

## **RADIATION EMERGENCY PROCEDURES (6/14/13)**

When responding to radiation incidents, the primary concern is the protection of personnel from radiation hazards. The secondary concern is the confinement of any radioactive contamination to the local area of the incident.

To summon help, use the emergency contact phone numbers which are posted on the warning signs at the entrances to every UD laboratory. Emergency call boxes/phones may also be used to summon assistance.

When reporting radiation incidents to UD Public Safety, remember always to state:

Nature of the Radiation Incident  
Your Name  
Location where Assistance is Needed  
Whether the Radiation Safety Officer has already been Notified

### **Minor Spills of Liquids and Solids**

- Notify persons in the area that a spill has occurred.
- Prevent the spread of contamination by covering the spill with absorbent paper. (Paper should be dampened if solids are spilled.)
- Wearing disposable gloves, lab coat, and eye protection, clean up the spill using absorbent paper.
- Carefully fold the absorbent paper with the clean side out and place in a plastic bag for transfer to a radioactive waste container. Put contaminated gloves and any other contaminated disposable material in the bag.
- Survey the area using an appropriate technique, e.g. radiation survey meter with pancake GM probe for P-32, radiation survey meter with gamma probe for I-125, wipe tests for low-energy beta emitters (H-3, C-14, S-35, P-33, Ca-45). Check the area around the spill for contamination. Also check hands, clothing, and shoes for contamination.
- Report the incident to the Radiation Safety Officer (RSO) promptly.
- Allow no one to return to work in the area unless approved by the RSO.
- Cooperate with the RSO and/or the RSO's staff during the post-incident investigation.
- Follow the instructions of the RSO and/or the RSO's staff (e.g., decontamination techniques, surveys, provision of bioassay samples, requested documentation).

## **Major Spills of Liquids and Solids**

- Instruct all persons not potentially contaminated by the spill to vacate the room.
- Prevent the spread of contamination by covering the spill with absorbent paper (paper should be dampened, if solids are spilled), but do not attempt to clean it up. To prevent the spread of contamination, limit the movement of all personnel who may be contaminated.
- Close the room and lock or otherwise secure the area to prevent entry. Post the room with a sign to warn anyone trying to enter that a spill of radioactive material has occurred.
- Notify the RSO immediately.
- In a safe area away from the spill, survey all personnel who could possibly have been contaminated. Decontaminate personnel by removing contaminated clothing and flushing contaminated skin with lukewarm water and then washing with a mild soap. Use a sink in the lab for washing and not a restroom sink.
- Allow no one to return to work in the area unless approved by the RSO.
- Cooperate with the RSO and/or the RSO's staff during the spill clean-up and the post-incident investigation.
- Follow the instructions of the RSO and/or the RSO's staff (e.g., decontamination techniques, surveys, provision of bioassay samples, requested documentation).

## **Incidents Involving Radioactive Dusts, Mists, Fumes, Organic Vapors, and Gases**

- Notify all personnel to vacate the room immediately.
- If the incident occurred in a fume hood, close the hood window.
- Vacate the room and notify the RSO immediately.
- Ensure that all access doors to the area are closed and posted with radiation warning signs, or post guards at all access doors to prevent accidental opening of the doors or entry to the area.
- Survey all persons who could have possibly been contaminated. Decontaminate as directed by the RSO.
- Promptly report suspected inhalations and ingestions of licensed material to the RSO.
- Decontaminate the area only when advised and/or supervised by the RSO.
- Allow no one to return to work in the area unless approved by the RSO.
- Cooperate with the RSO and/or the RSO's staff during the post-incident investigation.
- Follow the instructions of the RSO and/or the RSO's staff (e.g., decontamination techniques, surveys, provision and collection of bioassay samples, requested documentation).

## **Minor and Controlled Fires**

- If trained in the use of the fire extinguisher, attempt to put out the fire -- but only if there are no other fire hazards or radiation hazards present.
- Notify all persons present to vacate the area and have one individual immediately call the RSO and fire department.
- Once the fire is out, isolate the area to prevent the spread of possible contamination.
- Survey all persons involved in combating the fire for possible contamination.
- Decontaminate personnel by removing contaminated clothing and flushing contaminated skin with lukewarm water and then washing with a mild soap. If possible, use a sink in the lab for washing and not a restroom sink.
- In consultation with the RSO, determine a plan of decontamination and the types of protective devices and survey equipment that will be necessary to decontaminate the area.
- Allow no one to return to work in the area unless approved by the RSO.
- Cooperate with the RSO and/or the RSO's staff during the post-incident investigation.
- Follow the instructions of the RSO and/or the RSO's staff (e.g., decontamination techniques, surveys, provision of bioassay samples, requested documentation).

## **Fires, Explosions, or Major Emergencies**

- Notify all persons in the area to leave immediately.
- Pull fire alarm as you leave the building. Notify fire department by phoning 911. An emergency call box telephone may also be used.
- Notify the RSO and other facility safety personnel.
- Remain on the scene and report to the command post established by emergency responders (a green flashing light is often used to identify the post). Advise responders and the RSO regarding the nature of the fire.
- Cooperate with the RSO and/or the RSO's staff during the post-incident investigation.
- Allow no one to return to work in the area unless approved by the RSO.
- Follow the instructions of the RSO and/or the RSO's staff (e.g., decontamination techniques, surveys, provision of bioassay samples, requested documentation).

## **Injuries to Personnel involving Radiation Hazard**

- For minor cuts/wounds involving radioactive contamination wash immediately under running water at lab sink. Notify the RSO as soon as possible and await arrival of RSO.
- For serious wounds and medical conditions, immediately obtain medical assistance by phoning 911 or using an emergency call box/phone. If qualified, administer first aid. Stay with injured person until help arrives. If you are the injured person, call out for help to others nearby. Inform emergency responders of any radioactive contamination that may be on or near the injured person and/or provide them with the contact phone number for the RSO. Notify the RSO as soon as the situation allows.
- Cooperate with the RSO and/or the RSO's staff during the post-incident investigation.

## **Known or Suspected Over-Exposure or Ingestion**

- Any person who suspects over-exposure to radiation from any source must report immediately, by phone or in person, to the RSO.
- Any person who swallows, injects, absorbs, or otherwise ingests radioactive materials (excluding those which are a part of medical diagnosis or therapy) must report the intake immediately to the RSO.

## **Defects in Radiation Devices**

- Whenever there is a failure of a safety component of a radiation device that may indicate a defect and could contribute to the exceeding of a safety limit, the user of that device must immediately notify the RSO. (Example: shutter preventing radiation from exiting a radiation device jams in the open position.)
- The RSO will then make an evaluation and report findings to the NRC Operations Center per the requirements of 10 CFR 21.21.

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The Radiation Safety Officer (or another qualified emergency responder) may be reached- i) directly during regular working hours at 831-8475 or ii) through the Dept. of Public Safety, 24 hours a day, at 831-2222.

**Call List for Radiation Emergencies**  
***(for serious injuries always call 911  
for medical assistance first!)***

1. William Fendt, Radiation Safety Officer  
Office 302-831-8475  
Home 610-494-8296  
Cell Phone: 302-275-3041
2. Krista Murray, Assistant Director- Environmental Health and Safety  
Office 302-831-8475  
Home 302-454-1860  
Cell Phone: 302-275-3039
3. Dept. of Public Safety      24 hour call desk- 302-831-2222

If the Radiation Safety Officer and Assistant Director are unavailable, the Department of Public Safety will notify another qualified member of the Department of Environmental Health and Safety.