Radiation Protection Program Update: February 2009

Over the past two years, SLAC's Radiation Protection Program (RPP) has adopted a number of changes that have resulted in improved radiation safety and consistently low radiation doses. In addition, these modifications bring the program into alignment with Department of Energy (DOE) radiological control program guidelines.

This update summarizes changes that were put in place over this period and introduces more recent changes, namely a new dosimeter issuance policy that reduces the number of dosimeters issued (see item 2) and a lowered Administrative Control Level (see item 8).

The new policies affect everyone who is required to take General Employee Radiological Training (GERT) and/or Radiological Worker Training (RWT). The updated courses have been launched and can now be accessed on-site or remotely via the Internet.

If you have questions about any of the following items, direct them to Jim Allan, the Radiation Protection Field Operations (RPFO) group lead, at ext. 4064, or to Henry Tran, Dosimetry program manager, at ext. 3793.

1. Controlled Areas and Radiologically Controlled Areas (RCAs). A new posting – Controlled Area – has been introduced to indicate an area where the potential for radiation exposure is so low that no personnel dosimeter is required to enter.
(PEP-II IR2 and IR-12 are examples of such areas.)

The Controlled Area designation differentiates areas with *very* low dose potential from areas that require the RCA designation, which has been in use at SLAC for many years.

Note that requirements are indicated on each posting. GERT is required for unescorted entry into both a Controlled Area and RCA. **And, a personnel dosimeter must be worn in an RCA**. (A GERT-qualified escort can meet dosimetry and training requirements under specific conditions. See items 2 and 4.)

2. Personnel Dosimeter Issuance. (New Policy)

- *Short-term visitors and subcontractors***.** Visitors and subcontractors are no longer required to wear a dosimeter if their work in an RCA is limited to one working day (8 hours) during any calendar year. They must, however, carry a SLAC ID badge and be accompanied by a qualified escort (see item 4).
- *GERT-qualified personnel.* A dosimeter will only be issued to GERT-qualified personnel if they will be entering or working in an RCA. The need for a dosimeter will be indicated by the supervisor's approval on the applicant's SLAC ID Badge / Dosimeter Request Form. (Prior policy was to issue a dosimeter to all GERT-qualified personnel.)

3. Dosimeter Use and Return. Carrying a dosimeter involves responsibilities for returning it promptly at the end of the wear period and keeping it away from non-occupational exposures. These practices are important both to ensure accurate dose measurements and to minimize dose investigations. Please note:

- An email reminder will be sent to anyone who does not return their dosimeter within 15 days after the wear period ends. Their supervisor will also be notified.
- It is essential that you keep your dosimeter away from all medical, dental, and airport radiation exposures.
- Because the dosimeter is intended to only measure occupational exposure at SLAC, you are encouraged to keep your dosimeter on-site.

4. Escort Duties. A GERT or RWT-qualified person may escort others who have not completed GERT into a Controlled Area or RCA. Escort duties include:

- Entering only areas you are qualified to enter and always wearing your personnel dosimeter when entering an RCA
- Maintaining visual contact with the escorted person at all times
- Making sure the escorted person obeys all postings, follows all safety requirements, and avoids hazards
- Making sure the visitor has a dosimeter prior to entering an RCA (if the visit is longer than one working day in a calendar year), and ensuring that the dosimeter is worn correctly and returned at the end of the visit
- Directing the escorted person in case of emergency

5. **Updated Web-based Training.** Updated GERT and RWT I courses may now be taken on- or off-site via the Internet. Previously, these courses could only be taken on-site, and RWT I was instructor led. Please note that the RWT I practical and RWT II must still be scheduled with the Radiation Protection Department (RPD) and will be administered by an instructor. Study guides are available through ES&H Training, as before.

6. **Radioactive Material (RAM).**
   - *Storage.* All RAM must be properly managed and only stored in areas posted as a Radioactive Material Area (RMA) or Radioactive Material Management Area (RMMA).
   - *Work.* Labeled RAM may be worked on in a Controlled Area or RCA.
   - *Reporting.* Please report any suspected RAM that is not in a properly posted area to RPFO at ext. 4299.

Changes Affecting GERT

7. **GERT Access and Work Restrictions.** GERT-qualified personnel are not allowed into Radiation Areas and must not conduct any work that involves handling or working with radioactive materials, including activated beamline components. RWT I is required for these activities.

Changes Affecting RWT

8. **Lower SLAC Administrative Control Level (New Policy).** The new administrative control level (ACL) is now 500 mrem per year, which is one third of the previous value of 1,500 mrem per year. No person shall exceed 500 mrem per year without the prior approval of the SLAC director or her designee. This new ACL more accurately reflects SLAC's low doses.

9. **ALARA Dose Level.** No person should exceed the ALARA dose level of 360 mrem per year without the prior approval of his/her department head, associate lab director, and RPD. (For comparison, note that the ALARA dose level is numerically the same as the average annual radiation dose that the US general population receives from combined natural and human-made sources.)

10. **Eating and Drinking Restrictions.**
    - **Eating is not permitted** in the accelerator housings, Radioactive Material Areas, and radiological areas. (Radiological areas include Radiation Areas, High Radiation Areas, Radiological Buffer Areas, Contamination Areas, and High Contamination Areas.)
    - **Drinking is not permitted** in a Contamination Area.

11. **Radioactive Consumer Products Use Restrictions.** Prior written approval must be obtained from RPD before any radioactive consumer product is purchased or used. This policy has already been in effect with regard to restricted grinding and use of thoriated welding electrodes, grinding wheels, and sandblast grits and now applies to all radioactive consumer products.

12. **Radiological Work Permit (RWP) Requirements.** RWP requirements include the following:
    - An RWP is required for entry into all radiological areas.
    - A job-type RWP with a written procedure is required for any radiological work and for any work in a High Radiation Area.

13. **High Radiation Area Frisking Requirement Eliminated.** Whole-body contamination monitoring, also referred to as "frisking", is no longer required when exiting a High Radiation Area.

    Whole body frisking is still required upon exiting a Contamination Area. (Entering a Contamination Area requires an RWT II qualification.)

Radiation Protection Department Resources

"Radiation Protection Department", www.slac.stanford.edu/esh/rp/

SLAC Dosimeter / ID Badge Request Form A (for employees, SLAC-I-760-0A07J-006), http://www-group.slac.stanford.edu/esh/eshmanual/references/radFormDosimeterRequestA.pdf

SLAC Dosimeter / ID Badge Request Form B (for short-term visitors and subcontractors, SLAC-I-760-0A07J-007), http://www-group.slac.stanford.edu/esh/eshmanual/references/radFormDosimeterRequestB.pdf

ES&H Course 115, General Employee Radiological Training (GERT), https://www-internal.slac.stanford.edu/esh-db/training/slaconly/bin/catalog_item.asp?course=115

ES&H Course 116, Radiological Worker Training Level I (RWT I), https://www-internal.slac.stanford.edu/esh-db/training/slaconly/bin/catalog_item.asp?course=116

SLAC Environment, Safety, and Health Manual (SLAC-I-720-0A29Z-001), Chapter 9, "Radiological Safety", http://www-group.slac.stanford.edu/esh/general/radiological_safety/policies.htm

*SLAC Radiological Control Manual (*SLAC-I-720-0A05Z), http://www-group.slac.stanford.edu/esh/documents/RCM.pdf