
Glossary

absorbed dose — The amount of radiation energy absorbed, especially by human tissue; measured in rads.

acceptable level of risk — A level of risk associated with a particular activity at which dangers are acceptable to the evaluator.

accessible environment — The area surrounding a nuclear waste disposal site.

acute exposure — Large exposure received over a short period of time.

alpha particle — A positively charged particle emitted in the radioactive decay of certain radioactive atoms. An alpha particle is identical to the nucleus of the helium atom.

atom — The smallest part of a chemical element that has all the chemical properties of that element.

atomic — Of or relating to an atom.

atomic number — The number of protons (or number of positive charges) in the nucleus of an atom. The number of protons determines what an atom is chemically, and, hence, identifies it as belonging to a certain chemical element.

atomic weight — The sum of the protons and neutrons in the nucleus of an atom.

axis — (geography) A straight line about which a body is symmetrical. (graphing) A reference line which distances are measured in a graph.

background radiation — The natural radioactivity in the environment. Background radiation consists of cosmic radiation from outer space, radiation from the radioactive elements in rocks and soil, and radiation from radon and its decay products in the air we breathe.

beta particle — A negatively charged particle that is emitted by certain radioactive atoms. A beta particle is identical to the electron.

cancer — An abnormal mass of new tissue growing uncontrollably on or in the body; a disease in which such growths form.

catastrophic — Disastrous.

cosmic radiation — Energetic particles and rays from space that strike the Earth at nearly the speed of light.

decay product — The isotope produced by the decay of a radioactive isotope.

DNA (deoxyribonucleic acid) — The part of living cells that determines hereditary characteristics. It consists of two long chains of alternating phosphate and deoxyribose units twisted into a double helix and joined at the axis of the helix by hydrogen bonds between complementary base pairs (adenine and thymine or cytosine and guanine). The linear sequences of base pairs make up the "genes" that determine hereditary characteristics.

electromagnetic spectrum — The complete range of frequencies of electromagnetic waves from the lowest to the highest, including radio infrared, visible light, ultraviolet, X-ray, gamma ray, and cosmic ray waves.

electron — A subatomic particle with a negative charge. The electron circles the nucleus of an atom.

emit — To send out.

erg — An extremely small amount of energy. Example: to raise a pound weight one foot would require about 13.6 million ergs.

exponent — A symbol above and to the right of a mathematical expression to indicate the operation of raising to a power.

factor — Any of the numbers or symbols in mathematics that yield a product when multiplied together. Any related or relevant subject considered to reach a conclusion.

fission — The splitting of a fissionable nucleus into two smaller, nearly equal, radioactive nuclei, accompanied by the emission of two or more neutrons and a significant amount of energy. Fission in a nuclear reactor is initiated by the fissionable nucleus absorbing a neutron.

frequency — The number of cycles per second of a wave.

gamma ray — Gamma radiation emitted during the radioactive decay of certain radioactive materials.

genetic effect — Effect that can be transferred from parent to offspring.

global — Of or pertaining to the whole world, worldwide.

gonad — One of the primary sex glands. For example: ovaries, testes.

half-life — The amount of time needed for half of the atoms in a quantity of a radioisotope to decay.

ion — Atom, molecule, or molecular fragment carrying a positive or negative electrical charge.

ionization — The production of ions from neutral atoms or molecules by some process. For example, exposure to ionizing radiation.

ionizing radiation — Radiation that has enough energy to remove electrons from substances that it passes through, forming ions.

isolation — Inhibiting the migration of radioactive material to the extent that the amounts entering the accessible environment will not exceed prescribed limits.

isotope — Atoms of the same element that have equal numbers of protons but differing numbers

of neutrons.

kilogram — One thousand grams or 2.2046 pounds.

linear scale — Graph scale in which divisions are equal; straight line.

logarithmic scale — Graph scale in which some divisions represent powers of 10 (10⁰, 10¹, 10², 10³, etc.).

millirem — A unit of radiation exposure equal to one-thousandth of a rem.

molecule — The smallest unit into which a chemical compound containing two or more atoms can be divided and still keep all of its chemical characteristics.

mutation — A permanent, transmittable change in the characteristics of an offspring that makes it different from its parents.

neutron — A subatomic particle that appears in the nucleus of all atoms except hydrogen. Neutrons have no electrical charge.

noble gas — A gaseous chemical element that does not readily enter into chemical combination with other elements.

non-ionizing — Low energy radiation such as radio and television waves.

nuclear fuel cycle — The steps necessary to use uranium to produce electricity. These include mining and milling uranium, converting the uranium to a fuel-form, using the uranium as reactor fuel, and disposing of the waste.

nuclear radiation — Ionizing radiation (alpha, beta, and gamma) originating in the nuclei of radioactive atoms.

nuclear reactor — A device in which a fission chain reaction can be initiated, maintained, and controlled.

nucleus — The central part of an atom that contains the protons and neutrons.

nuclides — General term used for radioactive atoms, referred to as radionuclides.

primate hominid — Early manlike creature.

proton — A subatomic particle in the nucleus of an atom with about the same mass as the neutron but carrying a positive charge.

rad (Radiation Absorbed Dose) — A measurement of the energy deposited in any material by ionizing radiation. One rad is equal to the absorption of 100 ergs of energy in every gram of the

material exposed to the radiation.

radiation — Energy that moves through space in the form of particles or electromagnetic waves.

radiation sickness — Sickness that results from high exposure to radiation received in a short time. Common symptoms include: nausea, fatigue, vomiting, loss of teeth and hair, and in more severe cases damage to blood-forming tissue and decrease in red and white blood cells. In most cases, prompt medical treatment gradually restores patient's health.

radioactive decay — The spontaneous giving off of an alpha or beta particle or a gamma ray by a radioisotope.

radioisotope — A naturally occurring or artificially created radioactive isotope of a chemical element.

radiologist — Doctor who uses radiation to diagnose and treat medical problems.

radon — A radioactive noble gas.

rem — A unit of exposure to ionizing radiation in human tissue; an estimate of the health risk that exposure to ionizing radiation could have on human tissue.

somatic effect — Effect of radiation limited to the exposed individual.

spent fuel — Fuel that has been used in a nuclear reactor and then withdrawn. Spent fuel is thermally hot and highly radioactive.

sperm — Male reproductive cell that carries genetic material from the father to the offspring.

terrestrial radiation — The portion of natural radiation (background) that is emitted by naturally occurring radioactive materials in the Earth.

transition — The process of changing from one state or style to another; change from one element to another due to the process of radioactive decay.

transuranic — Having an atomic number greater than 92; elements with atomic numbers higher than the atomic number for uranium (92).

ultraviolet light — Light with wavelength shorter than visible light, but longer than X-rays.

uranium — A naturally occurring radioactive element with the atomic number 92 and an atomic weight of approximately 238.

X-ray — Electromagnetic radiation used in medical diagnosis.