



↻ UC IRVINE RADIATION SAFETY NEWSLETTER ↻

Volume II, #1 (April 2006)

Prepared and distributed by the staff of the Radiation Safety Division of EH&S

The purpose of this newsletter is to keep radioactive material users at UC Irvine informed regarding campus radiation safety policies and procedures including tips to improve safety. Visit the EH&S website (www.ehs.uci.edu) under "[Radiation & Laser Safety](#)" for more information.



SURFACE CONTAMINATION MONITORING

During quarterly or semiannual radiation safety surveys EH&S monitors for excessive surface contamination and external radiation levels. Access control and security regarding radioactive material, posting and labeling, radioactive waste handling and storage procedures and adherence to all currently accepted radiation safety practices are also inspected. *The most frequently noted item of noncompliance has historically been - and continues to be - failure of laboratory staff to perform surface contamination monitoring at required intervals.*

All areas in which radioisotopes are used must be checked for contamination by lab personnel at least every 30 days. Both wipe tests and Geiger counter scans must be performed and documented in the lab's contamination monitoring records. Areas or items found to be contaminated over three times background must be cleaned, re-checked for residual contamination, and these results must also be documented.

For periods during which radioisotopes are not used, monthly wipe tests and Geiger counter scans are not required. *However, all radioisotope storage areas (including waste areas) must be checked for contamination at least every 90 days and records of these tests must be retained with the lab's contamination monitoring records.* "No use" statements indicating that no radioisotopes were used in the lab must be still written into the monitoring records every 30 days.

EH&S recommends that the contamination monitoring schedule be entered onto a lab calendar in advance to minimize the possibility of missing the survey.



RADIOACTIVE PACKAGE DELIVERY CHANGE

Due to construction near the McGaugh Hall loading dock there is no longer adequate space available for our van for radioactive package deliveries from that location. Therefore, EH&S moved the 2:00 pm – 2:25 pm package delivery location to near the **Biological Sciences Administration Building** (Building # 515 on the campus map on page 6 of the UC Irvine telephone directory). Packages will continue to be delivered between 2:30 pm and 3:00 pm from adjacent to **Plumwood House** (*the Hitachi Building*). For more information, including a map showing the new delivery location, contact Radiation Safety at 949-824-6200.



MEMORABLE QUOTE

"An approximate answer to the right problem is worth a good deal more than an exact answer to an approximate problem."

John Tukey (1915-2000), U.S. statistician

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RADIATION DOSIMETRY

Important Points to Remember

- ❖ Dosimeters must only be worn by the individual whose name appears on the label.
- ❖ Dosimeters must be stored away from all radiation sources when not being worn and they must be protected against contamination and excessive heat or moisture.
- ❖ *Ring badges must be worn underneath protective gloves.*
- ❖ *Badges must be worn so that the label side of the dosimeter faces towards the radiation source.*

- ❖ EH&S must be notified immediately in cases of suspected unusual radiation exposure, contamination, improper storage, misuse, or damage of dosimeters. Any lost or damaged badges must be replaced for the remainder of the designated use period.

According to Federal and State regulations, you must be issued a radiation dosimeter if there is a chance that you can receive 10% of an annual radiation dose limit. For adults, those limits are 5000 millirems per year to the whole body and 50,000 millirems per year to the hands. While there are a few radioisotope users on campus who fall into these categories, the overwhelming majority of those who currently have dosimetry assigned generally receive little or no measurable doses.

For low-energy beta emitters such as ^3H , ^{14}C , ^{33}P , ^{35}S and ^{45}Ca , dosimetry is not useful as the beta particles cannot penetrate into the radiation-sensitive portion of the badge; these radioisotopes do not present an external radiation risk. For ^{32}P and ^{125}I , if you are handling 10 mCi or more in an experiment, you must have a dosimeter ring badge.

To request a dosimeter badge, complete the Badge Request Form available on the EH&S Radiation Safety website at <http://www.ehs.uci.edu/radsafe.html>. To cancel a dosimeter badge, complete the [Badge Cancellation Form](#) on the website. If you have any questions please contact Karla Cornejo at kmcornej@uci.edu, 949-824-3757, or Debbie Hamano at dhamano@uci.edu, 949-824-1081.



RULES OF THUMB

- ❖ The amount of any radioisotope is reduced to less than 1% of its initial radioactivity after 7 half-lives.
- ❖ Radioactive waste is not considered to be completely decayed until 10 half-lives have elapsed (140 days for ^{32}P , 870 days for ^{35}S , 120 years for ^3H , etc.).

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ON-THE-JOB RADIATION SAFETY TRAINING

There are two very important components of radiation safety training. EH&S provides [general radiation safety training](#) which includes information on the forms of ionizing radiation, radiation dose units and dosimetry, radiation detectors, radioactive waste, spill cleanup, methods to reduce radiation exposure and information on general radiation safety practices. However, EH&S cannot provide training on the *specific*

radioisotope procedures performed in laboratories; this is the responsibility of the Principal Investigator, the lab manager, or another knowledgeable and trained individual in the research group.

New radioisotope users must be trained in all appropriate aspects of the procedures to be performed including the safety issues, and then be carefully supervised when they initially attempt to perform the procedures independently to ensure that they are proficient. Once they are considered to be adequately trained an [On-the-Job Training Form](#) must be signed by the Principal Investigator and the trainee and then be submitted to EH&S. These forms are provided to all new radioisotope users when they receive EH&S radiation safety training.



MEMORABLE QUOTE

"Everything should be made as simple as possible, but not simpler."

Albert Einstein (1879-1955), German/U.S. physicist

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☞ If you have any questions about radiation safety, please contact EH&S at 949-824-6200. We will be happy to assist you with any radiation safety-related matter!