



### Radiation Exposure Limits

State and Federal regulators set low-risk annual exposure limits. Additionally, the Radiation Safety Committee set lower exposure goals based on the principle of "**As Low As Reasonably Achievable**" (**ALARA**). The annual occupational exposure limits and goals are shown below:

#### Annual Occupational Exposure Limits

Type of Exposure	Annual State Limit	Harvard Goal
Whole body (head and trunk), active blood forming organs, gonads	5,000 mrem <i>(total effective dose equivalent)</i>	500 mrem
Lens of the eye	15,000 mrem	1,500 mrem
Skin, extremities	50,000 mrem	5,000 mrem
Embryo/Fetus	500 mrem (9 months)	50 mrem (9 months)

The occupational dose limits are set so that an exposed person will not exceed the safe industry risk while working with radiation (at the annual exposure limit for a 50-year period). Declared pregnant workers have lower limits that include additional considerations for the embryo/fetus.

Most users' radiation exposures are well below Harvard's exposure goals. In addition, the RSC has set Investigation Levels, which would initiate an investigation by RSS. Based on a review of the exposure(s), RSS will recommend appropriate safety measures to maintain exposures **ALARA**. These Investigation Levels (note these are per calendar quarter) are shown in the table below along with the annual exposure goals.

#### ALARA Goals and Investigation Levels

Type of Exposure	Goal <i>(mrem/yr)</i>	Investigation Levels	
		I <i>(mrem/qtr)</i>	II <i>(mrem/qtr)</i>
Whole body (head and trunk), active blood forming organs, gonads	500	125	375
Lens of eye	1500	375	1125
Skin, Extremities	5000	1250	3750
Embryo/Fetus	50 <i>(per 9 months)</i>	20	60

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#### Laboratory Safety

<b>Definition of Terms</b>	
<b>Extremities:</b>	Are those parts of the body located from the elbows and knees down.
<b>Investigation Level:</b>	Are set dose values, which, if exceeded, would prompt investigation of the exposure and safety measures by the Radiation Protection Office.
<b>mrem:</b>	Is the unit of measure for the equivalent dose (measure of effect on human tissue). It is read as "millirem".
<b>Trunk:</b>	Is that part of the body from the knees and elbows up. This includes the internal organs within, as well as the reproductive organs.
<b>Whole Body:</b>	Refers to the trunk of the body and the head.

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