Attachment 3 Glossary

(1) *ALARA (As Low As Reasonably Achievable): A radiation protection philosophy requiring that personnel exposure to radiation and radioactive material be kept not only within regulatory limits but be maintained As Low As Reasonably Achievable in the light of current technology with appropriate consideration for economic and social factors and for the benefits to be expected. ALARA applies not only to minimizing occupational exposure to radiation workers, but also to limiting the radioactivity of plant effluent and minimizing the potential for exposure to the public.*

(2) *ANNUAL: Based on a calendar year unless otherwise designated.*

(3) *COMMITTED DOSE EQUIVALENT (CDE): Total Dose from internally deposited radionuclide over subsequent 50 year period to a specific organ.*

(4) *COMMITTED EFFECTIVE DOSE EQUIVALENT (CEDE): Sum of risk-weighted Committed Dose Equivalents to organs.*

(5) *CODE OF FEDERAL REGULATIONS: The Code of Federal Regulations is a codification of the general and permanent rules published in the Federal Register by the Executive departments and agencies of the Federal Government. The Code is divided into 50 titles that represent broad areas subject to Federal regulation. Each title is divided into chapters that usually bear the name of the issuing agency. Each chapter further subdivided into parts covering specific regulatory areas.*

(6) *COLD SHUTDOWN: A reactor condition in which the coolant temperature has been reduced to 200° F or below and the pressure has essentially been reduced to atmospheric pressure.*

(7) *CONTAMINATED AREA: An area where radioactive material is deposited where it is not desired.*

(8) *CO-OWNER - One of the four owners of the South Texas Project Electric Generating Station.*

(9) *DEEP DOSE EQUIVALENT (DDE): Dose equivalent from external radiation at a tissue depth of 1 centimeter.*

(10) *DERIVED AIR CONCENTRATION (DAC): The concentration of a given radionuclide in air.*

(11) *DOSE (Radiation): The quantity of radiation absorbed per unit of mass by the body or by any portion of the body. The unit of radiation dose is the RAD.*

(12) *DOSE EQUIVALENT: Quantity that expresses all radiations on a common scale for calculating the absorbed dose. It is defined as the product of the absorbed dose in rads and certain modifying factors. The unit is rem.*

(13) *DOSE RATE: Dose delivered per unit time.*

(14) DOSIMETER: An instrument used for measuring the absorbed dose, exposure, or similar radiation quantity.

(15) DOSIMETRY: A system of dosimeters for evaluating the absorbed dose, exposure, or similar radiation quantity.

(16) EMERGENCY ALERT SYSTEM (EAS): A network of broadcast stations and interconnecting facilities authorized by the Federal Communications Commission to operate in a controlled manner during a war, state of public peril, disaster or other national, state and local emergencies.

(17) EMERGENCY PLANNING ZONE (EPZ): A generic area defined about a nuclear facility to facilitate offsite emergency planning and develop a significant response base. It is defined for the plume and ingestion exposure pathways.

(18) EVACUATION: The removal of people from an area on an emergency basis to avoid or reduce possible short term radiation exposure.

(19) EXPOSURE: Being exposed to ionizing radiation or to radioactive material.

(20) EXTERNAL DOSE: Dose from a source of radioactive material outside the body.

(21) FILTER, HEPA: High-efficiency particulate air filter.

(22) FRISKER: Radiation monitoring equipment. This is a hand-held probe that is slowly passed near the area of interest to determine the presence or absence of radioactive material.

(23) GAMMA RAYS: High-energy, short-wavelength electromagnetic radiation. Gamma rays are essentially similar to x-rays, but are usually more energetic and are nuclear in origin.

(24) GASEOUS EFFLUENT STREAM: Processed gaseous wastes containing radioactive materials resulting from the plant operation.

(25) GUIDELINES: The Severe Accident Management Guidelines are designated guidelines rather than procedures, because the specific actions discussed in the guidelines are not requirements, but rather are subject to evaluation and may be rejected or implemented according to the circumstances.

(26) HEALTH PHYSICS:

- *A profession devoted to the protection of man and his environment from unwarranted radiation exposure.*
- *A general term used as a modifying phrase that may refer to facilities, equipment, programs, etc. used in the discipline of health physics.*

(27) HIGH RADIATION AREA: Any area, accessible to personnel, in which there exists radiation originating in whole or in part within licensed material at such levels that a dose equivalent could be received in any one hour in excess of 100 millirem at 30 centimeters.

(28) HOSTILE ACTION: An act toward a nuclear power plant or its personnel that includes the use of violent force to destroy equipment, takes hostages, and/or intimidates the licensee to achieve an end. This includes attack by air, land, or water using guns, explosives, projectiles, vehicles, or other devices used to deliver destructive force. Other acts that satisfy the overall intent may be included. HOSTILE ACTION should not be construed to include acts of civil disobedience or felonious acts that are not part of a concerted attack on the nuclear power plant. Nonterrorism-based EALs should be used to address such activities, (e.g., violent acts between individuals in the owner controlled area.)

(29) INGESTION EXPOSURE PATHWAY (IPZ): The principal exposure from this pathway would be from ingestion of contaminated water or foods such as milk or fresh vegetables. The duration of principal exposures could range in length from hours to months.

(30) INSTITUTE OF NUCLEAR POWER OPERATIONS (INPO): An organization established by the utilities to set up standardized operations. By Letter of Agreement, INPO agrees to provide the service provided by their organization, coordinate the activities of the organization and provide telephone contacts of the organization during an emergency at the Station.

(31) INTERNAL DOSE: Dose from a source of radioactive material within the body (as a result of deposition of radionuclides in body tissue).

(32) IONIZATION CHAMBER: An instrument that detects and measures ionizing radiation by measuring the electrical current that flows when radiation ionizes gas in a chamber, making the gas a conductor of the electricity.

(33) JOINT INFORMATION CENTER (JIC): A Center set up in a central location where public information officers from the involved agencies come together to ensure coordination of information to be released to the media and the public. This center becomes the central point for media access to latest developments and emergency information. All information released is coordinated among the agencies involved to ensure its consistency and accuracy.

(34) LIQUID EFFLUENT STREAM: Processed liquid wastes containing radioactive materials resulting from the operation of a nuclear power reactor.

(35) LOSS OF COOLANT ACCIDENT (LOCA): A loss of coolant accident can result from an opening in the primary cooling system, such as a pipe break or a stuck open relief valve.

(36) MONITOR (Radiation): A radiation detector whose purpose is to measure the level of ionizing radiation (or quantity of radioactive material).

(37) MONITORING (Radiation): The continuous or periodic collection and assessment of pertinent information:

- *Determine the adequacy of radiation protection practices.*
- *Ascertain potentially significant changes in conditions or protection performance.*

(38) NUREG-0654 (Criteria for Preparation and Evaluation of Radiological Emergency Response Plans and Preparedness in Support of Nuclear Power Plants): The purpose of this guidance and upgraded acceptance criteria is to provide a basis for NRC licensees, and State and local governments to develop radiological emergency plans and improve emergency preparedness.

(39) OCCUPATIONAL DOSE: A dose received by a permanent or temporary employee while engaged in activities relating to the use, possession, or surveillance of licensed radioactive material or sources of ionizing radiation. Occupational dose shall not include any exposure of an individual to radiation for the purpose of medical diagnosis or therapy. Determination of occupational dose is the responsibility of the licensee.

(40) PERSONNEL MONITORING EQUIPMENT: Devices designed to be worn or carried by an individual for the purpose of measuring occupational radiation doses, e.g. thermoluminescent dosimeters, pocket dosimeters, and finger badges.

(41) PLUME EXPOSURE PATHWAY: The principal exposure sources from this pathway are:

- *external exposure to gamma radiation from the plume and from deposited materials and*
- *inhalation exposure from the passing radioactive plume.*

(42) POCKET DOSIMETER: An ionization chamber carried or worn by an individual for personnel dose monitoring.

(43) PORTAL MONITOR: A walk-through radiation detector whose purpose is to detect beta and gamma emitting contamination on personnel exiting selected areas.

(44) POSTED AREA: An area in which radiation and/or contamination exists or might exist at levels such that the use of warning signs or devices is required.

(45) PRIMARY COOLANT or REACTOR COOLANT SYSTEM: The fluid circulated through the reactor to remove heat.

(46) PROJECTED DOSE: An estimate of the radiation dose that affected individuals could potentially receive if protective actions are not taken.

(47) PROTECTION FACTOR: A measure of the protection afforded by a respirator; the ratio of the concentration of the radionuclide in the ambient atmosphere to the concentration inside the respiratory equipment (usually inside the facepiece) under conditions of use.

(48) PROTECTIVE ACTION: An action taken to avoid or reduce a projected dose.

(49) PROTECTIVE CLOTHING: Used interchangeably with the term anti-contamination clothing and has the same general meaning in radiation protection procedures.

(50) RAD: A measure of the dose produced by directly or indirectly ionizing radiation in terms of the energy absorbed per unit mass of any irradiated material. One rad is the dose corresponding to 100 ergs of absorbed energy per gram of irradiated material.

(51) RADIATION (Ionizing): Any or all of the following: alpha, beta, gamma, X-rays, neutrons, high speed protons or electrons, and other atomic particles (sound, radio waves, visible, and infrared or ultraviolet light are non-ionizing forms of radiation).

(52) RADIATION AREA: Any area, accessible to personnel, in which radiation levels could result in an individual receiving a dose equivalent in excess of 5 millirem in 1 Hour at 30 centimeters.

(53) RADIATION EXPOSURE: Refers very broadly to the act or state of being exposed to ionizing radiation.

(54) RADIATION PROTECTION: Used interchangeably with the term health physics.

(55) RADIATION WORK PERMIT (RWP): A document providing radiological evaluation and authorization to perform specific activities involving personnel exposure to ionizing radiation or radioactive material. It describes the radiological conditions and specifies radiation protection controls to be used when performing the activities.

(56) RADIOACTIVE CONTAMINATION: The presence of radioactive material in an undesired location. Contamination may be loose, fixed, or present in air.

(57) RADIONUCLIDE: A radioactive nuclide is one that has the capability of spontaneously emitting radiation.

(58) REACTOR TRIP (SCRAM): An automatic procedure by which control rods are rapidly inserted into the core of a reactor to stop the chain reaction.

(59) RECOVERY: The process of reducing radiation exposure rates and concentrations in the environment to acceptable levels for unconditional occupancy.

(60) RELOCATION: The removal or continued exclusion of people from contaminated areas to avoid chronic radiation exposure.

(61) REM: Special unit of any of the quantities expressed as dose equivalent. The dose equivalent in rems is equal to the absorbed dose in rads multiplied by the quality factor.

(62) SECONDARY COOLANT: A separate stream of coolant that is converted to steam by the primary coolant in a heat exchange (steam generator) to power the turbine.

(63) SELF-READING DOSIMETER: A self-reading dosimeter is a direct-reading pocket dosimeter shaped like a pen with a pocket clip. It is generally used to measure X and gamma radiation.

(64) SEVERE ACCIDENT:

PWR- A nuclear accident involving a loss of core cooling and damage so severe that there are core geometry changes and possible relocation of core materials, e.g. a core melt. In accordance with the Severe Accident Management Guidelines, a severe accident has occurred when core exit thermocouple temperatures are greater than 1200 degrees F and actions to cool the core have been, and continue to be, unsuccessful. The plant is outside of the Design Bases for the station.

BWR- A nuclear accident involving a loss of core cooling and damage so severe that there are core geometry changes and possible relocation of core materials, e.g. a core melt. In accordance with the Severe Accident Management Guidelines, a severe accident has occurred when fuel cladding temperature is greater than 2200 degrees F or reactor water level drops below the top of active fuel and actions to cool the core have been, and continue to be, unsuccessful. The plant is outside of the Design Bases for the station.

(65) SHELTER: The use of the closest available structure that will provide protection from exposure to an airborne plume.

(66) THERMOLUMINESCENT DOSIMETER (TLD): A dosimeter based on the effect of ionizing radiation on certain thermoluminescent crystals, in which radiation excites orbital electrons of some atoms to a higher energy state orbit than normal. Stimulating the crystal by controlled heating allows the electrons to return to normal orbit, thereby emitting discrete quanta of light proportional to the amount of ionizing radiation absorbed by the crystal. Emitted light can be measured and related to personnel dose from ionizing radiation.

(67) TOTAL EFFECTIVE DOSE EQUIVALENT (TEDE): Sum of the deep dose equivalent and the committed effective dose equivalent.

(68) X-RAY: Highly penetrating radiation similar to gamma rays.

(69) ZIRCALOY CLADDING: The outer covering (a zirconium alloy) in which the nuclear fuel is sealed.