

Radiology Compliance Branch
RADIATION PROTECTION SECTION



Division of Health Service Regulation • N.C. Department of Health and Human Services

DOSE LIMITS

Rule .0104 (10) "ALARA" (acronym for "as low as reasonably achievable")

Making every reasonable effort to maintain exposures to radiation as far below the dose limits as is practical consistent with the purpose for which the licensed or registered activity is undertaken, taking into account the state of technology, the economics of improvements in relation to benefits to the public health and safety, and other societal and socioeconomic considerations, and in relation to utilization of sources of radiation in the public interest.

Since the mid-1950s, radiation safety standards have included provisions for incorporating the philosophy of As Low As Reasonably Achievable into safety programs.

Rule .0104 (65) "Limits" or "dose limits"

The permissible upper bounds of radiation dose are termed limits or dose limits. Dose limits represent an acceptable level of potential risk and do not represent a level that will necessarily be unsafe if exceeded.

Rule .1604 (a) Occupational Dose Limits for Adults

❖ 5 rems (5000 mrem) (0.05Sv)	=	Total effective dose equivalent (TEDE)
❖ 50 rems (50,000 mrem) (.5 Sv)	=	Total Organ doses equivalent (TODE)
❖ 15 rems (15,000 mrem) (.15 Sv)	=	Eye dose equivalent
❖ 50 rems (50,000 mrem) (.5 Sv)	=	Shallow dose equivalent (SDE)

The facility should set action limits for the eventuality for exposure.

Level I	Those persons with TEDE that are less than one-tenth the acceptable dose limit for occupational and non-occupational. No action is necessary.
Level II	The Radiation Safety Officer should report Level II exposures to the Radiation Safety Committee.
Level III	The RSO will investigate the cause of the high exposure, and any necessary preventive action. An incident report may be needed.

Rule .1641: Records of Dose to Individual Members of the Public

*(a) Each licensee or registrant shall maintain records sufficient to demonstrate compliance with dose limit for individual members of the public required by **Rule .1611**. These records may include such things as survey results, monitoring results, calculations and other documents pertaining to the determination of doses to individual members of the public.*

(b) The licensee or registrant shall retain the records required by paragraph (a) of this rule until the agency terminates each pertinent license or registration requiring the record.



Background radiation comes from three sources:	
Terrestrial-radiation from soil and rocks	50 mrem
Cosmic-radiation from outer space	50 mrem
Radioactivity normally found within the human body	25 mrem
Other Radiation Sources:	
Television	1.0 mrem
Computer terminal	0.1 mrem
Home smoke detector	0.008 mrem
X-Ray luggage inspection machines	0.002 mrem
Radiation in our daily lives	300 mrem/yr
Chest X-ray	10-20 mrem
Average X-ray dose for a complete mammogram (four views)	150 mrem
Complete dental X-rays	130 mrem/exposure
Denver (one year)	300 mrem
San Francisco (one year)	120 mrem
New York (one year)	135 mrem
Houston (one year)	90 mrem

****To see DOSE LIMIT information for Pregnancy, [Click Here.](#)**

