

Glossary of Terms for Province of Ontario

Absorbed Dose: The amount of energy absorbed in the body, or in an organ or tissue of the body, due to exposure to ionizing radiation, divided by the respective mass of the body, organ or tissue. Expressed in terms of sieverts (or rem).

Activation (of a Plan): Putting an emergency plan into effect and thus requiring all concerned to commence implementing its provisions.

Alerting: Informing the population, by means of an appropriate signal, that a nuclear emergency has occurred or is about to occur.

Collective (Equivalent) Dose: An expression for the total radiation dose incurred by a population, defined as the product of the average radiation dose to a group of exposed persons and the number of persons in the group. Generally expressed in terms of person-sievert (or person-rem).

Committed (Equivalent) Dose: The radiation dose that will be received over a period of 50 years (for adults) or 70 years (for children) after a person takes in a quantity of radioactive material (by ingestion, absorption or inhalation). The dose is expressed in terms of sievert (or rem).

Containment (System): A series of physical barriers that exist between radioactive material contained in a nuclear installation and the environment. Containment usually refers only to the reactor and vacuum buildings, and integral systems such as dousing.

Contamination: The unwanted presence of radioactive material in water or air, or on the surfaces of structures, areas, objects or people.

Contiguous Zone: The zone immediately surrounding a nuclear installation. An increased level of emergency planning and preparedness is undertaken within this area because of its proximity to the potential hazard. The actual Contiguous Zone for each designated nuclear installation is specified in the relevant site-specific part of the Provincial Nuclear Emergency Plan.

Critical Group: A particular group among the relevant population which, by virtue of age, sex or dietary habits, is expected to receive the highest dose from a stated radiation source or exposure pathway.

Crop Control: *See Produce and Crop Control.*

Crown Employee: A person employed in the service of the Crown or any agency of the Crown.

Declared Emergency: An emergency declared under the *Emergency Plans Act*, either by the Province or by a municipality.

Decontamination: Reduction or removal of radioactive contamination in or on materials, persons or the environment.

Derived Emission Limits: Limits for radioactive emissions to air and water from a nuclear facility which ensure that, under normal operating conditions, Atomic Energy Control Board (Canadian Nuclear Safety Commission) dose limits for members of the public are not exceeded by persons exposed to those emissions.

Designated Municipality: A municipality in the vicinity of a nuclear facility which has been designated under the *Emergency Plans Act*, as one that shall have a nuclear emergency plan (*for list see Annex B*).

Designated Nuclear Installation: A nuclear installation designated under the *Emergency Plans Act*, as one to which the specific and detailed provisions of the Provincial Nuclear Emergency Plan apply (*for list see Annex B*).

Dose: A measure of the radiation received or “absorbed” by a target. The quantities termed absorbed dose, organ dose, equivalent dose, effective dose, committed equivalent dose or committed effective dose are used, depending on the context. The modifying terms are often omitted when they are not necessary for defining the quantity of interest.

Dose Projection: The calculation of projected dose (*see Projected Dose*).

Dose Rate: The amount of radiation dose which an individual would receive in a unit of time. In the context of this Plan, the measurement units are multiples or submultiples of the sievert (or rem) per hour.

Dosimeter: An instrument for measuring and registering total accumulated exposure to ionizing radiation.

Effective (Equivalent) Dose: The sum of the weighted equivalent doses received by the organs and tissues of the body, where the weighted equivalent dose is the equivalent dose to an organ or tissue of the body multiplied by the appropriate weighting factor laid down in the Atomic Energy Control Regulations promulgated by the Atomic Energy Control Board (Canadian Nuclear Safety Commission). Expressed in terms of sievert (or rem).

Emergency Workers: Persons who are required to remain in, or to enter, offsite areas affected or likely to be affected by radiation from an accident, and for whom special safety arrangements are required. They may include police, firefighters, ambulance and emergency social services workers, bus drivers, and personnel from the Canadian Armed Forces, the facility operator, and other essential services. They shall not include radiation and ingestion monitoring field staff.

Emergency Worker Centre: A facility set up to monitor and control radiation exposure to emergency workers.

Emission: In the context of this plan, emission refers to the release of radioactive material to the environment from a nuclear facility in the form of either an airborne or a liquid emission.

Equivalent Dose: The absorbed dose multiplied by a weighting factor for the type of radiation giving the dose. Weighting factors for use in Canada are prescribed by the Atomic Energy Control Board (Canadian Nuclear Safety Commission). This term is also sometimes called **Weighted Dose**. Expressed in terms of sievert (or rem).

Evacuee Centre: A facility to provide shelter, food and other services to a group of people who have been evacuated from an area as a result of a nuclear emergency.

Executive Authority: The Premier of Ontario or a Minister of the Crown designated by the Premier to exercise emergency powers under the *Emergency Plans Act*.

Exposure: The act or condition of being subject to irradiation. Exposure can be either **external exposure** (irradiation by sources outside the body) or **internal exposure** (irradiation by sources inside the body).

Exposure Control: *See Plume Exposure Control.*

Exposure Pathways: The routes by which radioactive material can reach or irradiate humans.

External Notification: The notification of organizations and agencies (not directly part of the emergency management organization) which may be affected by a nuclear emergency, or which may be required to assist in responding to it.

Far Incident : A transborder nuclear accident or event anywhere in the world which could affect Ontario, other than a Near Incident (*see Near Incident*).

Field Monitoring: The assessment of the magnitude, type and extent of radiation in the environment during an emergency by such means as field surveys and field sampling.

Food Control: Measures taken to prevent the consumption of contaminated foodstuffs including the supply of uncontaminated foodstuffs. Where appropriate, such control may include food storage to permit radionuclide decay, diversion of food to non-human, non-food chain use or disposal of unusable stocks.

Guaranteed Shutdown State: A reactor is considered to be in this state when there is sufficient negative reactivity to ensure subcriticality in the event of any process failure, and approved administrative safeguards are in place to prevent net removal of negative reactivity.

Hostile Action : Any deliberate action, or threat of action, which could cause a nuclear emergency.

Host Municipality: The municipality assigned responsibility in the Provincial Nuclear Emergency Plan for the reception and care of people evacuated from their homes in a nuclear emergency.

Ingestion Control: Emergency response operations in which the main aim is to avoid or reduce the risk from ingestion of contaminated food and water.

Initial Notification: The notification made by a nuclear facility to Provincial and/or municipal authorities upon the occurrence of an event or condition which has implications for public safety, or could be of concern to these authorities. The criteria and channels for making such notification are usually prescribed in emergency plans.

Internal Notification: The notification by an organization to its personnel who are required to respond to an emergency.

Land Control: Control on the use of contaminated land for growing food products or animal feed.

Livestock Control: Quarantine of livestock in the affected area to prevent movement to other areas. Slaughter of such animals for food may be banned.

Local Board: Any school board, public utility commission, transportation commission, public library board, board of park management, local board of health, board of commissioners of police and any other board, commission, committee, body or local authority established or exercising any power or authority under any general or special Act with respect to any of the affairs or purposes, including school purposes, of a municipality or of two or more municipalities or portion thereof.

Milk Control: Preventing the consumption of locally produced milk in the area affected by a nuclear emergency, and its export outside the area until it has been monitored. Collection of contaminated milk, its diversion to other uses, or its destruction, may also be involved.

National Support Centre: The federal government organization located in the National Capital Region which directs the mobilization and delivery of national support to the affected province in the case of an event in or near Canada, or which coordinates federal actions in the case of an international event.

Near Incident : A transborder nuclear accident or event at a site within 80 km of Ontario.

Notification: Conveying to a person or an organization, by means of a message, warning of the occurrence or imminence of a nuclear emergency, usually including some indication of the measures being taken or to be taken to respond to it.

Nuclear Emergency: An emergency caused by an actual or potential hazard to public health and property or the environment from ionizing radiation or from a nuclear facility.

Nuclear Establishment: A facility that uses, produces, processes, stores or disposes of a nuclear substance, but does not include a nuclear installation. It includes, where applicable, any land, building, structures or equipment located at or forming part of the facility, and, depending on the context, the management and staff of the facility.

Nuclear Facility: A generic term covering both nuclear establishments and nuclear installations.

Nuclear Installation: A facility or a vehicle (operating in any media) containing a nuclear fission or fusion reactor (including critical and subcritical assemblies). It includes, where applicable, any land, buildings, structures or equipment located at or forming part of the facility, and, depending on the context, the management and staff of the facility.

Nuclear Substance: As defined in the (federal) Nuclear Safety and Control Act.

Offsite: Offsite refers to the area outside the boundary (fence) of a nuclear facility.

Onsite: Onsite refers to the area inside the boundary (fence) of a nuclear facility.

Operational Measures: Measures undertaken by the emergency response organization to deal with the emergency, including measures to enable or facilitate protective action for the public, e.g., public alerting, public direction, activation of plans, traffic control, emergency information, etc.

Pasture Control: Removing milk- and meat-producing animals from pasture and from access to open water sources, and supplying them with uncontaminated feed and water.

Personal Monitoring: The use of radiation monitoring devices to assess whether persons, and their belongings, including vehicles, are contaminated or not, and, if contaminated, the type and level of contamination.

Plume: A cloud of airborne radioactive material that is transported in the direction of the prevailing wind from a nuclear facility. A plume results from a continuing release of radioactive gases or particles. (This term may also be used for waterborne radioactive material resulting from a liquid emission. Where the context does not make it clear, this will be referred to as a **Waterborne Plume**). (*See also Puff*).

Plume Exposure Control: Emergency operations aimed at reducing or avoiding exposure to a plume or puff of radioactive material. Measures to deal with surface contamination and resuspension might also be included.

Precautionary Measures: Measures which will facilitate the application and effectiveness of protective measures. (For a list of some of these, see paragraph 2.2.6, page 15).

Primary Zone: The zone around a nuclear installation within which planning and preparedness is carried out for measures against exposure to a radioactive plume. (The Primary Zone includes the Contiguous Zone). The actual Primary Zone for each designated nuclear installation is specified in the relevant site-specific part of the Provincial Nuclear Emergency Plan.

Produce and Crop Control: Restrictions on the harvesting or processing of potentially or actually contaminated crops, vegetables and fruits. Measures include: embargoing export outside the affected area; storage to allow radionuclide decay; diversion to non-food chain use; destruction and disposal of contaminated produce.

Projected Dose: The highest committed effective equivalent dose, or committed equivalent dose to a specified organ or tissue, likely to be received through all applicable exposure pathways by the most exposed member of the critical group in the area for which the projection is being made.

Protective Action: A generic term covering the various measures that can be taken to minimize the impact on people of a hazardous release of radioactive material from a nuclear facility.

Protective Action Levels (PALs): Projected dose levels which provide technical guidance on the need to take certain protective measures. For values, see **Annex I**.

Protective Measures: Measures designed to protect against exposure to radiation during a nuclear emergency. (For a list see section 2.2, page 13, and Table 2.1).

Public Action Directives (PADs): Directions to the public on appropriate protective and other measures to be taken during a nuclear emergency, which are issued by the Province and broadcast through the media.

Puff: A plume of short duration. The distinction between a puff and a plume is a matter of time. The upper limit on the duration of a puff is half an hour. (*See also Plume*).

Radiation: In the context of this Plan, radiation means ionizing radiation (i.e. radiation with the potential to harm human tissue or cells produced by a nuclear substance or a nuclear facility).

Reception Centre: A location, usually outside the Primary Zone, through which evacuees should pass to receive assistance, which would normally include registration,

first aid, monitoring and decontamination, and direction to an evacuee centre. One reception centre would usually serve several evacuee centres.

Response Sectors: The Primary Zone is subdivided into Response Sectors to facilitate the planning and implementation of protective measures.

Restoration: Operations to restore conditions to normal after a nuclear emergency.

Secondary Zone: The zone around a nuclear installation within which it is necessary to plan and prepare measures against exposure from the ingestion of radioactive material. (The Secondary Zone includes both the Primary and Contiguous Zones). The actual Secondary Zone for each designated nuclear installation is specified in the relevant site-specific part of the Provincial Nuclear Emergency Plan.

Selective Evacuation: The evacuation of a specified group of people, such as seriously ill patients in hospitals, bedridden residents of nursing homes, or disabled residents.

Sheltering: A protective measure which uses the shielding properties of buildings and their potential for ventilation control to reduce the radiation dose to people inside. (For details, see **Annex L**, section 1.7).

Minister of Public Safety and Security: The Minister in the Government of Ontario holding the portfolio of the Minister of Public Safety and Security, whether by itself or along with other portfolios.

Source Term: A generic term applied to the radioactive material released from a nuclear facility. It includes the quantity and type of material released as well as the timing and rate of its release. It could apply to an emission that was currently occurring, or one which had ended, or one which could take place in the future.

Special Group: A group for which special constraints arise in the application of a protective measure, such as intensive care patients in hospitals and institutions, bedridden patients in nursing homes, handicapped persons and prison inmates.

Support Municipality: A municipality so specified in the Provincial Nuclear Emergency Plan which shall provide the specified support and assistance to one or more designated municipalities.

Thyroid Blocking: The reduction or prevention of the absorption of radioiodine by the thyroid gland, which is accomplished by the intake of a stable iodine compound (such as potassium iodide) by people exposed or likely to be exposed to radioiodine.

Transborder Nuclear Emergency: A nuclear emergency involving a nuclear facility or nuclear accident or event outside the borders of Ontario which might affect people and property in the province.

Venting: The release to the atmosphere of radioactive material from the containment of a nuclear facility through systems designed for this purpose.

Vulnerable Group: A group which, because it is more vulnerable to radiation, may require protective measures not considered necessary for the general population, such as pregnant women and, in some cases, children.

Water Control: Measures taken to avoid the contamination of drinking water supplies and sources, and to prevent or reduce the consumption of contaminated water.