OF RADIOACTIVE  
MATERIALS (RAM)  
LABORATORY PERSONNEL LIST**

Office use only	Permit # _____
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Name of Applicant: \_\_\_\_\_

Only list the names of all personnel in your laboratory who will use radioactive materials/radiation producing machines. Indicate the most recent training date for each.

NAME	*DATE OF MOST RECENT RADIATION SAFETY TRAINING

\* The training dates of current radiation workers can be found on the monthly inventory report on file in the laboratory or by contacting EH&S at 951-827-5529

Workers that require new lab worker training can register by going to our website at <http://ehs.ucr.edu/>

**FORM 5**

**UNIVERSITY OF CALIFORNIA RIVERSIDE  
APPLICATION FOR NON-HUMAN USE OF RADIOACTIVE  
MATERIALS (RAM)  
APPLICATION FOR USE OF RADIOISOTOPES IN ANIMALS**

- Applicant: \_\_\_\_\_ Office Telephone No: \_\_\_\_\_
- Title: \_\_\_\_\_ Department: \_\_\_\_\_
- Animal to be used (circle one):  
Mouse rat cat dog other: \_\_\_\_\_
- Description of isotope(s) physical and chemical form (Circle as appropriate):  
If infectious agent(s) will be used along with radioactivity, please list under #3
  1. **H-3 C-14 P-32 S-35** other: \_\_\_\_\_
  2. **solid liquid gas** Chemical form: \_\_\_\_\_
  3. Infectious agent(s) used: \_\_\_\_\_
- Amount administered per animal: \_\_\_\_\_ mCi/animal  
Maximum number of animals to be housed on any given day: \_\_\_\_\_  
Number of animals per cage: \_\_\_\_\_
- Describe experimental protocol for the use of the radioisotopes:
  1. Mode of administration:       **intraperitoneally**  
  **per oral**  
  **subcutaneous**  
  **intra dermal**  
  other \_\_\_\_\_  
  
Room where administration will take place: \_\_\_\_\_
  2. Housing - Where will the animals be held following administration  
of the isotope? \_\_\_\_\_  
Other vivaria rooms where radiation will be brought or used: \_\_\_\_\_
  3. On a separate sheet describe the elimination of radioactivity from  
the animal in the feces, urine, or breath and how it will be monitored.
  4. Duration of animal housing **post** administration of the  
radioisotope: \_\_\_\_\_ days.

**FORM 6**

5. Will the animals be removed from their cages for experimental purposes during the post-administration period? \_\_\_\_\_Yes \_\_\_\_\_No.  
If yes, please describe the procedures and handling of the animals while radioactive.
  
6. Describe the personal protective equipment required (e.g. lab coat, shoe covers, gloves, head covers, eye protection)
  
7. Monitoring should take place during and after administration of the radioisotope. Provide a brief description of how the following will be monitored for contamination as well as how the waste will be handled if the waste contains infectious agents:
  - a. personnel
  
  - b. surgical tools
  
  - c. bedding
  
  - d. cages
  
  - e. cage area
  
  - f. animal carcass or tissue
  
  - g. personal protective equipment
  
8. Labeling and posting of area [cages and work area, door into room]:

9. Describe disposal or decontamination procedures for:

- a. animal carcass
  - b. bedding or excreta
  - c. cages (changes and final decontamination)
  - d. water bottle
  - e. personal protective equipment
  - f. Animal health monitoring
- Experience of involved personnel in the use of isotopes with animals:
  - Involvement of Animal care personnel in project:
    1. Isotope administration:
    2. Post injection care:

A room for radioisotope use must be scheduled with the Vivarium and Radiation Safety Office prior to the administration of radioisotopes to the animals. **Vivarium personnel must also be notified in writing (e-mail is acceptable) PRIOR to initiating radioactive experiments. The notice must state the duration of the experiment.**

APPLICANT \_\_\_\_\_ DATE \_\_\_\_\_  
Signature

**UNIVERSITY OF CALIFORNIA RIVERSIDE  
APPLICATION FOR NON-HUMAN USE OF RADIOACTIVE MATERIALS  
STANDARD LABORATORY OPERATING PROCEDURES**

Applicant \_\_\_\_\_ Department \_\_\_\_\_

**SURVEY FREQUENCY**

as listed below  other – see attached

- All laboratories containing radioactive materials must conduct documented contamination surveys monthly.

**SURVEY METER USE**

as described below  other - see attached  not applicable

- Confirm the survey instrument is appropriate for detecting the isotopes used.
- Verify the survey instrument's calibration is current.
- Perform battery check; replace if needed.
- Test with operational check source if available.
- Set meter to "fast" response with audio "on" if available.
- Remove all coverings from probe.
- Hold probe close to surface and move slowly over surface during survey.

**PERFORMANCE OF WIPE TEST**

as described below  other - see attached

- Use filter paper or smears.
- Wipe 100 cm<sup>2</sup> area with gentle pressure.
- Count wipe with appropriate instrument.

**CONTAMINATION SURVEY DOCUMENTATION**

as described below  other - see attached

- Survey map with record form to include survey instrument (portable meter, LSC, or gamma counter) information, signature of surveyor and date performed
- Record probe results in dpm, wipe results in dpm/100 cm<sup>2</sup>.
- Decontaminate contaminated areas, re-survey, and document final results.
- Inform PI of any contamination.
- Keep records accessible for inspection.

**FORM 7**

**REMOVABLE CONTAMINATION LIMITS**

[ ] as listed below [ ] other - see attached

- Decontamination is immediately required if the following levels of contamination are found:
  - 220 dpm/100 cm<sup>2</sup> for all beta/gamma except H-3, C-14, S-35
  - 2200 dpm/100 cm<sup>2</sup> for H-3, C-14, S-35

In practice, any contamination readily distinguishable from background should be removed from work areas.

**PACKAGE RECEIPT**

[ ] as listed below [ ] other - see attached

- Wear Personnel Protective Equipment (PPE).
- Open packages of volatile materials in a fume hood labeled for radioactive usage.
- Deface all radioactive labeling before discarding uncontaminated packaging as non-radioactive waste.

**STORAGE AND SECURITY OF RADIOACTIVE MATERIAL (RAM)**

[ ] as described below [ ] other - see attached

- Labeling of all storage units (freezer, refrigerator, or cabinet) shall be in accord with requirements as stated in the Radiation Safety Manual.
- Radioactive material (RAM) shall be secured from unauthorized access at all times.
- Any time RAM is left unattended by an authorized user, a locked barrier shall prevent unauthorized access.

**RADWASTE DISPOSAL AND RECORD MAINTENANCE**

[ ] as listed below [ ] other – see attached

- Liquid wastes have double containment.
- Suitable containers available for all waste.  
Pipettes and pipette tips should be placed in a rigid container.
- Segregate by isotope, type (solid, liquid, scintillation vials, sharps, and gels), and hazard class.
- Maintain inventory records showing all waste disposal.

**PERSONNEL DOSIMETRY**

[ ] as listed below [ ] other - see attached

- Each individual likely to receive a measurable radiation dose will wear personal dosimetry.
- Whole body and, if appropriate, extremity dosimeters will be worn whenever working in the laboratory.
- Dosimetry will be worn and stored as described in the Radiation Safety Manual.
- Female workers shall be informed on their right to monthly fetal dose monitoring by submitting a Pregnancy Declaration Form to the Radiation Safety Office.



**SAFE WORK PRACTICES**

agree and will enforce those listed below

- Do not eat or store food in lab areas or near RAM-labeled equipment.
- Do not apply cosmetics or lotions in laboratory areas.
- Use RAM work areas that are as small as practical.
- Wear appropriate protective clothing (e.g. gloves, lab coat).
- Work with volatile materials in an operable fume hood.
- Do not mouth-pipette.
- Leave a survey meter on within arms reach when working with RAM when appropriate to provide frequent contamination checks of yourself and equipment.
- Survey all waste items before placing into the trash; then place into the appropriate trash container.
- Do not compact waste into bundles before disposal.

**INCIDENT RESPONSE**

as described below  other - see attached

- **Minor Spill** - a spill that remains contained, that you can easily, effectively contain and cleanup without assistance from the Radiation Safety Office and that does not involve personnel contamination. Decontaminate and verify that all contamination is removed.
- **Major Spill** - a spill that involves personnel contamination or results in contamination outside of the intended work area, and that cannot be promptly cleaned up. Immediately notify EH&S Radiation Safety of a major spill.

**DECONTAMINATION PROCEDURES**

as described below  other - see attached

The following items will be accessible for decontamination:

- liquid soap in squirt/spray bottle
- absorbent paper towels and radwaste bags
- appropriate PPE to include gloves and lab coats
- radioactive warning tape
- survey meter and wipes/smears
- Contaminated Skin
  - Wash with mild soap and running water (or wet towels).
  - Do not abrade skin.
  - Survey after each washing and drying.
  - Notify EH&S Radiation Safety**
- Contaminated Clothing
  - Remove the contaminated clothing carefully to avoid or minimize contaminating the skin.
  - Check the skin for possible contamination.

**Notify EH&S Radiation Safety**

- Floor Contamination
  - Secure access to general area.
  - Define boundary of contaminated area.
  - Check for personnel contamination.
  - If a major spill, notify EH&S Radiation Safety.**
  - If a minor spill, decontaminate. Use a spray cleaning solution and wipe up with paper towels or other absorbent material to remove contamination. Be careful not to flood the area with cleaner since that will wash contamination into cracks, making it harder to remove.
  
- Equipment Contamination
  - If contamination removable, decontaminate to comply with contamination limits.
  - If fixed contamination remains, label equipment with isotope, activity and date.
  - Contact EVH&S Radiation Safety if assistance required.**

**EMERGENCY RESPONSE PROCEDURES**

[ ] as described below [ ] other - see attached

For any situation perceived as an emergency involving radioactive materials, notify the EH&S Radiation Safety at (951-827-5528) during office hours (7:30a.m - 5:00 p.m.) or call 911 after hours. They will call the Radiation Safety Officer. For Fire and Medical emergencies call 911 at all times. They will coordinate emergency response communications and notifications with hospital, ambulance, and fire personnel.

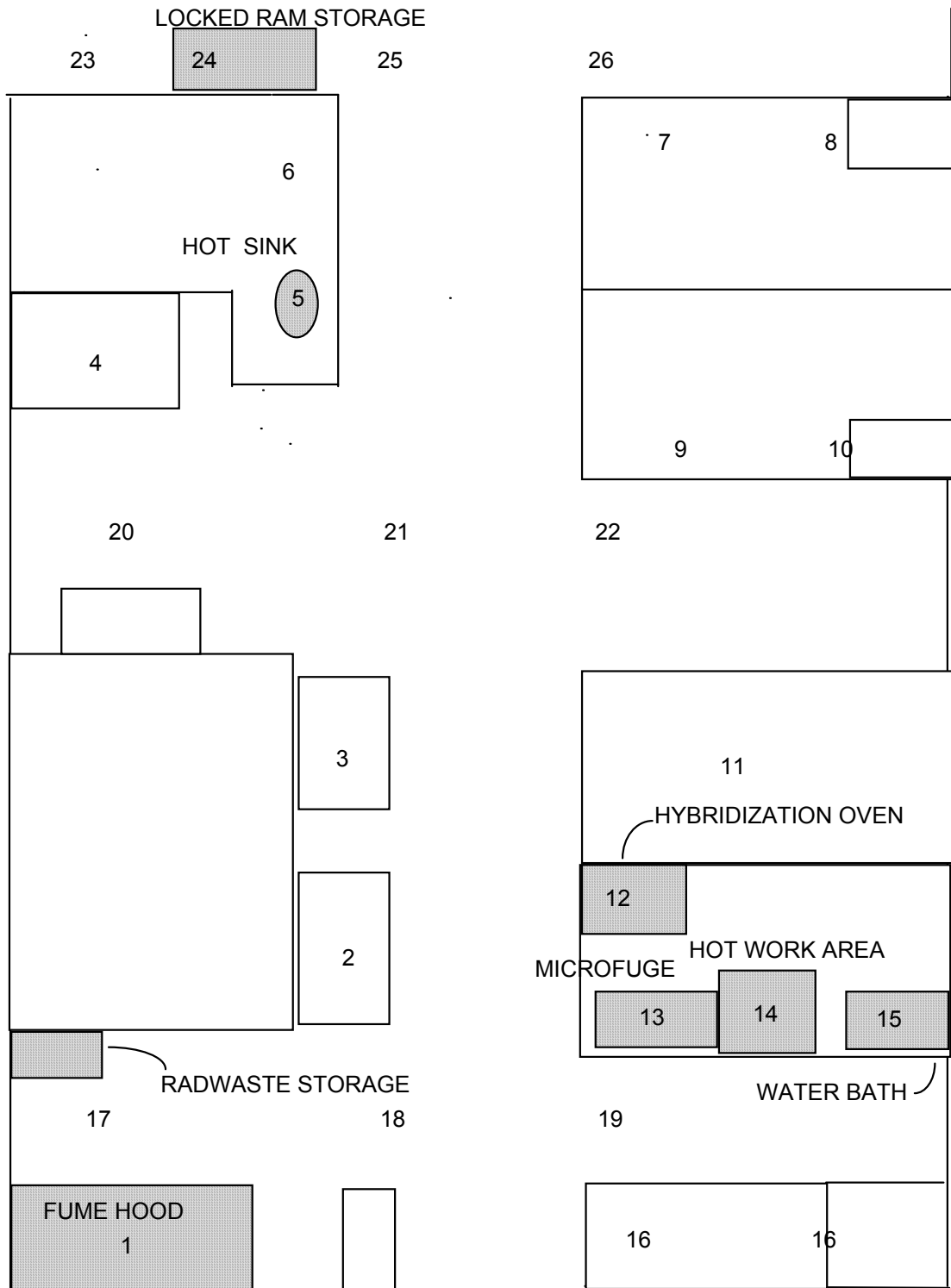
For Fire or Medical Emergencies

- If practical, secure radioactive material.
- Follow UCR emergency response procedures.
- Inform 911 operator if radioactive material is involved.

I will abide by these procedures to implement safe use of radioactive materials in compliance with regulations as communicated by the Radiation Safety Office.

\_\_\_\_\_

<b>Printed Name</b>	<b>Signature</b>	<b>Date</b>
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SAMPLE SURVEY MAP

#	Location	Probe, cpm	Probe Activity, dpm *	Wipes, net cpm	Wipe Activity, dpm/100 sq cm
1	<b>Fume Hood</b>				
2	Freezer, In/Out				
3	Refrigerator, In/Out				
4	Table				
5	<b>Sink</b>				
6	Counter				
7	Bench				
8	Desk				
9	Bench				
10	Desk				
11	Bench				
12	<b>Hybridization Oven</b>				
13	<b>Microfuge</b>				
14	<b>Hot Work Area</b>				
15	<b>Water Bath</b>				
16	Bench and Desk				
17	Floor				
18	Floor				
19	Floor				
20	Floor				
21	Floor				
22	Floor				
23	Floor				
24	<b>Freezer, In/Out</b>				
25	Floor				
26	Floor				

√ = Indistinguishable from background

\* dpm = (cpm - bkg) / efficiency

Surveyed by: \_\_\_\_\_ Date: \_\_\_/\_\_\_/\_\_\_

Handheld Meter/Probe Information:

Make: \_\_\_\_\_ Model: \_\_\_\_\_ SN: \_\_\_\_\_ Cal Due Date: \_\_\_/\_\_\_/\_\_\_

Probe type: GM NaI Other Model: \_\_\_\_\_ SN: \_\_\_\_\_

SAMPLE SURVEY DATA SHEET