Chapter 9: Radiological Safety

Visitor Briefing

This briefing is to be read in person by the SLAC escort to visitor(s) before entering a controlled area, as part of the badging/dosimeter issuing process (see Radiological Safety: Personnel Dosimeter Requirements [SLAC-I-760-0A07S-001]).

1 Entry Restrictions

SLAC has many areas containing potentially hazardous equipment and materials that can pose a health risk. Therefore, access to certain areas at the laboratory is limited to those who have had the appropriate training, or are escorted by someone who has that training.

- Visitors are allowed to enter accelerator areas and controlled areas, including radiologically controlled areas (RCAs) only if escorted. Entry into an RCA may also require wearing a personnel dosimeter to monitor for radiation. If required, dosimeters will be worn as directed by the escort and returned to the escort at the end of the visit.

- Visitors are never allowed into radiological areas, such as radiation areas, high radiation areas, or contamination areas.

Table 1 shows common signs indicating different areas at SLAC. Areas themselves are shown on Controlled Areas and Radiologically Controlled Areas (RCAs).

When visitors are under escort, the following responsibilities apply:

- **Visitor:** understands there are unique hazards in certain areas; follows escort’s instructions; and if a badge and/or dosimeter are issued, returns them at the end of the visit

- **Escort:** briefs the visitor on safety requirements, including reading this document to him if entering a controlled area; provides safety directions; and accepts responsibility for his safety while his SLAC escort. Training is current and sufficient to provide escort to the listed areas. Maintains visual contact at all times and ensures that the escorted person does not engage in non-green work without proper work authorization and release. Must wear dosimeter at all times and ensure that the escorted person wears a dosimeter if entering/staying in an RCA for more than one working day (8 hours) per year.

2 Regulatory Limits

The annual dose limit for visitors is 100 millirems per year. The average annual dose received from natural background sources is about 360 millirems per year.
3 Risks Associated with Radiation Exposure

The increased risk of cancer from occupational radiation exposure is small when compared to the overall cancer rate in the United States. Factors that affect the level of risk include the radiation dose level and the area of the body that is exposed. Radiation-induced genetic disorders that are passed on to future generations are called heritable effects. Such effects have been found in plants and animals but not in humans. The risk of heritable effects from ionizing radiation is considered to be very small when compared to the normal rate of genetic disorder.

4 Prenatal Radiation Exposure

The embryo-fetus is known to be more sensitive to radiation than adults due to the rapid division rate of developing cells. Radiation doses can increase the chances that the child will experience slower growth or mental development, or develop childhood cancer. Women who are or may be pregnant, or who are planning a pregnancy, should consult with the Radiation Protection Department before the visit.

Table 1 Common Area Classification Signs To Be Observed at SLAC

<table>
<thead>
<tr>
<th>Entry Restriction</th>
<th>Common Signs</th>
</tr>
</thead>
<tbody>
<tr>
<td>Visitors are allowed only if escorted (accelerator areas and controlled areas)</td>
<td><img src="image1" alt="Signs" /></td>
</tr>
<tr>
<td>Visitors are never allowed (radiological areas)</td>
<td><img src="image2" alt="Signs" /></td>
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