

DEFINITIONS

A –

Absorbed dose:

The quantity of energy absorbed from ionization per unit mass of matter. The rad is unit of absorbed dose.

Access Control:

Refers to all activities accomplished for the purpose of controlling entry or reentry into a restricted zone due to the possibility of radiological contamination, and to minimize the radiation exposure of individuals. Control is needed to prevent unauthorized persons from entering and to allow entry by emergency workers on critical missions and those members of the general public who have essential needs to enter the restricted zone.

Accident Assessment:

The evaluation of the actual and potential consequences of a radiological incident.

Action levels:

Refers to thresholds for contamination levels that trigger the need for decontamination.

Activation:

(1) As used in this plan, the procedure of staffing and bringing emergency operations center or other key coordination facilities up to a level of operational readiness, making it fully functional for the management and support of a radiological incident response. (2) The process of making a material radioactive by bombardment with neutrons, protons, or nuclear radiation.

Activation of Personnel:

The process by which emergency response personnel are notified of an emergency situation and requested to report for duty. Activation of personnel is completed when the personnel have reported to their duty stations.

Acute Exposure:

An exposure to radiation that occurs over a short period of time, usually less than an hour

Adequate:

As used in FEMA reviews of radiological emergency plans and procedures, adequate means that the plan contents are consistent and in full compliance with the plan requirements delineated in the NUREG-0654 evaluation criteria or alternative approaches approved by FEMA.

Advisory Team (A-Team):

An emergency response group within the Federal Preparedness Coordinating Committee tasked with providing protective action recommendations to the State and local governments on behalf of its member agencies. The Advisory Team is incorporated into the National Response Framework.

Affected area:

A geographical area in which a release from a nuclear power plant is projected to result in radioactive exposures to the public.

Agency Lead Official (ALO):

The designated Federal official in each participating Federal agency authorized to direct that agency's response to a radiological emergency.

Air sampling:

The collection and analysis of samples of air to measure its radioactivity or to detect the presence of radioactive substances (See fall-out.)

Airborne radioactive material:

Any radioactive material dispersed in the air in the form of dusts, fumes, mists vapors or gases.

Alert:

The "Alert: classification would apply if events were in progress or have occurred which involve an actual or potential substantial degradation of the level of safety of the plant. Any releases are expected to be small fractions of the Environmental Protection Agency (EPA) Protective Action Guide (PAG) exposure level.

Alerting of personnel:

Refers to transmission of a signal or message that places personnel on notice that a situation has developed which may require that they report for emergency duty.

Alerting the public:

Refers to activating an attention getting warning signal through such means as sirens, tone alert radios, route alerting, and speakers on cars, helicopters, and boats.

Alpha detector:

An instrument designed specifically to detect alpha radiation.

Alpha particles:

Positively charged particles identical with the nuclei of helium atoms. They penetrate tissues to usually less than 0.1 mm (1/250 inch) but create dense ionization and heavy absorbed doses along these short tracks.

Assessment:

The evaluation and interpretation of radiological measurements and other information to provide a basis for decision-making. Assessments can include projections of off-site radiological impact.

- B-

Background (natural) radiation:

Nuclear (or ionizing) radiations arising from within the body and from the surroundings to which individuals are always exposed. The main sources of the natural background radiation are potassium-40 in the body; potassium-40 and thorium, uranium and their decay products (including radium) present in rocks and soil; and cosmic rays. Man-made sources may also contribute to the background radiation level.

Beta particles (b):

Charged particles of a very small mass emitted spontaneously from the nuclei of certain radioactive elements. Most (if not all) of the direct fission products emit (negative) beta particles. Physically, the beta particles are identical to electrons moving at high velocity (nearly the speed of light). Their range in air can be several feet, and in heavier material, such as the human body, they expend their energy within about 2 mm (1/10 inch).

Boiling Water Reactor (BWR):

A reactor in which water, used as both a coolant and moderator, is allowed to boil in the core. The resulting steam can be used to drive a turbine.

Buffer Zone:

An area adjacent to a restricted zone, to which residents may return, but for which protective measures are recommended to minimize exposure to radiation.

- C-

Calibration:

The check or correction of the accuracy of a measuring instrument to ensure proper operational characteristics.

Chain-of-custody form:

Documentation of the transfer of samples from one organization and individual to another with respect to the name of the organization and individual and dates of acceptance and/or transfer of samples.

Code of federal Regulations (CFR):

A codification of the general and permanent rules established by the executive departments of Federal agencies. The Code is divided into 50 titles representing broad areas of activity subject to Federal regulation.

Committed dose:

Refers to the dose that will be received over a period of 50 years from the ingestion or inhalation of a particular quantity of a radionuclide or a specific mix of radionuclides.

Committed dose equivalent (CDE):

Dose equivalent to organs or tissues of reference that will be received from an intake of radioactive material by an individual during the 50-year period following ingestion.

Committed effective dose equivalent (CEDE):

Sum of the 50-year committed doses to individual organs from inhalation (or ingestion) of radionuclides, where the individual organ doses have been weighted so the associated risk of fatal cancer can be added to the risk of fatal cancer from whole-body case

Consequences:

The result of effects (especially projected doses or dose rates) of a release of radioactive material to the environment.

Containment:

The structure housing the nuclear reactor. The structures, within and including the reactor building, designed to prevent the escape of radiation from the reactor to the environment. The reactor containment itself usually consists of layers of reinforced steel and concrete. Containment consists of primary and secondary structures.

Contaminated:

The condition of an object or person that has more than an established limit of radioactive material adhering to its surface. (Adhesion of radioactive particulates on individuals and objects).

Contaminated, injured or exposed individuals:

Refers to individuals who are: contaminated, contaminated and otherwise physically injured, or exposed to high levels of radiation.

Contamination (radioactive):

Deposition of radioactive material in any place where it may harm persons, spoil experiments or make products or equipment unsuitable or unsafe for some specific use. The presence of unwanted radioactive matter; the presence of radioactive material outside its normal container where it is potentially hazardous.

Controlled Zone:

- (1) An area with controlled access, from which the population has been relocated, and, (2) any area to which access is controlled for the purposes of radiation safety.*
- (2) A substance circulated through a nuclear reactor or transfer heat. The most commonly used coolant in the United States is water. Other coolants include heavy water, air carbon dioxide, helium, liquid sodium, and sodium-potassium alloy. Typically, "coolant" refers to the water that covers the core (primary coolant).*

Core:

The central portion of a nuclear reactor containing the uranium fuel, surrounding structures, and coolant water, where fission reactions occur to generate heat and steam, and thus, power.

Curie (Ci):

The basic unit used to describe the intensity of radioactivity in a sample material. The curie is equal to 37 billion disintegrations per second, which is approximately the rate of decay of 1 gram of radium. A curie is also a quantity of any radionuclide that decays at a rate of 37 billion disintegrations per second. Named for Marie and Pierre Curie who discovered radium in 1898.

D-

Decay:

Disintegration of the nucleus of an unstable nuclide by spontaneous emission of charged particles and/or photons.

Decontamination:

The operation of removal of contaminating radioactive material from a structure, area, object, or person.

Delayed health affects:

Radiation effects that are manifested long after the relevant exposure. The vast majorities are stochastic; that is, the severity is independent of dose and probability is assumed to be proportional to the dose, without threshold.

Detector:

A material or device that is sensitive to radiation and can produce a response signal suitable for measurement or analysis. A radiation detection instrument.

Direction and Control:

Refers to the management of emergency functions within a particular context (e.g. emergency operations center) through leadership and authority.

Dose:

A general term denoting the quantity of radiation or energy absorbed. For special purposes, it must be appropriately qualified. In this plan, it refers specifically to the term “dose equivalent”

Dose Equivalent:

- 1.) A term used to express the amount of effective radiation when modifying factors have been considered*
- 2.) Product of absorbed dose multiplied by a quality factor multiplied by a distribution factor. It is expressed in rem.*
- 3.) Product of the absorbed dose in rad, a quality factor related to the biological effectiveness of the radiation involved and any other modifying factors*

Dose limits for emergency workers:

Refers to the allowable accumulated doses during the entire period of an emergency. Action to avoid exceeding the limit is taken based on actual measurements of integrated gamma exposure. In contrast, protective action guides are trigger levels of projected dose at which actions are taken to protect the public. Those actions are taken prior to the dose being received.

Dose rate:

Dose delivered or absorbed per unit of time, as rads per second or rem per hour.

Dosimeter:

A device that measures radiation dose; such as a film badge or ionization chamber.

Drill:
A drill is an event involving organizational responses to a simulated accident to develop, test, and monitor specialized emergency skills that constitute one or more components of an emergency plan or procedures.

- E-

Emergency:

Any natural or man-caused situation that results in or may result in substantial injury or harm to the population or substantial damage to or loss of property.

Emergency Action Levels (EALs):

Specific plant instrumentation readings or other applicable servable indicators that, if exceeded, will initiate classification of an incident and other response actions. For example, a reactor coolant leak rate of more than 50 gpm would trigger an Alert; whereas, a General Emergency would be declared if core damage were imminent.

Emergency Alert System (EAS):

A system or network of radio and television stations responsible for providing official government instructions to the public. (Formerly referred to as Emergency Broadcast System [EBS].)

Emergency Classification Levels (ECL):

Emergency Classification is a set of plant conditions which indicate a level of risk to the public. Nuclear power plants use the four emergency classifications listed below in order of increasing severity.

Notification of Unusual Event - *Under this category, events are in process or have occurred which indicate potential degradation in the level of safety of the plant. No release of radioactive material requiring offsite response or monitoring is expected unless further degradation occurs.*

Alert - *If an alert is declared, events are in process or have occurred that involve an actual or potential substantial degradation in the level of safety of the plant. Any releases of radioactive material from the plant are expected to be limited to a small fraction of the Environmental Protection Agency (EPA) protective action guides (PAGs).*

Site Area Emergency - *A site area emergency involves events in process or which have occurred that result in actual or likely major failures of plant functions needed for protection of the public. Any releases of radioactive material are not expected to exceed the EPA PAGs except near the site boundary.*

General Emergency - *A general emergency involves actual or imminent substantial core damage or melting of reactor fuel with the potential for loss of containment integrity. Radioactive releases during a general emergency can reasonably be expected to exceed the EPA PAGs for more than the immediate site area.*

Emergency Information:

Material designed to improve public knowledge or understanding of an emergency

Emergency Operations Center

Refers to a facility that is the primary base of emergency operations for an ORO during a radiological emergency.

Emergency phase:

Refers to the initial phase of response actions, during which actions are taken in response to a threat of release or release in progress

Emergency Planning Zone (EPZ):

The NRC defines two emergency planning zones (EPZs) around each nuclear power plant. The exact size and configuration of the zones vary from plant to plant due to local emergency response needs and capabilities, population, land characteristics, access routes, and jurisdictional boundaries. The two types of EPZs are:

The plume exposure pathway EPZ extends about 10 miles in radius around a plant. Its primary concern is the exposure of the public to, and the inhalation of, airborne radioactive contamination.

The ingestion pathway EPZ extends about 50 miles in radius around a plant. Its primary concern is the ingestion of food and liquid that is contaminated by radioactivity.

Emergency protective actions:

Protective actions to isolate food to prevent its introduction into commerce and to determine whether condemnation or other disposition is appropriate.

Emergency worker:

Refers to an individual who has an essential mission or outside the plume exposure pathway emergency planning zone to protect the health and safety of the public who could be exposed to ionizing radiation from the plume or from its disposition. Some examples of emergency workers are: radiation monitoring personnel; traffic control personnel; evacuation vehicle drivers; fire and rescue personnel including ambulance crews; medical facilities personnel; emergency operations center personnel; personnel carrying backup alerting procedures; and essential services or utility personnel.

Evacuation:

The process of removing people from a hazardous area to a safe area. As used in this plan, evacuation refers to the urgent removal of people from an area to avoid or reduce radiation level, short term exposure, usually from the plume or from deposited activity. Evacuation may be a preemptive action taken in response to nuclear plant condition rather than an actual release.

Exercise:

Refers to an event involving organizational responses to a simulated commercial nuclear power plant incident with radiological and other offsite consequences. The purpose of an exercise is to test the integrated capabilities of involved organizations to implement emergency functions set forth in plans and procedures

Exposure—Exposure rate:

The most common indicators of radiation hazards are the exposure and the exposure rate, usually expressed in roentgens (R) and roentgens (R/hr). (Sometimes these terms are called the dose and dose rate). The exposure (R) actually is a measure of the ionization (i.e. electrical charges) produced in air by X or gamma radiation. Exposure rate (R/hr) provides an index of the gamma radiation energy that is "hitting" the body per unit of time. The exposure rate, thus, is a measure of the intensity of radiation decreases or increases in time. The total, or accumulated, exposure (usually just called exposure) is an indicator of the total radiation damage that has occurred. This is in contrast to the exposure rate, which is an indicator of the radiological hazard (the rate that damage is occurring) at any instant of time.

- F-**Facility**

Refers to any building, center, room(s), or mobile unit(s) designed and equipped to support emergency operations.

Fallout:

Radioactive particles descending through the atmosphere from a plume cloud formed by a release of particles to the environment from a nuclear plant.

Federal Radiological Monitoring and Assessment Center (FRMAC):

A center usually established at an airport near the scene of a radiological emergency, from which the DOE Offsite Technical Director conducts the FRMAP response. This center generally need not be located near the on-site or Federal-State operations centers as long as its operations can be coordinated with them.

Federal Radiological Monitoring and Assessment Plan (FRMAP)

A plan to provide coordinated radiological monitoring and assessment assistance to the State and local governments in response to radiological emergencies. This plan, authorized by 44 CFR Part 351, is a revised version of the Interagency Radiological Assistance Plan.

Fission:

A highly energetic form of nuclear decay wherein the nucleus splits into two or (rarely) three smaller nuclei accompanied by large amounts of radiation. When a uranium atom splits, two new atoms, neutrons, and heat are produced, Fission occurs naturally, or when neutrons bombard an atom's nucleus.

Forward Operations Center

A center, either mobile or fixed, set up in a location identified in convenient to the incident site, to facilitate emergency response, for example, incident assessment activities such as direction of the field monitoring teams.

Fuel rod:

A long, slender tube that holds fissionable material (fuel) for nuclear reactor use. Fuel rods are assembled into bundles called fuel elements or fuel assemblies, which are loaded individually into the reactor core.

Fusion:

The process whereby the nuclei of light elements, especially those of the isotopes of hydrogen, namely deuterium and tritium, combine to form the nucleus of a heavier element with the release of substantial amounts of energy.

- G -

Gamma Rays (γ):

Electromagnetic radiation comparable to light. They are similar to x-rays except for their origin. They are emitted with energies characteristic of each nuclide, and many are highly penetrating. Although their intensity decreases exponentially with thickness of the absorbing material, they can travel hundreds of feet in the air and penetrate completely through the body.

Geiger-Mueller Counter (G-M tube):

A type of radiation detection and measuring instrument. It consists of a gas filled (Geiger-Mueller) tube containing electrodes, between which there is an electrical voltage but no current flowing. When radiation passes into the tube and causes ionization in the contained gas, a short intense pulse of current passes from the negative electrode to the positive electrode and is measured or counted. The number of pulses per unit of time measures the intensity of the radiation. It is also known as the Geiger counter.

General Emergency (GE):

A "General Emergency" classification indicates a severe incident involving imminent or actual core damage (melt) or loss of a plant to intruders. Full mobilization of emergency response organizations is recommended along with appropriate protective actions. Radioactivity releases can be reasonably expected to exceed U.S. Environmental Protection Agency Protective Action Guide exposure levels beyond the immediate site area.

Ground contamination:

Radioactive material deposited on the ground as a radioactive cloud passes.

Groundshine:

Gamma and/or beta radiation from radioactive material deposited on the ground

- H -

Half-life

The time required for the activity of a given radioactive species to decrease to half of its initial value due to radioactive decay. The half-life is a characteristic property of each radioactive species and is independent of its amount or condition. Each radioisotope has its own length of time for half-life that varies from millionths of a second to billions of years. As examples: Iodine 131 has a half life of about 8 days, Strontium-90 and cesium have half-lives of about 30 years, while the half-life of plutonium-239 is about 35,000 years.

Health Physicist:

An individual trained in radiation protection.

High exposure rate:

Rates greater than 100 milliroentgens per hour.

High levels of radiation exposure:

Doses of 100 rem or greater.

High radiation area:

Area in which a major portion of the body could receive a radiation dose of 100 millirem (0.1 rem) in one hour. These areas must be posted as "high radiation areas" and access into these areas is maintained under strict control.

Homeland Security Exercise Evaluation Program (HSEEP):

A capabilities-and-performance-based exercise program that provides standardized policy, doctrine, and terminology for the design, development, conduct, and evaluation of homeland security exercises.

Hot Spot:

Region in a contaminated area in which the level of radioactive contamination is considerably greater than in neighboring regions.

-I-

Incident

An event or a series of events deliberate or accidental, leading to the release, or potential release into the environment of radioactive materials in sufficient quantity to warrant consideration of protective actions. (The term "incidents" includes accidents, in the context of this plan.)

Incident Command Post (ICP):

Field location where the primary response functions are coordinated. The ICP may be co-located with other incident facilities

Incident Command System (ICS):

A standardized management tool for meeting the demands of small or large emergency or non emergency situations.

Ingestion County:

A county that lies wholly or partially within the 50 Mile IPZ which has the potential for significant contamination from a release at a nuclear power plant, mainly through ingestion of contaminated foodstuffs.

Ingestion Exposure Pathway:

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.

Ingestion Exposure Pathway Emergency Planning Zone (EPZ):

A geographic area, approximately 50 miles in radius surrounding a commercial nuclear power plant, in which it has been estimated that the health and safety of the general public could be adversely affected through the ingestion of water or food which has been contaminated through exposure to radiation primarily from the deposition of radioisotopes after a radiological accident. The duration of such exposures could range in length from hours to months.

Ingestion Pathway Zone (IPZ)

That area that lies within a fifty (50) mile radius of a nuclear power plant.

Ingestion Phase:

Intermediate phase

Iodine (I):

Element of the periodic table. Only one stable isotope exists, the rest are radioactive and artificially created. The most common, iodine-131 and iodine-125, are used for medical treatment of the thyroid gland and in research.

Ionizing radiation:

Any radiation that displaces electrons from atoms or molecules, thereby producing ions. Alpha, beta, and gamma radiation are examples. Ionizing radiation may damage skin and tissue.

Isotopes

Forms of the same element having identical chemical properties but differing in their atomic masses. Radioisotope is the unstable isotope of an element that decays or disintegrates spontaneously emitting radiation.

-J-

Joint Information Center (JIC):

Central point of contact for all news media at the scene of the incident. News media representatives are kept informed of activities and events via public information officials from all participating Federal, State, and local agencies, which, ideally, are collocated at the JIC.

Just-in-Time Training:

Instructions provided to personnel immediately prior to performing the assigned task or function

-K-

Key staff:

Refers to those emergency personnel, sufficient in numbers and functions, necessary to carry out emergency operations as required by scenario events and as set forth in the organization's emergency response plans

KI (potassium iodide):

A prophylactic drug that can be used effectively to block the uptake of the radioiodine by the thyroid gland.

-L-

Lactating:

Production of milk by a female animal.

Late Phase:

Period beginning when recovery action designed to reduce radiation levels in the environment to acceptable levels for unrestricted use are commenced.

Local Government

Any county, city, village, town, district or political subdivision of any state, any Indian tribe or authorized tribal organization; or Alaska native village or organization, including any rural community, unincorporated town or village or any other public entity.

Long-term exposure:

Exposure lasting more than four days.

Low exposure rate:

Refers to rates lower than 100 milliroentgens per hour.

Low level waste

Discarded radioactive material that is only slightly or moderately contaminated

-M-

Mass care:

The provision of care to large numbers of persons who, because of the nature of a disaster and its effects upon the habitability or accessibility of their homes, need to be sheltered fed, and provided health care and other services in facilities such as schools, meeting halls, churches, etc.

Megacurie

One million curies

Megawatt

The unit by which the rate of production electricity is usually measured: one megawatt equals one million watts or a thousand kilowatts.

Meltdown

A type of nuclear incident in which the fuel becomes so overheated, usually as a result of coolant, that it melts through the metal cladding on the fuel rods and falls into the base of the reactor vessel.

Micro:

Prefix that divides a basic unit by 1 million.

Microcurie:

One-millionth part of a curie

milliroentgen (mR):

One-thousandth part of a roentgen

mrem/yr:

Amount of radiation received in one (1) year

Monitoring:

Act of detecting the presence of radiation and the measurement of radiation levels using a portable survey instrument

N-

National Response Plan Nuclear/Radiological Incident Annex (NRP-N/RIA):

The NRP-N/RIA is to be used by Federal agencies in peacetime radiological emergencies. It primarily concerns the offsite Federal response in support of State and local governments with jurisdictions for the emergency. The NRP-N/RIA: (1) Provides the Federal government's concept of operations, based on specific authorities for responding to radiological emergencies; (2) outlines Federal policies and planning assumptions that underlie this concept of operations and on which federal agency response plans (in addition to their agency –specific policies) are based; (3) specifies authorities and responsibilities of each Federal agency that may have a significant role in such emergencies. The NRP-N/RIA includes the FRMAP for use by Federal agencies with radiological monitoring and assessment capabilities.

National Atmospheric Release Advisory Center (NARAC):

Department of Energy asset capable of providing a computer-generated model of the most probable path of the radioactive contamination released at a radiological accident site.

National Incident Management System (NIMS):

Set of principles that provides a systematic, proactive approach to guide departments and agencies at all levels of government, nongovernmental organizations, and the private sector to work seamlessly to prevent, protect against, respond to, recover from, and mitigate the effects

of incidents, regardless of the cause, size, location, or complexity, in order to reduce the loss of life and property and harm to the environment

National Warning System (NAWAS):

In place telephone and radio communications established for warning governmental agencies in the event of a nuclear attack on the United States; this system can be used as a back-up system for other emergencies.

Notification and mobilization of personnel:

Refers to the transmission of messages to emergency personnel informing them of an emergency situation and directing them to report for emergency duty at their assigned duty stations.

Nuclear Radiation:

Particulate and electromagnetic radiation emitted from atomic nuclei in various nuclear processes.

Nuclide:

General term referring to all known isotopes, both stable (279) and unstable (about 5,000), of the chemical elements

-O-

Offsite

The area outside the boundary of the onsite area; any territory not within the confines of a nuclear power plant site.

Onsite:

The area within the boundary established by the owner or operator of a fixed nuclear facility; the area included inside the perimeter fence of a nuclear power plant.

Operator:

Any individual licensed who may manipulate a control of a facility.

-P-

Plan:

Refers to an organization's documented concept of operations and implementing procedures for managing its internal response and coordinating its external response with other organizations to radiological emergencies.

Plume:

A plume is created by release of radioactive materials that form into an invisible cloud-like formation, and the size of a plume depends on the length of time a release occurs. Movement is based on meteorological conditions such as wind speed and direction. "Fallout," or the amount of deposition of radioactive materials on ground, is predicted on two factors: (1) the rapidity of movement of the plume; and (2) precipitation falling through the plume. While a fast moving plume would create a widespread "footprint" of less contamination, a slower moving plume with precipitation occurring would create a "hotter" more localized footprint. There are two types of releases:

(1) Puff Release: This is a release of rather short duration that creates a cloud of relatively small dimensions.

(2) Continual Release: A longer- term release that creates a plume of larger dimensions.

Plume Exposure Pathway:

The principal exposure sources from this pathway are: (a) whole body external exposure to gamma radiation from the plume and from deposited materials; and, (b) inhalation exposure from the passing radioactive plume. The duration of principal potential exposures could range in length from hours to days.

Portal monitor:

A radiation monitor consisting of several radiation detectors arranged in a fixed position within a frame that forms a passageway for individuals being monitored.

Power reactor:

A reactor designed to produce useful nuclear power, as distinguished from reactors used primarily for research or for producing radiation or fissionable materials.

Preventative protective actions:

Refers to ingestion measures that may be taken to prevent or reduce contamination of milk, food, and drinking water. Other preventative actions are washing, scrubbing, or peeling fruits and vegetables to remove surface contamination.

Projected dose:

An estimate or calculated amount of the radiation dose which affected individuals could receive over a period of time from exposure to the plume and/or deposited materials if protective actions are not taken; future dose calculated on the basis of estimated or measured initial concentrations of radionuclides or exposure rates.

Protective actions:

An activity conducted in response in response to an incident or potential incident to avoid or reduce radiation dose to members of the public (sometimes referred to "protective measure").

Protective Action Guidelines (PAGs):

The U.S. Environmental Protection Agency (EPA) and the Food and Drug Administration (FDA) recommended projection doses at which various protective actions are warranted. These are doses that would be received if no protective actions were taken. They do not indicate any dose received prior to the time of projecting the dose.

Protective clothing:

Special clothing worn by a radiation worker to prevent contamination of his body or his personal clothing.

Protective Response:

Implementation of a protective action.

Public Information:

All information of interest that will assist the public in reacting responsibly to a disaster solution, such as: (a) Emergency information brochures distributed to residents of the 10-Mile EPZs at SQN and WBN; (b) information regarding the existing situation in the event of a disaster; (c) actions that have been, or will be taken by emergency officials;; and (d) actions to be taken by the residents of the area to minimize the loss of life or property.

-R-

RAD:

The unit of absorbed dose of radiation in body tissue or other material.

Radiation:

As used in nuclear terminology, radiation refers to energy propagated in the form of high frequency electromagnetic waves; energy traveling in the form of waves, particles or bundles called "photons." Radiation is emitted at one point and received at another. It may be Alpha, Beta, or Gamma.

Radioactive:

Exhibiting radioactivity.

Radioactive contamination

Deposition of radioactive material in any place where it may harm persons or equipment.

Radioactivity:

The property of certain nuclides of spontaneously emitting nuclear particles or gamma or x-ray radiation, or of undergoing spontaneous fission. A process by which unstable atoms of an element emit excess energy in the form of waves or particles as the element changes (or decays) to atoms of a different element or to a lower energy form of the same element.

Radiological:

A general term referring to processes that involve nuclear radiation.

Radiological emergency:

A type of radiological incident that poses an actual or potential hazard to public health or safety or loss of property.

Reactor, Nuclear:

A device in which nuclear fission may be sustained and controlled in a self-supporting nuclear reaction. The varieties are many, but all incorporate certain features, including fissionable material or fuel, a moderating material (unless the reactor is operated on fast neutrons), a reflector to conserve escaping neutrons, provisions for removal of heat, measuring and controlling instruments, and protective devices.

Reactor vessel:

The principal component of the reactor coolant system, it contains the heat-generating core. Outlet and inlet nozzles on the vessel provide for the exit of heated water and its return to the vessel interior for recirculation through the core. The vessel is cylindrical with a hemispherical bottom and flanged, removable upper head. Made of carbon steel with a 1/8 inch internal cladding of stainless steel, the vessel is about 44 feet tall and 14 feet in diameter.

Recovery:

The process of reducing radiation exposure rates and concentrations in the environment to acceptable levels for return by the general public for unconditional occupancy or uses after the emergency phases of radiological emergency.

Reentry:

Temporary entry into a restricted zone under controlled conditions.

Release:

Escape of radioactive materials into the uncontrolled environment

Relocation:

A protective action, taken in the post-emergency phase, through which individuals not evacuated during the emergency phase are asked to vacate a contaminated area to avoid chronic radiation exposure from deposited radioactive material.

REM:

Stands for "Radiation Equivalent Man"—a measure of radiation that indicates potential impact on human cells. Also, the unit of dose equivalent in body tissue. It is equal to the absorbed dose (measured in rads) multiplied by the quality factor (which takes into account the effectiveness of different types of radiation) and by other multiplying factors. For beta and gamma radiation, the quality factor is 1. Frequently, radiation dose is measured in millirems for low-level radiation.

Restricted area:

Any area to which access is controlled for protection of individuals from exposure to radiation and radioactive materials

-S-

Sampling:

Refers to collecting specimens of materials (e.g. particles or radioiodine in the air) at field locations.

Shelter:

- (1) A structure or other location offering shielding from nuclear radiation in the environment; and (2) a school or other building which is located at least 15 miles from a nuclear plant and is utilized as living quarters for persons required to leave an endangered area.*
- (2)*

Shelter in Place:

A protective action which includes going indoors, listening to an EAS radio or television station, closing all windows and doors, closing exterior vents, and turning off heating and air conditioning equipment using outside air.

Shielding:

A mass of material that blocks radiation, thereby protecting personnel, equipment or nuclear experiments from radiation injury, damage or interference.

Shutdown:

A decrease in the rate of fission (and heat production) in a reactor (usually by the insertion of control rods into the core.)

Site:

A nuclear power plant site.

Special populations:

Groups of individuals with physical or mental handicaps that need assistance when protective actions are implemented.

Survey:

A study to: (1) find the radiation or contamination level of specific objects or locations within an area interest and, (2) locate regions of higher than average intensity, i.e. hot spots.

-T-

Total effective dose equivalent (TEDE):

Sum of the deep dose equivalent (for external exposures) and for committed effective dose equivalent (for internal exposures)

Traffic control:

All activities accomplished for the purpose of facilitating the evacuation of the general public in vehicles along specific routes.

Trigger/Action Levels:

Designated value whereby an individual is directed to perform a specific action. Also, the threshold for contamination levels that trigger need for decontamination established in the plan/procedures.

U-

Uranium:

A radioactive element with the atomic number of 92, and as found in natural ores, an atomic weight of approximately 238; which makes it the heaviest natural element. The two principal natural isotopes are uranium-235 (0.7% of natural uranium), which is fissile, and uranium-238 (99.3% of natural uranium), which is fissionable by fast neutrons and is fertile. Natural uranium also includes a minute amount of uranium-234. U-235 is the basic fuel of nuclear reactors and is enriched from less than one percent up to 3 percent for commercial nuclear fuel.

W-

Whole-body exposure:

Exposure of the body to radiation, in which the entire body rather than an isolated part is irradiated. Where a radioisotope is uniformly distributed throughout the body tissues, rather than being concentrated in certain parts, the irradiation can be considered as a whole-body exposure.

X-

X-ray:

Penetrating form of electromagnetic radiation that is used in medical and industrial applications