The University also has an established radiation safety program that oversees the safe use of radiation and ensures that all exposures are kept as low as reasonably achievable (ALARA).

**Occupational monitoring**
- May be used for radiation workers to track their radiation exposure
- Ensures the doses are kept below the regulatory limits and the University ALARA program limits (see Table 1)
  - Set at a fraction of the regulatory limits

### Table 1. ALARA program limits

<table>
<thead>
<tr>
<th>Tissue of Interest</th>
<th>Annual Dose Limit (mrem)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Whole Body</td>
<td>5000</td>
</tr>
<tr>
<td>Organ</td>
<td>50,000</td>
</tr>
<tr>
<td>Skin and Extremities</td>
<td>50,000</td>
</tr>
<tr>
<td>Lens of the Eye</td>
<td>15,000</td>
</tr>
<tr>
<td>Member of the Public</td>
<td>100</td>
</tr>
</tbody>
</table>

- Separate limit for exposure to the fetus for pregnant radiation workers that requires declaration in writing to the Radiation Safety Officer
  - This limit is 500 mrem to the fetus over the course of the pregnancy

**Emergencies**
- In the event of an emergency involving accidental exposure or personnel contamination with radioactive material, contact University Police at 303-724-4444
- For more information, reach out to the **University Radiation Safety Office**
  - 303-724-0128

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**What is ionizing radiation?**
- Electromagnetic radiation that has sufficient energy to displace electrons from an atom and break molecular bonds

**How does radiation affect us?**
- Interacts with the matter in our bodies and deposits energy
- The amount of energy deposited is quantified as *dose received*
- Regulatory limits to how much a member of the public or radiation worker can receive
  - Dose limits are set at low levels, well below the level to potentially cause biological effects such as cancer or cataracts

**What is the difference between contamination and exposure?**
- Different types of radiation sources have different risks: mainly exposure vs contamination (see Figure 2)
  - X-ray devices will only produce exposure- no radiation present when the device is turned off
  - Radioactive materials have the potential to result in exposure and/or contamination, which is why safe handling is important
    - Addressed in more detail in radiation worker training

**How do we protect ourselves?**
- Radiation protection relies on three principles: time, distance, and shielding (see Figure 1)
  - Less time spent near source = less radiation received
  - Greater distance from source = less radiation received
  - Proper shielding = less radiation received

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**What is ionizing radiation?**

**How does radiation affect us?**

**What is the difference between contamination and exposure?**

**How do we protect ourselves?**

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**The following is general information for those involved in the use of radioactive materials. Contact occupational.health@cuanschutz.edu if you have any questions.**
Figure 2. Radiation contamination vs. exposure

For more information, refer to the Occupational Health website
https://research.cuanschutz.edu/ehs/home/divisions/occupational-health

or contact Occupational Health at occupational.health@cuanschutz.edu