



# RADIATION REVIEW

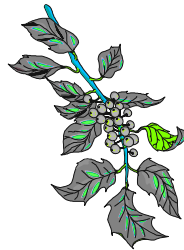


UW - Madison Safety Department  
103 N. Lake St. 262-8769

Radiation Safety Program  
December 1994

## Holiday Operating Hours

Although Radiation Safety will be open over Christmas break, holiday hours will be in effect so plan ahead. CORD will be closed from December 23, 1994 until January 2, 1995; the Annex located in B19, Biochemistry will also be closed during that time. If you need a thyroid count during this period, call Safety at 262-8769 to set up an appointment. Do not bring survey meters to the Annex until it is opened in 1995.



## Pregnancy

You may have noticed green and red flyers posted around research buildings. This is not a bit of holiday cheer, rather they are being used to publicize the Pregnancy Surveillance Program.

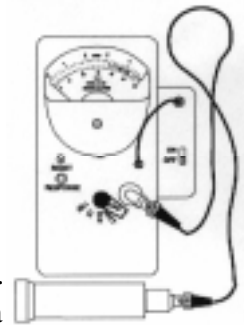
It has been shown that the embryo / fetus is more sensitive to detrimental effects from radiation. To insure that radiation risks are kept ALARA, the Nuclear Regulatory Commission has established lower radiation dose limits for the fetus than the adult worker; 500 mrem to term vs 5000 mrem per year for the adult.

However, this program is entirely voluntary. To enroll, pregnant workers must inform the Radiation Safety Office in writing. We will review the worker's radiation exposure history, the lab's workload (type and

quantity of radionuclides), and will then review this information with the worker and provide suggestions to reduce potential fetal exposure to below the 500 mrem limit or to provide encouragement to keep radiation dose to the fetus low.

## Counts-per-minute (cpm)

Some of you may have noticed changes in how you are to use radiation survey meters. Nearly all meters in use at the UW are calibrated in units of counts-per-minute (cpm). Because research here is concerned with relatively small quantities of beta and/or gamma emitters, cpm response is a true reflection of how much contamination you are detecting with your meter.



To properly use a meter: (1) turn on meter and speaker; (2) turn switch to the battery check position; (3) place detector on check source (usually located on side of meter) and verify response, in cpm, matches response indicated on calibration label; (4) turn switch to lowest setting possible and measure background count rate (about 20 - 40 cpm for G-M, 200 - 300 cpm for LEG); (5) survey with speaker on and detector about 1 cm from the surface, listening for increased count rates to alert you to contamination.



With a G-M meter survey, count rates in excess of 650 cpm are reason to shield and/or decontaminate. Depending upon contaminating isotope, this 650 cpm could indicate contamination of from 30,000 dpm ( $^{14}\text{C}$ ,  $^{35}\text{S}$ ) to 1,300 dpm ( $^{32}\text{P}$ ).



## Renewals

The University's NRC license requires that each authorized user review his/her need to use radioactive materials and to resubmit a new authorization to use radioactive materials triannually. On 1 November, the Safety Department sent out renewal packets to 134 authorized users whose authorizations will expire on 1 January, 1995. Completed packets received back in the Safety Department by 29 December will result in the user being placed in a "timely" renewal status. Users who do not return a completed packet by 29 December will be placed in a "suspended" status and will not be allowed to order radioactive materials until the renewal application is received. If you cannot return your renewal application by 29 December, please call the Safety Department and ask for a Health Physicist.

## Checklist

Although the regulations may seem large, cumbersome, and complex, they can be boiled down to simple procedures. To insure each user conducts the radioactive material work safely, they must keep viable records and perform surveys after using radioactive materials.

To facilitate users complying with these regulations, we have drafted checklists addressing radiation safety requirements, radioactive waste, and new iodinator training. These can be used by PIs, lab managers, and radiation workers to insure that crucial procedures have been accomplished. If you would like one of these check lists, call Safety at 262-8769 and we will send you a copy.

## New Regulations

Radiation Safety revised the University Radiation Safety Regulations in August. A letter was sent to each user telling them of the revision and that, except for several specific items noted in the letter (e.g., yellow bags, monthly surveys, etc.), the revision was primarily editorial in nature and would be placed into effect over a several year period on a user-by-user basis. All renewals will be submitted under the new regulations. Safety personnel will point out changes in the regulations as they conduct their periodic review of each user's radiation use program.

If you would like an additional copy of these new regulations, please give us a call at 262-8769 and we will send you as many as your desire.

## Exceptions

The revised regulations seem to be relatively complete. However, their intent is to address general situations. Your lab or perhaps certain aspects of your operation may not fit under these generic conditions. If you find that is the case, we would encourage you to write us a letter requesting an exception to the specific conditions which you find impractical.

Common letters requesting exceptions include:

Allowing higher contamination levels in microfuges and speedvacs; performing pre- and post-radiation room surveys on animal rooms used infrequently; performing 6-month surveys if all material is in storage status; etc.

Thus, if you have a need which is not addressed in the regulations, tell us about it and we will see what can be done. Our basic goal is radiation safety, if an exception can be approved without compromising that goal, it probably will be approved.

## Surveys

Because your safety and work are important to us, we initiated a monthly survey requirement for every room which a user is authorized to use radioactive materials. These surveys document to the world that your group is working safely and preventing the spread of contamination. The regulations also require the availability and use of portable survey meters whenever a worker has more than 1 mCi of radioactive material on the lab bench, and they prescribe that the work area be surveyed prior to leaving the lab.

However, there is more to radiation safety than observing the letter of the law.

Safety is everyone's responsibility. The principal investigator and lab manager should impart to all workers the necessity of working safely. This can be done not just by emphasizing the need to survey the work area and hands before leaving the lab, but by PIs and managers serving as an example.

The University has experienced several potentially severe contamination episodes during the past year. Although the contamination may not have been avoidable, if survey meters had been used at the conclusion of work, all of these contamination incidents could have been detected and the area decontaminated. Instead, days went by and the contamination was allowed to spread until a decontamination effort of 1 or 2 hours became one of 2 - 4 man-days with the potential for receiving NRC license violations.

Be aware of the potential for contamination and survey your work area before leaving for breaks or at the close of the day.

## Quarterly Survey

Radiation Safety has initiated a program to inform research departments of items of concern. This program will consist of a quarterly, announced inspection of all of the users of radioactive material in a particular department/center/school followed by a short summary letter to all departments with researchers using unsealed radioactive materials. During department staff meetings, the potential areas of concern identified can be addressed and relayed to researchers in the department.

On October 25, we conducted such an inspection of Bacteriology.



The following items were identified and addressed to the Chair under separate cover: (1) posting of deleted or non-radioactive materials-use rooms with **Caution - Radioactive Materials** signs; (2) security of posted rooms; (3) shared rooms; and (4) radioactive waste.

The chairperson of your department will have received this letter. Please ask that it be distributed and discussed with all faculty.

## Training

Radiation Worker training will be conducted at the dates and times indicated below. The class is 4 hours long with a comprehensive exam based on the *Radiation Safety for Radiation Workers* booklet. All training is conducted in Biochemistry Rm. 1B. Call Radiation Safety at 2-8769 or 5-5241 to receive a copy of the booklet.

Date	Day	Begins	Ends
02 DEC 94	FRI	12:30 PM	4:30 PM
08 DEC 94	THUR	1:30 PM	5:30 PM
13 DEC 94	TUE	12:30 PM	4:30 PM
20 DEC 94	TUE	12:30 PM	4:30 PM
28 DEC 94	WED	12:30 PM	4:30 PM
06 JAN 95	FRI	12:30 PM	4:30 PM
12 JAN 95	THUR	12:30 PM	4:30 PM
19 JAN 95	THUR	12:30 PM	4:30 PM
25 JAN 95	WED	12:30 PM	4:30 PM

**UW-Safety Dept.**

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