

Definitions

Administrative Control Level (ACL)

A dose level that is established below the DOE dose limit in order to administratively control exposures. ACLs are multi-tiered, with increasing levels of authority required to approve a higher level of exposure.

As Low As Reasonably Achievable (ALARA)

ALARA means “As Low As is Reasonably Achievable,” which is the approach to radiation protection to manage and control exposures (both individual and collective) to the work force and to the general public to as low as is reasonable, taking into account social, technical, economic, practical, and public policy considerations. As used in this part, ALARA is not a dose limit but a process which has the objective of attaining doses as far below the applicable limits of this part as is reasonably achievable.

[10 CFR 835.2]

Average Measurable Dose

The dose obtained by dividing the collective dose by the number of individuals who received a measurable dose. This is the average most commonly used in this and other reports when examining trends and comparing doses received by workers, because it reflects the exclusion of those individuals receiving a less than measurable dose. In this report, average measurable dose is calculated for total effective dose (TED) and committed effective dose (CED).

Collective Dose

The sum of doses to all individuals in a population for a period of time. The general term “collective dose” is used whenever the dose may refer to more than one type of dose. In cases where the type of dose is specified, the term “collective” is followed by the type of dose such as the TED, CED, or photon. In all cases, the population is the group of DOE workers that were monitored for occupational radiation exposure, and the period of time is the monitoring year. Collective dose is expressed in units of person-rem.

Committed Effective Dose (CED) ($H_{E,50}$)

Committed effective dose (E_{50}) means the sum of the committed equivalent doses to various tissues or organs in the body ($H_{T,50}$), each multiplied by the appropriate tissue weighting factor (w_T)—that is, $E_{50} = \sum w_T H_{T,50} + w_{\text{Remainder}} H_{\text{Remainder},50}$. Where $w_{\text{Remainder}}$ is the tissue weighting factor assigned to the remainder organs and tissues and $H_{\text{Remainder},50}$ is the committed equivalent dose to the remainder organs and tissues. Committed effective dose is expressed in units of rem (or Sv). [10 CFR 835.2]

Committed Equivalent Dose (CEqD) ($H_{T,50}$)

Committed equivalent dose ($H_{T,50}$) means the equivalent dose calculated to be received by a tissue or organ over a 50-year period after the intake of a radionuclide into the body. It does not include contributions from radiation sources external to the body. Committed equivalent dose is expressed in units of rem (or Sv).

[10 CFR 835.2]

Dose

Dose is a general term for absorbed dose, equivalent dose, effective dose, committed equivalent dose, committed effective dose, or total effective dose as defined in this part. [10 CFR 835.2]

Effective Dose

Effective dose (E) means the summation of the products of the equivalent dose received by specified tissues or organs of the body (H_T) and the appropriate tissue weighting factor (w_T)—that is, $E = \sum w_T H_T$. It includes the dose from radiation sources internal and/or external to the body. For purposes of compliance with this part, equivalent dose to the whole body may be used as effective dose for external exposures. The effective dose is expressed in units of rem (or Sv). [10 CFR 835.2]

Equivalent Dose (EqD)

Equivalent dose (H_T) means the product of average absorbed dose ($D_{T,R}$) in rad (or gray) in a tissue or organ (T) and a radiation (R) weighting factor (w_R). For external dose, the equivalent dose to the whole body is assessed at a depth of 1 cm in tissue; the equivalent dose to the lens of the eye is assessed at a depth of 0.3 cm in tissue, and the equivalent dose to the extremity and skin is assessed at a depth of 0.007 cm in tissue. Equivalent dose is expressed in units of rem (or Sv). [10 CFR 835.2]

Measurable Dose

A dose greater than zero rem (not including doses reported as “not detectable”).

Member of the Public

Member of the public means an individual who is not a general employee. An individual is not a “member of the public” during any period in which the individual receives an occupational dose. [10 CFR 835.2] The definition of general employee is specified in 10 CFR 835.

Number of Individuals with Measurable Dose

The subset of all monitored individuals who receive a measurable dose (greater than the limit of detection for the monitoring system). Many personnel are monitored as a matter of prudence and may not receive a measurable dose. For this reason, the number of individuals with measurable dose is presented in this report as a more accurate indicator of the exposed workforce. The number of individuals represents the number of dose records reported. Some individuals may be counted more than once if multiple dose records are reported for the individual during the year.

Occupational Exposure

An individual's exposure to ionizing radiation (external and internal) as a result of that individual's work assignment. Occupational exposure does not include planned special exposures, exposure received as a medical patient, background radiation, or voluntary participation in medical research programs.

Person-rem

The unit of measurement used for the collective dose to all DOE employees, contractors, and subcontractors.

Rem

A unit of dose derived from the phrase roentgen equivalent man. The rem is equal to 0.010 Sv, which is the international unit of measurement for radiation exposure.

Total Effective Dose (TED)

Total effective dose (TED) means the sum of the effective dose (for external exposures) and the committed effective dose. [10 CFR 835.2]

Total number of records for monitored individuals

All individuals who are monitored and reported to the DOE Headquarters database system. This includes DOE employees, contractors, subcontractors, and members of the public monitored during a visit to a DOE site. The number of individuals represents the number of dose records reported. Some individuals may be counted more than once if multiple dose records are reported for the individual during the year.

Total Organ Dose

The sum of the equivalent dose to the whole body for external exposures and the committed equivalent dose to any organ or tissue other than the skin or the lens of the eye.

Transient Individual

An individual who is monitored at more than one DOE site during the calendar year.

Urinalysis

The technique of determining the amount of radioactive material in the urine excreted from the body.