

The Language of Nuclear Power

Containment Structure – a gas-tight shell or other enclosure around a nuclear reactor to confine radioactive particles that otherwise might be released into the atmosphere in the unlikely event of an accident. Such enclosures are usually dome-shaped and made of steel-reinforced concrete.

Control rods – movable rods made of neutron-absorbing material used to regulate the nuclear fission process inside a reactor.

Core – the central part of a nuclear reactor containing the fuel and control rods. This is where nuclear fission takes place producing the heat that nuclear plants use to create steam and generate electricity.

Decommissioning – the process of closing down a nuclear reactor after its useful life and safely removing the equipment and structures.

Electrical switchyard – an array of equipment outside the generation part of a nuclear plant where electricity is transferred to the electric grid, the network of transmission lines carrying the power to neighborhoods served by the utility using the power.

Electricity – a form of energy; a stream of electrons.

Emergency Broadcast System – a network of radio and television stations which may be used by government officials to communicate emergency information to the public in the event of a serious incident at a nuclear power plant.

Emergency Planning Zone – the area 10 miles around a nuclear plant that could be adversely affected if a serious nuclear accident occurred.

Enriched uranium – uranium in which the percent of an isotope known as uranium-235 (235U) has been increased through the process called isotope separation from less than one percent – the natural amount – to between three and five percent. Thus, the naturally occurring part of uranium that can be split readily by fission, the heat producing process in a nuclear reactor, is increased. This small level of enrichment is far short of that required to create weapons-grade uranium.

Fission – splitting atoms, resulting in the release of large amounts of energy and heat. Fission occurs naturally or when an atom's nucleus is bombarded by neutrons, as is done in a nuclear reactor.

Fuel rods – metal rods holding uranium in the form of ceramic pellets.

High-level nuclear waste – used or “spent” fuel rods from a nuclear power plant.

Low-level waste – materials containing comparatively low levels of radioactivity such as products used in medical treatments.



Neutron – an uncharged subatomic particle. Neutrons are used to help create the fission process in nuclear reactors.

Potassium Iodide (KI pills) – Following a radiological or nuclear event, radioactive iodine may be released into the air and breathed into the lungs. Radioactive iodine may also contaminate the local food supply and get into the body through food or beverages. The thyroid gland quickly absorbs this chemical causing internal contamination. Non-radioactive KI acts to block radioactive iodine from being taken into the thyroid gland, it can help protect this gland from injury. KI pills are available without a prescription but, like all medications, should be used with prior medical consultation.

Public Education Zone – an area 10-20 miles from the plant, outside the Emergency Planning Zone, in which educational information regarding nuclear emergency planning and safety is provided.

Radiation – both a manmade and a natural occurrence produced by such sources as the sun's rays, elements in the earth's crust, material used to create the glow of some signs and equipment gauges, and medical X-ray equipment. Radiation is controllable and, at certain levels, is both harmless and helpful. Some forms of radiation are easily blocked by means such as paper or suntan lotions. Other stronger forms can be blocked by light metals, while still others require heavier metals. At controlled high levels, radiation is an invaluable tool harnessed by science to destroy cancer cells and generate power with virtually no emissions. However, at uncontrolled higher levels, radiation can be harmful, as with any form of energy.

Radiological Controlled Area

– work areas where potential radiation exposure exists, requiring monitoring to ensure minimal levels of exposure to employees.

Spent fuel – used fuel rods that can be safely stored indefinitely at nuclear plants and which eventually will be stored at a permanent national facility being developed by the U.S. Dept. of Energy.

Radiation Exposure – Safe & Harmful Levels

Units shown are millirems or one thousandth of a rem, the standard unit used to measure the effect on the human body of exposure to ionizing radiation.

1	The average daily background level a person receives from natural causes
5	Radiation received from cosmic rays during one round-trip airline flight across the country
10	Radiation from a common chest X-ray
25	The federal limit for radioactivity in water discharged from a nuclear power plant
300	The average annual background level a person receives from natural causes
1,000	The level at which federal guidelines call for an evacuation
5,000	The maximum annual limit for radiation workers by federal regulation
25,000	The maximum federal limit for workers assisting with a radiological emergency
100,000	The threshold for immediate clinical illness



Steam generators – large devices much like car radiators where heat from the primary reactor coolant system heats a secondary steam loop used to generate electricity without mixing the two water systems.

Turbine – a large piece of equipment in which high pressure steam is driven against blades much like wind blowing very large fan blades. The turbine shafts turn generator shafts, producing electricity.

Uranium – naturally occurring radioactive element found in the earth's crust used as fuel for nuclear power plants.