Radiation Safety Newsletter

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RAM: Tracking of Use and Disposal

Chapter 8 Section 4 of the SUNY Upstate Radiation Safety Manual states the Responsibilities of persons authorized to use radioactive materials. The two that are discussed in this issue are quoted below.

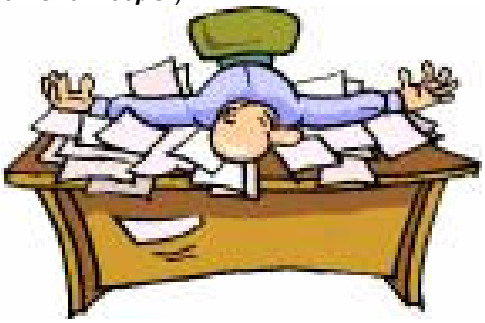
4. Keeping an accurate inventory of the amounts of radioactive materials possessed.
5. Keeping accurate records of use and disposal of any radioactive material.

The primary document that helps both your lab and our office with each of these tasks is form F86538 – Radioactive Material Inventory, more commonly known as the Radioactive Material 'Use Card'. An example of this is <here> so that you can follow along with some of the discussion.

The card is generated by radiation safety when a package of RAM arrives at the facility. When you pick up your package, we make you sign for it. You get the package with all of the shipping papers and associated documentation that came with it AND the RAM use Card.

The top three lines are filled out for you (neat, huh?) It has enough information on it for Radiation Safety to track it while it is at our facility.

One thing deserves special mention here. When we fill out the amount of activity for a lab shipment it will always be the amount of activity at the calibration date (at noon of that day unless otherwise specified). We will always write out the unit of measure so there is no confusion (ex. 5***mCi*** or 250***µCi***)



We get this date directly from the label on the vial holder.

The calibration date is the reference we use to calculate the decay of your sample. The formula is below:

$$A = A_0 * e^{-2\ln * t / t_{1/2}}$$

Where A = final activity
A_o = Original activity
e = base of natural log
ln = natural log
t= time
$t_{1/2}$ = half life

Don't be dismayed just yet. A_o is the activity in the upper right hand corner of the card. The other side of the equation gives us a way to figure out, once evaluated, the percentage of activity left over after a certain amount of time (*t*) has elapsed. Fortunately, all of our vial shipments have the right side of this equation evaluated in the form of a chart for a number of days after the calibration date. **The chart provided is what you should use for your activity calculation.**

Sometimes the chart will have only odd or even day factors listed. What to do if you want the activity on the 5th day after the reference date and you only have even numbers on your chart? Take the average by adding the values for day four and six, then divide by 2.

The first entry that you make on the card will be the date and the calculated activity of the first day you draw from the vial. If this is any day after the reference date, it will be less than the calibrated activity in the upper right corner of the card.

You then will indicate what it is used for. For most labs, this entry will either be 'Experimental' or 'Disposal'. If you have any special cases or don't know what to put down here, contact us for assistance.

The next entry is how much activity you actually draw from the vial. As with all of the other

entries, please write down the unit of measure (radioactive units only, i.e., mCi, uCi, etc.).

The last entry is 'Balance on Hand.' It is simply taking 'Decay Balance' and subtracting it by the amount drawn.

The last date entered ought to read zero in the 'balance on hand' section. Normally it will be a residual amount that you have disposed of (in a proper manner, of course!)

Security of RAM

Security is in the spotlight at the University again. Over the past couple of years, we have made tremendous strides with the security and storage of RAM in our laboratories. The Radiation Safety Office extends its thanks for all the hard work and attention that has been given by the people in the labs for this. This does not mean however, that we ought to rest on our laurels. Security requires both alertness and diligence—the will to enforce the safeguards put in place. The members of the Radiation Safety Office walk through the facility, looking in labs to see that the 'goods' are secure when there is no one present in the lab (freezers locked, RAM in appropriate lock boxes etc.) The bottom line: Don't be our next target!

If you have any questions about the security policy for RAM Storage, or have no clue what this section is about, please contact us as soon as possible so we can address this essential part of our program.

Sir, I believe we have just captured the 3rd- in-command of the terrorist group Al-Qitty.