



↔ UC IRVINE RADIATION SAFETY NEWSLETTER ↔

Volume III, #2 (January 2008)

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.

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RADIATION SAFETY TRAINING & FORMS

EH&S radiation safety training now consists of three major components:

- ❖ *Radiation Safety Part I*, which is an online course offered at the UCI Training & Employee Development (TED) website (www.ted.uci.edu). This course must be completed prior to use of radioisotopes.
- ❖ *Radiation Safety Part II*, which is a 90-minute classroom-type course offered at EH&S with registration also at the TED website. This course must be completed within 6 months of starting work with radioisotopes.
- ❖ *On-the-job/hands-on training* conducted in the lab by experienced personnel. This training is documented using an EH&S-provided *On-the-Job Training Form* which is completed and returned to EH&S after the person is trained.

☞ The *Radiation Safety Part I* course includes the instructions to download required forms that are attachments to the course (in the upper right corner of the course interface). **Some of these forms must be completed and returned to EH&S in order to receive credit for the course.** These are the *Statement of Training & Experience* for both men and women, and the *Prenatal Radiation Exposure Risks and Precautions* form only for women. The two other forms attached to the course are: the *On-the-Job Training Form* (return this after the hands-on training – this is not required to receive credit for *Radiation Safety Part I*); and the *Dosimetry Badge Request Form* (to be completed only if you work with large quantities of ³²P at one time (≥ 5 mCi) or quantities of gamma radiation emitters such as ⁵¹Cr ≥ 1 mCi – contact EH&S for more guidance on this).

If for some reason you cannot download the forms directly from the *Radiation Safety Part I* course, they can be accessed at the *EH&S Radiation & Laser Safety* webpage (<http://www.ehs.uci.edu/radsafe.html>) under the heading “Radiation Safety Training Requirements”.



RADIOACTIVE WASTE: REDUCE YOUR COSTS!

As stated in UCI’s radioactive material license, campus radioactive waste must be disposed of and processed only through EH&S. Although it is true that the disposal of radioactive waste is not inexpensive, below is a list of important reminders and suggestions that may help you save money and at the same time be compliant with Federal, State, and UC regulations:

1. **Use only EH&S-approved waste containers** – they are provided to you free of charge.
2. **Recycle your lead pigs for free**. These are the lead-containing outer containers for the radioisotope vials.
3. **It is significantly cheaper to keep LSC vials full for disposal**. Do not pour them out into liquid waste containers or place full vials in with dry radioactive waste.
4. **Waste that is not labeled properly may cost your lab more money**.
5. **Separate long-lived waste from short-lived waste**; it is much cheaper that way. It is much less expensive to dispose of ^{32}P and ^{35}S waste than ^3H and ^{14}C waste (which cannot be stored by EH&S for decay).
6. **If multiple labs are sharing work spaces and generating radioactive waste into common waste containers, the cost for disposal can be distributed among the labs involved**. In this case, maintaining a waste disposal log sheet would help. This could save your lab money.

Please contact Anna Chung of EH&S Radiation Safety at x4-6200 for more information on radioactive waste disposal issues.



MEMORABLE QUOTE

"A little knowledge is a dangerous thing. So is a lot."

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



RADIOISOTOPE USE LOGS

Since 9/11/2001, the State of California has requested that all users of radioisotopes maintain **radioisotope use logs** as “cradle to grave” tracking records of the use of radioactive material. When aliquots are removed from stock vials, a dated entry needs to be made into a radioisotope use log which indicates the quantity removed by volume (in "lambda", μl or ml if the specific activity [e.g., mCi/ml] is listed) and/or in radioactivity units (μCi , mCi). Also include the name or initials of the person removing the radioisotope from the vial. Use logs are frequently posted on the doors to the refrigerators/freezers in which the stock vials are stored, and then when the vials are disposed of, they are placed in with the other radiation safety records in a notebook or folder.

EH&S can provide you with a use log template or you can generate your own. Contact Radiation Safety at x4-6200 for more information.

CiBR-Trac [si-ber-trak]
Chemical Inventory, Biological & Radio-isotope Tracking system



RADIOISOTOPE INVENTORY UPDATE DUE?

Please keep in mind that your radioisotope inventory must be updated at least every 6 months using the EH&S online *CiBR-Trac* system. EH&S sends out reminder email messages to all PIs with Radiation Use Authorizations every January and July. Of course, you may update the inventory as frequently as you want but they are only required every 6 months.

The web address for CiBR-Trac is: <http://ucirvine.ecompliance.net/index.jsp>. Contact EH&S if you need assistance in navigating through this program for your inventory updates. **Be sure to print a hard copy of the updated radioisotope inventory for your records.**



GEIGER COUNTER CALIBRATIONS

Until recently EH&S performed radioactive source-type *operational checks* of Geiger counters used by personnel in research labs on campus. The radiation emitted by small beta and gamma sources was measured at certain distances from the Geiger counter probes and the results were checked against results obtained using EH&S Geiger counters that had received full calibrations using a ^{137}Cs calibration range (662 keV gamma emissions). Readings recorded were in units or **mrem/h**. *This type of calibration is most useful when applied to meters used to measure medium and high energy gamma rays (such as from ^{51}Cr , etc.).*

Now, EH&S performs most Geiger counter calibrations using a *pulsar*. Known/calibrated numbers of pulses per second are delivered to a Geiger counter to make sure each meter reads correctly in **counts per second** (within $\pm 20\%$ of the calibrated values). All Geiger counter ranges/scales are checked (x1, x10, etc.). Meters are adjusted as needed to meet the $\pm 20\%$ standard. *This type of calibration is more appropriate for meters used to measure beta particles such as from ^{32}P , ^{14}C and ^{35}S ; this is the most common use of Geiger counters in research labs on campus.* Campus meters used primarily for gamma radiation measurements are still calibrated using the ^{137}Cs calibration range as before.

The lab Geiger counter calibrations are performed every 2 years. The Geiger counters in Biological Sciences were calibrated in 2007 and those in Medical Sciences will be calibrated in 2008. Those in other research areas are also done every 2 years. To perform the calibrations, it is necessary for EH&S to pick up your Geiger counter and bring it back to EH&S. If work with radioisotopes is anticipated in the lab while your Geiger counter is out (for 2 days at most), a **loaner meter** can be provided by EH&S.



DISPOSAL OF RADIOACTIVE SHARPS


In the past EH&S has permitted radioactive sharps such as contaminated razor blades, syringe needles, and broken lab glassware to be placed into containers such as well-labeled aluminum soda cans. Radioactive sharps must now be placed into *labeled, puncture-proof screw-top containers* (such as plastic or glass bottles) that can subsequently be securely sealed and placed into dry radioactive waste boxes for disposal. Avoid using soda cans for sharps now since they are not as rigid and safe.



MEMORABLE QUOTE

*"There is science, logic, reason; there is thought verified by experience.
And then there is California".*

Edward Abbey (1927-1989); U.S. essayist

 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!

