

GLOSSARY

A-weighted decibel (dBA) – A unit of weighted sound pressure level, measured by the use of a metering characteristic and the "A" weighting specified by American National Standard Institute SI.4-1971(R176). (See decibel).

Accident – One or more unplanned events involving materials that have the potential to endanger the health and safety of workers and the public. An accident can involve a combined release of energy and hazardous materials (radiological or chemical) that might cause prompt or latent adverse health effects.

Ambient air – The surrounding atmosphere as it exists around people, plants, and structures. Air quality standards are used to provide a measure of the health-related and visual characteristics of the air.

Archaeological sites (resources) – Any location where humans have altered the terrain or discarded artifacts during prehistoric or historic times.

Area of potential effects (APE) – Geographic area or areas within which an undertaking may directly or indirectly cause changes in the character or use of historic properties, if such properties exist. **Artifact** – An object produced or shaped by human workmanship of archaeological or historical interest.

As Low as Reasonably Achievable (ALARA) – A concept applied to ensure the quantity of radioactivity released to the environment and the radiation exposure of on-site workers in routine operations, including "anticipated operational occurrences," is maintained as low as reasonably achievable. It takes into account the state of technology, economics of improvements in relation to benefits to public health and safety, and other societal and economic considerations in relation to the use of nuclear energy in the public interest.

Background radiation – Ionizing radiation present in the environment from cosmic rays and natural sources in the Earth; background radiation varies considerably with location.

Baseline – A quantitative expression of conditions, costs, schedule, or technical progress to serve as a base or standard for measurement during the performance of an effort; the established plan against which the status of resources and progress of a project can be measured. For this environmental impact statement, the environmental baseline is the site environmental conditions as they exist or have been estimated to exist in the absence of the proposed action.

Base load – The minimum amount of electric power over a given period of time at a steady rate. The minimum continuous load or demand in a power system over a given period of time usually not temperature sensitive.

Base load capacity – The generating equipment normally operated to serve loads on an around-the-clock basis.

Benthic – Plants and animals dwelling at the bottom of oceans, lakes, rivers, and other surface waters.

Benthic macroinvertebrate – Organisms that are large enough to be seen without the aid of magnification and that live in close association with bottom of flowing and nonflowing bodies of water.

Best management practices (BMPs) – A practice or combination of practices that is determined by a state (or other planning agency) after problem assessment, examination of alternative practices, and appropriate public participation to be the most effective, practicable means of preventing or reducing the amount of pollution generated by nonpoint sources to a level compatible with air or water quality goals.

Block groups – U.S. Bureau of the Census term describing a cluster of blocks generally selected to include 250 to 550 housing units.

Blowdown – The wastewater released from cooling tower operations.

Burnup – The total energy released through fission by a given amount of nuclear fuel, generally measured in megawatt-days.

Cancer – The name given to a group of diseases characterized by uncontrolled cellular growth with cells having invasive characteristics such that the disease can transfer from one organ to another.

Capacity factor – The ratio of the annual average power production of a power plant to its rated capacity.

Canister – A stainless-steel container in which nuclear material is sealed.

Closed cycle – form of cooling tower operations that recycles water through cooling towers in order to decrease water withdrawal needs and aid in cooling of the returning wastewater (blowdown) prior to release to the environment.

Combined-cycle – type of gas turbine that uses a simple cycle as well as an additional system for waste heat recovery to increase efficiency of electrical generation.

Combustion turbine – machinery that converts the energy of hot compressed natural gases, produced by burning the natural gas fuel, into mechanical power to turn an electrical generator rotor.

Combustion turbine/combined-cycle – type of gas combustion turbine that uses a simple cycle gas combustion turbine as well as an additional system for waste heat recovery to increase efficiency of electrical generation.

Container – With regard to radioactive wastes, the metal envelope in the waste package that provides the primary containment function of the waste package and is designed to meet the containment requirements of 10 CFR Part 60.

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

Conductors – A wire or combination of wires not insulated from one another, suitable for carrying electric current.

Cooling water – Water pumped into a nuclear reactor or generator support equipment to cool components and prevent damage from the intense heat generated when the reactor or generator is operating.

Cultural resources – Archaeological sites, historical sites, architectural features, traditional use areas, and Native American sacred sites.

Cumulative impacts/effects – In an environmental impact statement, the impact on the environment which results from the incremental impact of the action when added to other past, present, and reasonably foreseeable future actions, regardless of what agency (Federal or nonfederal), private industry, or individual(s) undertakes such other actions. Cumulative impacts can result from individually minor but collectively significant actions taking place over a period of time (40 CFR §1508.7).

Current – The movement of electrons in the conductors or transmission lines.

Decay (radioactive) – The decrease in the amount of any radioactive material with the passage of time due to the spontaneous transformation of an unstable nuclide into a different nuclide or into a different energy state of the same nuclide; the emission of nuclear radiation (alpha, beta, neutron, or gamma radiation) is part of the process.

Decibel (dB) – A logarithmic unit of sound measurement that describes the magnitude of a particular quantity of sound pressure power with respect to a standard reference value, in general, a sound doubles in loudness for every increase of 10 decibels.

Decibel, A-weighted (dBA) – A unit of frequency-weighted sound pressure level, measured by the use of a metering characteristic and the "A" weighting specified by the American National Standards Institute (ANSI) S1.4-1983 (RI 594), that accounts for the frequency response of the human ear.

Decommissioning – The removal from service of facilities such as processing plants, waste tanks, and burial grounds, and the reduction or stabilization of radioactive contamination. Decommissioning includes decontamination, dismantling, and return of the area to original condition without restrictions or partial decontamination, isolation of remaining residues, and continuation of surveillance and restrictions. For nuclear power plants, the NRC defines decommissioning as the safe removal of a facility from service and reduction of residual radioactivity to a level that permits termination of the NRC license.

Decontamination – The actions taken to reduce or remove substances that pose a substantial present or potential hazard to human health or the environment, such as radioactive or chemical contamination from facilities, equipment, or soils by washing, heating, chemical or electrochemical action, mechanical cleaning, or other techniques.

Depleted uranium – A mixture of uranium isotopes where uranium-235 represents less than 0.7 percent of the uranium by mass.

Derate – Reduction in operating power production level.

Design-basis accident – Those accidents for which the risk to the public is great enough that the NRC requires plant design features and procedures to prevent unacceptable accident consequences.

Distribution (electrical) – The system of lines, transformers, and switches that connect the transmission network and customer load. The transport of electricity to ultimate use points such as homes and businesses. The portion of an electric system that is dedicated to delivering electric energy to an end user at relatively low voltages.

Dose – The energy imparted to matter by ionizing radiation. The unit of absorbed dose is the rad.

Dose equivalent – The product of absorbed dose in rad (or Gray) and a quality factor, which quantifies the effect of this type of radiation in tissue. Dose equivalent is expressed in units of rem or Sievert, where 1 rem equals 0.01 Sievert.

Drift – Effluent mist or spray carried into the atmosphere from cooling towers.

Drinking water standards – The level of constituents or characteristics in a drinking water supply specified in regulations under the Safe Drinking Water Act as the maximum permissible.

Effective dose equivalent – The sum of the products of the dose equivalent received by specified tissues of the body and a tissue-specific weighting factor. This sum is a risk-equivalent value and can be used to estimate the health effects risk to the exposed individual. The effective dose equivalent includes the committed effective dose equivalent from internal deposition of radionuclides, and the effective dose equivalent due to penetrating radiation from sources external to the body. Effective dose equivalent is expressed in units of rem or Sievert.

Effluent – A gas or liquid discharged into the environment.

Endangered species – Any species that is in danger of extinction throughout all or significant portions of its range. The Endangered Species Act of 1973, as amended, establishes procedures for placing species on the federal lists of endangered or threatened species.

Endangered Species Act (of 1973) – The Act requires Federal agencies, with the consultation and assistance of the Secretaries of the Interior and Commerce, to ensure that their actions likely will not jeopardize the continued existence of any endangered or threatened species, or adversely affect the habitat of such species.

Engineered safety features – For a nuclear facility, features that prevent, limit, or mitigate the release of radioactive material from its primary containment.

Entrainment – The involuntary capture and inclusion of organisms in streams of flowing water; a term often applied to the cooling water systems of power plants/reactors. The organisms involved may include phyto- and zooplankton, fish eggs and larvae (ichthyoplankton), shellfish larvae, and other forms of aquatic life.

Environment – The sum of all external conditions and influences affecting the life, development, and ultimately the survival of an organism.

Environmental justice – The fair treatment of people of all races, cultures, incomes, and educational levels with respect to the development, implementation, and enforcement of environmental laws, regulations, and policies. Fair treatment implies that no population of people should be forced to shoulder a disproportionate share of the negative environmental impacts of pollution or environmental hazards due to a lack of political or economic influence.

Exposure to radiation – The incidence of radiation on living or inanimate material by accident or intent. Background exposure is the exposure to natural background ionizing radiation. Occupational exposure is the exposure to ionizing radiation that occurs at a person's workplace. Population exposure is the exposure to a number of persons who inhabit an area.

Exposure pathway – The course a chemical or physical agent takes from the source to the exposed organism. The pathway describes a unique mechanism by which an individual or population is exposed to chemicals or physical agents at or originating from the site. Each exposure pathway includes a source or release from a source, an exposure point, and an exposure route. If the exposure point differs from the source, a transport/exposure medium (e.g., air) is included.

Fission (fissioning) – The splitting of a nucleus into at least two other nuclei and the release of energy.

Fission products – Nuclei formed by the fission of heavy elements (primary fission products); also, the nuclei formed by the decay of the primary fission products, many of which are radioactive.

Floodplain – The lowlands adjoining inland and coastal waters and relatively flat areas.

Fuel assembly – A cluster of fuel rods (or plates), also called a fuel element. Approximately 193 fuel assemblies make up a reactor core.

Fuel rod – Nuclear reactor component that includes the fissile material.

Gigawatt – One gigawatt is 1,000,000,000 (billion) watts. A watt is a standard unit of power that is equal to one joule of energy per second. For electrical power, one watt is equal to one ampere of current per second.

Gigawatt hour – A measure of electrical energy equivalent to a power consumption of 1,000,000,000 (billion) watts for 1 hour.

Habitat – The environment occupied by individuals of a particular species, population, or community.

Hazardous material – A material, including a hazardous substance, as defined by 49 CFR §171.8, which poses a risk to health, safety, and property when transported or handled.

Hazardous waste – Any solid waste (can also be semisolid or liquid, or contain gaseous material) having the characteristics of ignitability, corrosiveness, toxicity, or reactivity, defined by the Resource Conservation and Recovery Act, and identified or listed in 40 CFR Part 261 or by the Toxic Substances Control Act.

Heat exchanger – A device that transfers heat from one fluid (liquid or gas) to another.

High efficiency particulate air filter (HEPA) – A filter used to remove very small particulates from dry gaseous effluent streams.

High(ly) enriched uranium – Uranium that is equal to or greater than 20 percent uranium-235 weight.

High-level radioactive waste – High level for this SEIS is limited to the irradiated spent fuel generated at SQN.

Historic resources – Archaeological sites, architectural structures, and objects produced after the advent of written history dating to the time of the first Euro-American contact in an area.

Impingement – The process by which aquatic organisms too large to pass through the screens of a water intake structure become caught on the screens and are unable to escape.

Ion – An atom that has too many or too few electrons, causing it to be electrically charged; an electron that is not associated (in orbit) with a nucleus.

Ion exchange – A physiochemical process that removes anions and cations, including radionuclides, from liquid streams (usually water) for the purpose of purification or decontamination.

Irradiation – Exposure to radiation.

Isotope – An atom of a chemical element with a specific atomic number and atomic mass. Isotopes of the same element have the same number of protons, but different numbers of neutrons and different atomic masses. Isotopes are identified by the name of the element and the total number of protons and neutrons in the nucleus. For example, plutonium-239 is a plutonium atom with 239 protons and neutrons.

Kilowatt hour (KWh) – A measure of electrical energy equivalent to a power consumption of 1000 watts for 1 hour. The kilowatt-hour of energy is the commercial unit of choice to convey how many kilowatt hours of energy are consumed and the price per kilowatt hour.

License amendment – Changes to an existing reactor's operating license that are approved by the U.S. Nuclear Regulatory Commission.

Light water – The common form of water (a molecule with two hydrogen atoms and one oxygen atom, H₂O) in which the hydrogen atom consists completely of the normal hydrogen isotope (one proton).

Light water reactor – A nuclear reactor in which circulating light water is used to cool the reactor core and to moderate (reduce the energy of) the neutrons created in the core by the fission reactions.

Low-level radioactive waste (LLRW) – Waste that contains radioactivity, but is not classified as high-level waste, transuranic waste, spent nuclear fuel, or by-product material as defined by Section 102 of the Atomic Energy Act of 1954, as amended. LLRW for this SEIS is any radioactive waste generated at SQN other than spent fuel.

Makeup water – Replacement for water lost through drift, blowdown, or evaporation (as in a cooling tower).

Man-rem – Unit of radiation dose to an individual.

Maximally exposed individual – A hypothetical person who could potentially receive the maximum dose of radiation or hazardous chemicals.

Megawatt (MW) – A unit of power equal to 1 million watts. "Megawatt-thermal" is commonly used to define heat produced, while "megawatt-electric" defines electricity produced.

Millirem – One thousandth of a rem.

Minority population – A population classified by the Bureau of the Census as Black, Hispanic, Asian and Pacific Islander, American Indian, Eskimo, Aleut, and other nonwhite persons, the composition of which is at least equal to or greater than the state minority average of a defined area of jurisdiction.

National Ambient Air Quality Standards (NAAQS) – Uniform, national air quality standards established by the Environmental Protection Agency under the authority of the Clean Air Act that restrict ambient levels of criteria pollutants to protect public health (primary standards) or public welfare (secondary standards), including plant and animal life, visibility, and materials. Standards have been set for ozone, carbon monoxide, particulates, sulfur dioxide, nitrogen dioxide, and lead.

National Historic Preservation Act (NHPA) – This Act provides that property resources with significant national historic value be placed on the National Register of Historic Places. It does not require any permits, but, pursuant to Federal code, if a proposed action might impact an historic property resource, it mandates consultation with the proper agencies.

National pollutant discharge elimination system (NPDES) – Federal permitting system required for water pollution effluents under the Clean Water Act, as amended.

National Register of Historic Places (NRHP) – A list maintained by the Secretary of the Interior of districts, sites, buildings, structures, and objects of prehistoric or historic local, state, or national significance under Section 2(b) of the Historic Sites Act of 1935 (16 USC 462) and Section 101(a) (1) (A) of the National Historic Preservation Act of 1966, as amended.

Nuclear reactor – A device that sustains a controlled nuclear fission chain reaction, which releases energy in the form of heat.

Nuclear Regulatory Commission (NRC) – The federal agency that regulates the civilian nuclear power industry in the United States.

Nuclide – A species of atom characterized by the constitution of its nucleus and, hence, by the number of protons, the number of neutrons, and the energy content.

Outfall – The discharge point of a drain, sewer, or pipe as it empties into a body of water.

Peak load – The maximum load consumed or produced by a unit or group of units in a stated period of time.

Person-rem – The unit of collective radiation dose to a given population; the sum of the individual doses received by a population segment.

Plume – A flowing, often somewhat conical, trail of emissions from a continuous point source.

Power service area – Region of the country that TVA is responsible for supplying electrical power and services to its customers.

Pressurized water reactor – A light water reactor in which heat is transferred from the core to an exchanger by water kept under pressure in the primary system. Steam is generated in a secondary circuit. Many reactors producing electric power are PWRs.

Primary system – With regard to nuclear reactors, the system that circulates a coolant (e.g., water) through the reactor core to remove the heat of reaction.

Probabilistic safety assessment – A systematic and comprehensive methodology of determining the risks associated with the operation of a nuclear plant.

Probable maximum flood – The hypothetical flood (peak discharge, volume, and hydrograph shape) that is considered to be the most severe reasonably possible, based on comprehensive hydrometeorological application of Probable Maximum Precipitation, and other hydrologic factors favorable for maximum flood runoff, such as sequential storms and snowmelt.

Probable maximum precipitation – The theoretically greatest depth of precipitation for a given duration that is physically possible over a particular drainage area at a certain time of year. (Reference: American Meteorological Society, 1959).

Radiation – The emitted particles or photons from the nuclei of radioactive atoms. Some elements are naturally radioactive; others are induced to become radioactive by bombardment in a reactor. Naturally occurring radiation is indistinguishable from induced radiation.

Radioactive waste – Materials from nuclear operations that are radioactive or are contaminated with radioactive material and for which use, reuse, or recovery are impractical.

Radioactivity – The spontaneous decay or disintegration of unstable atomic nuclei, accompanied by the emission of radiation.

Radiological – Related to radiology, the science that deals with the use of ionizing radiation to diagnose and treat disease.

Radwaste – Radioactive materials at the end of their useful life or in a product that is no longer useful and requires proper disposal.

Raw water – Untreated water from the plant intake supplied to the circulating water system and the service water system to make up for water which has been consumed and discharged as part of the system operations.

Reactor – A device or apparatus in which a chain reaction of fissionable material is initiated and controlled; a nuclear reactor.

Reactor accident – See "design-basis accident; severe accident."

Reactor coolant system – The system used to transfer energy from the reactor core either directly or indirectly to the heat rejection system.

Reactor core – In a light water reactor: the fuel assemblies including the fuel and target rods, control rods, and coolant/moderator.

Record of decision (ROD) – A document prepared in accordance with the requirements of the Council on Environmental Quality and National Environmental Policy Act regulations 40 CFR §1505.2, that provides a concise public record of the decision on a proposed Federal action for which an environmental impact statement was prepared. A record of decision identifies the alternatives considered in reaching the decision, the environmentally preferable alternative(s), factors balanced in making the decision, whether all practicable means to avoid or minimize environmental harm have been adopted, and if not, why they were not adopted.

Repository – A place for the disposal of immobilized high-level waste and spent nuclear fuel in isolation from the environment.

Resin – An ion-exchange medium; organic polymer used for the preferential removal of certain ions from a solution.

Risk – In accident analysis, the probability-weighted consequence of an accident, defined as the accident frequency per year multiplied by the dose. The term "risk" also is used commonly in other applications to describe the probability of an event occurring.

Risk assessment (chemical or radiological) – The qualitative and quantitative evaluation performed in an effort to define the risk posed to human health and/or the environment by the presence or potential presence and/or use of specific chemical or radiological materials.

Runoff – The portion of rainfall, melted snow, or irrigation water that flows across the ground surface and eventually enters streams.

Safety analysis report (SAR) – A safety document that provides a complete description and safety analysis of a reactor design, normal and emergency operations, hypothetical accidents and their predicted consequences, and the means proposed to prevent such accidents or mitigate their consequences.

Scoping – The solicitation of comments from interested persons, groups, and agencies at public meetings, public workshops, in writing, electronically, or via fax to assist in defining the proposed action, identifying alternatives, and developing preliminary issues to be addressed in an environmental impact statement.

Seismic Category I – Safety-related structures, systems, and components that are designed and built to withstand the maximum potential earthquake stresses for the particular region where a nuclear plant is sited, without loss of capability to perform their safety functions.

Seismicity – The tendency for earthquakes to occur.

Severe accident – Severe accidents are defined as accidents with substantial damage to the reactor core and degradation of containment systems. A reactor accident that would have more severe consequences than a design-basis accident, in terms of damage to the facility, off-site consequences, or both. Also called "beyond-design-basis accidents" for this supplemental environmental impact statement.

Shutdown – That condition in which the reactor has ceased operation and the operator has declared officially that it does not intend to operate it further.

Spent nuclear fuel – Fuel that has been withdrawn from a nuclear reactor following irradiation, the constituent elements of which have not be separated.

Sintered – Formed into a mass by heat and pressure.

Threatened species – Any species designated under the Endangered Species Act as likely to become an endangered species within the foreseeable future throughout all or a significant portion of its range.

Transient – A change in the reactor coolant system temperature, pressure, or both, attributed to a change in the reactor's power output. Transients can be caused by (1) adding or removing neutron poisons, (2) increasing or decreasing electrical load on the turbine generator, or (3) accident conditions.

Tritiated (liquid) –Liquid, usually water, that contains tritium.

Tritium – A radioactive isotope of the element hydrogen with two neutrons and one proton. Common symbols for the isotope are "H-3" and "T." Tritium has a half-life of 12.3 years.

Uprate – The process of increasing the maximum power level at which a commercial nuclear power plant may operate.

Uranium – A heavy, silvery-white metallic element (atomic number 92) with several radioactive isotopes that is used as fuel in nuclear reactors.

Wetlands – Land or areas exhibiting the following: hydric soil conditions, saturated or inundated soil during some portion of the year, and plant species tolerant of such conditions; also, areas that are inundated or saturated by surface water or groundwater at a frequency and duration sufficient to support, and that under normal circumstances do support, a prevalence of vegetation typically adapted for life in saturated soil conditions. Wetlands generally include swamps, marshes, bogs, and similar areas.

Whole-body dose – With regard to radiation, the dose resulting from the uniform exposure of all organs and tissues in a human body. (Also see effective dose equivalent.)

χ/Q (Chi/Q) – The relative calculated air concentration due to a specific air release and atmospheric dispersion; units are (seconds per cubic meter). For example (Curies per cubic meter)/(Curies per second)= (seconds per cubic meter) or (grams per cubic meter)/(grams per second) = (seconds per cubic meter).

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