UNC Charlotte
Radiation Safety Program

Male Radioactive Material (RAM) Workers – New to the Radiation Safety Program

The following pages detail the requirements for you to become a radiation worker on campus and have radiation dosimetry issued to you (if applicable by radioisotope).

1. You must complete the Environmental Health & Safety online training course entitled "Radionuclide Safety" and score at least 80% on the quiz to pass the training session. Please log into the "Learning and Development Portal" and click "Assigned Training" to complete the training.

2. You must complete a laboratory specific discussion and overview of the specific RAM usage protocols and procedures pertaining to your laboratory with the Authorized User. This is to include a review of specific UNC Charlotte Radiation Safety documents including: Handbook for Radiation Safety, Emergency Procedures, and Material Security & Loss/Theft Procedure. The Authorized User is responsible for ensuring that his/her radiation workers have received adequate instruction in radiation safety principles applicable to specific practices of their laboratory.

3. You must complete the forms detailing any previous known radiation exposure that you have had and provide all associated radiation exposure records.

Please forward the completed paperwork to the EHS Office – EHS Building. Please contact the Radiation Safety Officer at 704-687-1111 if you have any questions with this process.

RADIATION WORKER – RADIATION AWARENESS ORIENTATION
ONLINE TRAINING PACKAGE INFORMATION

Online Radiation Safety Training – please complete the online radiation safety course entitled: Radionuclide Safety that is assigned to you through the Learning and Development Portal. The training takes approximately 1 hour and there is a 20 question quiz at the end of the session.

The online training covers the following areas:

Radiation Overview

- Electromagnetic Spectrum
- Radioisotopes / Half lives / Applications
- Nuclide Safety Data Sheets
- Four Primary Types of Ionizing Radiation

Personnel Protection and Monitoring

- ALARA – As Low as Reasonably Achievable
- Inverse Square Law
- Time,Distance, and Shielding
- Non-Ionizing Radiation

Health Hazards Associated With Radiation

- DNA and Radiation
- Ionizing Radiation at the Cellular Level
- Radiosensitivity of cells, tissues and organs
- Damage of high doses of radiation
- Acute and Chronic Exposures
- Radiation – Units of Measurement
- Dose Limits & Typical Doses
- Natural and Manmade Sources

Radiation Usage

- Handbook for Radiation Safety and Nuclide Safety Data Sheets
- Authorized Users
- Radiation Workers
- Dosimetry Program – Dosimetry Do's & Don'ts
- Ordering Radionuclides
- Radioactive Material Recordkeeping
- Sealed Sources
- Radioactive Material Security
- RAM Surveys
- Emergency Response - Spills
- Environmental Sustainability

Online Training Completion

Name: _____ Authorized User: _____Department:_____

To be completed by the EHS Office:

Quiz Score: _____ *Date of Completion:* _____

UNC CHARLOTTE
RADIATION WORKER – RADIATION AWARENESS ORIENTATION
LABORATORY SPECIFIC RAM USAGE TRAINING

Each radiation worker is required to complete Laboratory Specific RAM Usage Training to be provided by the Authorized User. Topics that are required to be covered are listed below. Documentation of training can be completed by using the example memo (below). As a new Radiation Worker, you are required to review and agree to follow the precautions outlined in the following guidance documents:

1. Nuclide Safety Data Sheet/s for the radioactive material you will be using.
2. The UNC Charlotte Handbook for Radiation Safety
3. Any specific radioisotope usage procedures that the PI/Authorized User has in place for RAM usage
4. Emergency Procedures including the Laboratory Contamination Decision Tree and Incident Response Guide.
5. Material Security and Loss/Theft Procedure

MEMO (example)
USE OF RADIOACTIVITY IN THE LABORATORY OF DR. JOHN SMITH
DEPARTMENT OF BIOLOGY
UNIVERSITY OF NORTH CAROLINA AT CHARLOTTE

This memo is to document the training of individuals in the hazards and precautions for the use of radioactivity in the laboratory of Dr. John Smith. Specifically, laboratory personnel have read and are aware of the hazards and precautions when using 3-Tritium and 51-Chromium as indicated on the Nuclide Safety Data Sheets and agree to follow the safety requirements detailed therein.

Additionally laboratory workers and radioactive material users have reviewed and are aware of the UNC Charlotte:

1) *Handbook for Radiation Safety*
2) *Specific Lab Protocols for RAM usage*
3) *Radiation Safety Program - Emergency Procedures*
4) *Radiation Safety Program – Material Security & Loss/Theft Procedure*

The Applicant has received the radiation awareness orientation from the Authorized User as outlined above and agrees to comply with all UNC-Charlotte procedures and regulatory requirements governing the use of Radioactive Materials (RAM).

Applicant: Print:_____ Signature:_____ Date:_____

Authorized User: Print:_____ Signature:_____ Date: _____

RADIATION SAFETY PROGRAM
EMERGENCY PROCEDURES

1. Report any leak, spill, or release of radioactive material to the responsible Authorized User immediately. If the Authorized User is unavailable, call the Emergency Contact. The Environmental Health and Safety (EHS) Office may also be contacted via University Police number below.
2. Only the Authorized User, trained radiation workers in the lab or the Radiation Safety Officer can complete leak/spill cleanups. All persons working on a leak/spill cleanup must be fully aware of the hazards posed by the particular radioactive isotope involved – always consult the Nuclide Safety Data Sheet for the isotope involved in the spill for hazard/risk control requirements.
3. Prevent spread of contamination from accident site. Use absorbent paper to stop or confine the spread of contaminants if it can be done safely. Decontaminate the area, starting from the perimeter and cleaning toward the center of the spill (use mild cleaning agents such as White Vinegar, Formula 409, Fantastik or Windex). Avoid any physical contact with contaminants.
4. Clear all unnecessary persons from radiation area.
5. Use nearest telephone for communications and avoid walking spilled material throughout the building.
6. Assemble all personnel in nearby safe area until radiation surveys and personnel decontamination are completed by authorized lab personnel and the Environmental Health and Safety Office.
7. Close doors and windows and turn off air handling equipment that could lead to the spread of contamination throughout the building. Keep fume hoods operating within the laboratory.
8. Control access to the radiation area and place warning signs indicating radiation and/or contamination hazards.
9. Decontamination of rooms and building shall be done under supervision of the Environmental Health and Safety Office. See the Laboratory Contamination Decision Tree for more information.
10. The Environmental Health and Safety Office will assess the emergency event and contact the NCDHHS – Office of Radiation Protection as required by the reporting thresholds, if exceeded, as detailed in 15 NCAC 11.

EMERGENCY CONTACTS:

Radiation Safety Officer:	**Office:(704) 687-1111** **Cell: (704) 466-9274**
Alternate Emergency Coordinator:	**Office: (704) 687-1111** **Cell: (252)-327-9679**
Campus Police:	**911 or (704)687-2200**

RADIATION SAFETY PROGRAM
MATERIAL SECURITY AND LOSS / THEFT PROCEDURE

1. The usage of Radioactive Material must be controlled at all times to prevent unauthorized use or theft.

   - All Radioactive Materials must be securely locked when not in use. This includes the locking of laboratory doors, storage containers, etc.
   - Constant surveillance and control must be maintained while Radioactive Material is in use. The Authorized User or designee must be in the laboratory or surrounding area, at all times, where he or she is in position to monitor for unauthorized access.
   - This requirement applies to Radioactive Material in waste and experiments in progress, as well as stock solutions. There is no exempt quantity of radioactive material which eliminates this level of security.
   - Radioactive Material must be stored / used within designated areas of laboratories in accordance with the Authorized User's license.
   - All machines that use Radioactive Material sources, such as Gas Chromatographs (if equipped with an Electron Capture Detector - ECD), and Liquid Scintillation Counters must be kept secure at all times and if their use/storage locations are changed on campus the Radiation Safety Officer (RSO) must be notified immediately upon transfer. Additionally, if these machines are to be transferred or otherwise removed from campus, the Radiation Safety Officer must be notified immediately so the proper tracking and recordkeeping can be completed. The sealed radioactive sources may not be removed or tampered with.

2. The initial suspicion of loss or theft of Radioactive Material requires the immediate notification to the Police and Public Safety Department at 687-2200 and the Environmental Health and Safety Office (EHS) at 687-1111. The information needed is:

   - Radioisotope
   - Chemical and physical form
   - Isotope ID# (assigned by the EHS Office)
   - Quantity (activity)
   - Location from which the Radioactive Material is missing
   - Authorized User's name
   - Person reporting the loss/theft
   - Date and time the Radioactive Material was discovered to be missing

3. The EHS Office and RSO will determine the extent of hazard presented by the possible loss/theft of radioactive material. Dependent upon the loss/theft risk level to the public health, the EH&S Office will coordinate appropriate action with Police and Public Safety, Vice Chancellor for Business Affairs, Associate Vice Chancellor for Safety and Security and the Radiation Safety Committee.
4. The EHS Office will report the loss or theft of Radioactive Materials to NC DHHS Radiation Protection Section in accordance with 15 NCAC 11.
5. Any loss or suspected theft must be thoroughly investigated and documented. The incident report and supporting documentation will be placed in the radiation safety file for recordkeeping purposes.

EMERGENCY CONTACTS:

Radiation Safety Officer:	**Office:**	**(704) 687-1111**
	Cell:	**(704) 466-9274**
Alternate Emergency Coordinator	**Office:**	**(704) 687-1111**
	Cell:	**(252) 327-9679**

CAMPUS POLICE: **911 OR 7-2200 (IF DIALING FROM CELL PHONE: 704-687-2200)**

RADIATION WORKER
PRIOR RADIATION DOSE DECLARATION

Please check applicable statement:

☐ 1) I have no prior occupational dose.

☐ 2) I may have received occupational dose during the course of prior employment.*

My lifetime cumulative exposure is: _____.

My current year annual exposure is: _____.

My current quarter exposure is: _____.

(If unknown, indicate unknown, do not leave blank)

*If you indicated No. 2, then you must complete a "Radiation Exposure History" form for each place of employment at which you received an occupational dose, indicating current cumulative exposure.

RADIATION WORKER
RADIATION EXPOSURE HISTORY

Name: _____ University ID Number: _____-_____-_____

Birth date: _____/_____/_____ Department: _____

PRIOR EMPLOYMENT:	ADDRESS	EMPLOYMENT DATES
1)		_____ Contact person for radiation history:
2)		_____ Contact person for radiation history:
3)		_____ Contact person for radiation history:
4)		_____ Contact person for radiation history:

I assert that this is a complete listing of my prior radiation employment and I request that the prior employer(s), listed above, release my radiation exposure history to the UNC Charlotte EHS Office.

Applicant: Print:_____ Signature:_____ Date:_____

RAS FORM 2

APPLICATION FOR DOSIMETRY SERVICES

1. Full name of applicant: _____
2. UNCC Affiliation (please check one): Faculty/Staff ___ UNCC Student ___ Volunteer/Visitor ___
3. University e-mail: _____
4. University ID number: _____
5. Date of birth: _____
6. Gender: _____
7. Department: _____
8. Authorized User: _____
9. Isotopes / Equipment used: _____
10. Location and description of use: _____

    _____
11. TLD Ring? (see section 2.5 B of the *Handbook for Radiation Safety*) yes ___ no ___ / Ring size(S/M/L) _____
12. List coverage by all dosimetry services at locations other than UNC Charlotte: _____

    _____

The Applicant and Authorized User certify that all information contained herein is true and correct to the best of his or her knowledge.

Applicant: Print:_____ Signature:_____ Date:_____

Authorized User: Print:_____ Signature:_____ Date:_____

Radiation Safety Officer authorizes Applicant to utilize radioactive materials and certifies review of this RAS-2 Application:

Radiation Safety Officer:_____ Date:_____