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# Glossary

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

**atomic number** - The number of protons in the nucleus of an atom. There is a separate atomic number for each element. The atomic number is used to identify atoms as gold, oxygen, or some other element.

**byproduct** - Something produced in addition to the principal or intended product; often waste.

**ceramic pellets** - The form of enriched uranium when prepared for nuclear reactor fuel use.

**choropleth map** - Map with shaded areas.

**commercial** - An adjective meaning of or engaged in commerce; commonly used to designate an operation or business as not owned by the government.

**compact** - Regional grouping of States to aid in the disposal of commercial low-level radioactive waste generated within member States.

**controversial** - Arousing disagreement.

**cubic feet** - The volume of a cube measuring 1 foot in each dimension.

**cubic meter** - The volume of a cube measuring 1 meter in each dimension.

**defense high-level waste** - Nuclear waste from the recovery of plutonium from uranium-metal reactor fuel for defense activities.

**energy source** - A means of producing the power to do work. Examples are fossil fuels (coal, oil, natural gas); geothermal, solar, nuclear, tidal energy.

**Federally licensed sites** - Three sites licensed for the storage of low-level waste. They are in Barnwell, SC, Beatty, NV, and Hanford, WA. (*Note: A former site in Nevada ceased operation on January 1, 1993.*)

**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.

**fission products** - The radioactive atoms produced by the splitting of uranium-235 in a nuclear reactor.

**fossil fuel** - A natural, burnable substance formed from ancient plant or animal matter. Examples are coal, oil, and natural gas.

**frequency** - The number of cycles per second of a wave.

**frequency diagram** - A number line on which data can be arranged based on the frequency of occurrence.

**fuel assembly** - A grouping of nuclear fuel rods that is put into or taken out of a nuclear reactor core as a unit. The reactor core is made up of a collection of fuel assemblies.

**fuel pellets** - Small cylindrical units of uranium dioxide about 1/4-inch in diameter and about 1/2-inch long that make up the fuel used in a pressurized-water reactor or a boiling-water reactor.

**fuel rod** - Twelve- to fourteen-foot-long metal tube that holds fuel pellets.

**geographic** - Relating to the surface of the Earth.

**geographic distribution** - Distribution of an item, such as spent fuel, based on geographic location.

**gigawatt-hours** - A million kilowatt-hours, a measure of electricity (giga = one billion).

**high-level waste (HLW)** - Also called high-level nuclear waste. (1) the highly radioactive waste resulting from the reprocessing of spent nuclear fuel, including liquid waste produced directly in reprocessing and any solid material derived from such liquid waste; (2) spent nuclear fuel itself; and (3) other highly radioactive material that the Nuclear Regulatory Commission determines by rule, or the DOE determines by order, to require permanent isolation.

**inventory** - A list of types and volumes of goods.

**Low-Level Radioactive Waste Policy Act of 1980 (LLRWPA)** - The U.S. law governing disposal of low-level radioactive waste; amended in 1985.

**low-level waste** - Materials such as laboratory wastes and protective clothing that contain only small amounts of radioactivity.

**mapping** - The process of making a flat representation of an area.

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

**mill tailings** - The wastes from the recovery of uranium from its ore.

**neutron** - A sub-atomic particle that appears in the nucleus of all atoms except hydrogen. Neutrons have no electrical charge.

**nuclear chain reaction** - In a nuclear chain reaction, a fissionable nucleus absorbs a neutron and splits into two smaller, nearly equal nuclei, releasing additional neutrons. These in turn can be absorbed by other fissionable nuclei, releasing still more neutrons. This gives rise to a self-sustaining reaction.

**nuclear energy** - The energy released from the reactions of the nuclei of atoms.

**nuclear powerplant** - A powerplant that produces electricity from nuclear fission.

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

**nuclear waste** - Radioactive byproducts from any activity including energy and weapons production, as well as medical treatment and research.

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

**pie chart** - A circular chart cut into segments illustrating relative magnitudes.

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

**radioactive** - Of, caused by, or showing radioactivity.

**radioactive waste** - Waste resulting from work with radioactive materials.

**radioactivity** - The property possessed by some elements, such as uranium, of spontaneously emitting alpha or beta particles or gamma rays.

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

**repository** - Any system licensed by the Nuclear Regulatory Commission that is designed for the permanent deep geologic disposal of high-level nuclear waste, including spent nuclear fuel and high-level radioactive waste from defense activities.

**reprocessing** - Extraction of uranium and plutonium from spent fuel for reuse.

**shallow land burial** - The current disposal process for low-level waste. Placing canisters of low-level waste in shallow trenches and covering with earth or shielding.

**spatial** - Relating to a position in space.

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

**thematic map** - A map providing information about a single topic.

**transuranic** - An element with an atomic number higher than the atomic number for uranium (92).

**unaffiliated States** - States not belonging to a compact for low-level waste disposal.

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

**volume** - A quantity as determined by the space occupied.

**waste management** - The handling and directing of the unwanted byproducts from a manufacturing process.

**waste management system** - The collection of facilities, equipment, personnel, and sites to be developed and deployed under control of the U.S. Department of Energy's Office of Civilian Radioactive Waste Management to accomplish the permanent disposal of spent fuel and high-level waste from defense activities.