



FANR Safety, Security and Safeguards Glossary

Version 1

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FANR Safety, Security and Safeguards Glossary

The FANR Glossary

The definitions in this glossary are compiled from and based on the following hierarchy of documents (reference FANR IMS CP.1 Procedure for the Preparation of FANR Safety Glossary):

- 1) A Federal Law by Decree No. 6 of 2009, Concerning the Peaceful Uses of Nuclear Energy
- 2) IAEA Safety Glossary - Terminology Used in Nuclear Safety and Radiation Protection, 2007 Edition
- 3) IAEA Safeguards Glossary – 2001 Edition, International Nuclear Verification Series No. 3
- 4) Definitions as defined by the FANR Regulations & Regulatory Guides (approved or currently under development)
- 5) Definitions agreed to by the FANR Senior Management Team

Notes on the FANR Glossary

- 1) Glossary terms highlighted in **yellow** are those taken from the Federal Law by Decree No. 6 of 2009, Concerning the Peaceful Uses of Nuclear Energy.
- 2) A bracket [] in the Alphabetical List of Terms denotes a reference to the following documents:
 - a) with 2 numerals - refers to FANR Regulation
 - b) with 3 numerals – refers to FANR Regulatory Guide
 - c) with lettering, such as, “MT”, refers to FANR Management Team
- 3) Several terms have different definitions based on their use. Those highlighted in **blue** refer to terms specific to Safeguards definitions only. As such un-highlighted terms refer to the general safety, security and safeguards definitions.
- 4) The Glossary will also be made available¹ in the Arabic version

¹ As of the date of issuance of this version, the Arabic version is still under development.



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Terms and Abbreviations

A

A1 The activity value of special form radioactive material which is listed in Table 2 or derived in Section IV of TS-R-1 and is used to determine the activity limits for the requirements of this regulation.

A2 The activity value of radioactive material, other than special form radioactive material, which is listed in Table 2 or derived in Section IV of TS-R-1 and is used to determine the activity limits for the requirements of this regulation.

Absorbed Dose The fundamental dosimetric quantity D , defined as

$$D = \frac{d\bar{E}}{dm}$$

Where $d\bar{E}$ is the mean energy imparted by ionizing radiation to matter in a volume element and dm is the mass of matter in the volume element.

AC Alternating Current

Acceptance Criteria Criteria that a system, structure or component must meet in order to be accepted by a user or by the established authority.

Access Control The element of a physical protection system designed to increase adversary penetration time for entry into and/or exit from the Nuclear Facility or transport or limiting entry to a computer network. Access control/delay can be accomplished by physical barriers, activated delays, and/or personnel Authentication of identity.

Accident Any intended or unintended event, including operating errors, equipment failures, initiating events, accident precursors, near misses or other mishaps, or unauthorised act, malicious or non-malicious, the consequences or potential consequences of which are not negligible from the point of view of protection or Safety.



Terms and Abbreviations

Accident Conditions	Deviations from normal operation more severe than anticipated operational occurrences, including DBAs and Severe Accidents.
Accident Management	The taking of a set of actions during the evolution of a beyond DBA: to prevent the escalation of the event into a Severe Accident; to mitigate the consequences of a Severe Accident; and to achieve a safe stable state in the long term.
Accounting Records	A set of data kept at each Facility or Location Outside Facilities (LOF) showing the quantity of each type of Nuclear Material present, its distribution within the Facility (or LOF) and any changes affecting it.
Active Component	A component whose functioning depends on an external input such as actuation, mechanical movement or supply of power.
Activity	The production, use, import, and export of Radiation Sources for industrial, research and medical purposes; the transport of Radioactive Material; the Decommissioning of Facilities; and Radioactive Waste Management activities.
Activity Concentration	The activity per unit mass of a material in which the radionuclides are essentially uniformly distributed.
Additional Protocol	A Protocol Additional to the Agreement between the State and the International Atomic Energy Agency (IAEA) for the Application of Safeguards in Connection with the Treaty on the Non-Proliferation of Nuclear Weapons (NPT). The Additional Protocol entered into force on 20 December 2010. Under the Additional Protocol, the IAEA is granted expanded rights of access to information and sites. The texts of Safeguards Agreement and the Additional Protocol are reproduced in IAEA Information Circulars, INFCIRC/622 and INFCIRC/622/Add.1.
ALARA	As Low As Reasonably Achievable



Terms and Abbreviations

Alert	An event involving an unknown or significant decrease in the level of protection for the public or on-site personnel. When an Alert is declared, the state of readiness of the on-site and off-site Response Organisations is increased and additional assessments are made.
Anticipated Operational Occurrence (AOO)	An operational process deviating from normal operation which is expected to occur at least once during the operating lifetime of a Nuclear Facility but which, in view of appropriate design provisions, does not cause any significant damage to Items Important to Safety or lead to Accident Conditions.
Anticipated Transient Without Scram (ATWS)	An anticipated operational occurrence followed by the failure of the reactor protection system.
Assessment	The process and the results of a systematic analysis and the evaluation of the extent of hazards associated with Regulated Activities and Regulated Materials and associated protection and Safety measures for the purpose of meeting requirements, achieving efficiency of the process, and encouraging improvements including safety improvements.
Assessment Activities	Includes reviewing, checking, inspecting, testing, surveillance, auditing, peer evaluation and technical review activities, which can be carried out either through independent assessment or self-assessment.
Authorisation	The granting by the Authority or other governmental body of written permission for a Licensee/Applicant to perform specified activities.
Authority	The Federal Authority for Nuclear Regulation
Availability	(1) The ability or assurance that authorised individuals are able to interact and control systems or assets in an uninterrupted manner; or (2) The assurance that a system or asset will perform its intended functions unimpeded.



Terms and Abbreviations

**Average Member of the
Critical Group**

The average of a group of members of the public that is reasonably homogeneous with respect to its exposure to a given radiation source, and is typical of individuals receiving the highest Effective Dose or Equivalent Dose (as applicable) from the given source.



Terms and Abbreviations

B

Basic Event (BE)

An event in a fault tree model that requires no further development because the appropriate limit of resolution has been reached. This event typically represents the failure likelihood (unreliability or unavailability) of a system, structure or component (SSC) function or human action.

Batch

A portion of Nuclear Material handled as a unit for accounting purposes at a Key Measurement Point (KMP) and for which the composition and quantity are defined by a single set of specifications or measurements. The Nuclear Material may be in bulk form or contained in a number of separate items (e.g. a fuel assembly). Items included in same Batch are items containing Nuclear Material of the same element concentration and enrichment.

Book Inventory

The algebraic sum of the most recent Physical Inventory of a Material Balance Area (MBA) and of all inventory changes that have occurred since that Physical Inventory was taken.

Beyond Design Basis Threats (BDBT)

A threat, identified in the Assessment that, while not included in the Design Basis Threat, remains credible. Threats beyond the Design Basis Threat need to be taken into account to ensure the Physical Protection of nuclear facilities

Board

The Board of Management of the Authority



Terms and Abbreviations

C

Carrier	A person, organisation or government that undertakes the carriage of radioactive material by any means of transport.
Category 1, 2 or 3 Source	Radioactive Sources and aggregations of Radioactive Sources that are listed in Schedule A of FANR-REG-23 as a Category 1, 2 or 3 Source.
Category 1 Source	Radioactive Sources and aggregations of Radioactive Sources that are listed in Schedule A of FANR-REG-23 as a Category 1 Source.
Category 2 Source	Radioactive Sources and aggregations of Radioactive Sources that are listed in Schedule A of FANR-REG-23 as a Category 2 Source.
Category 3 Source	Radioactive Sources and aggregations of Radioactive Sources that are listed in Schedule A of FANR-REG-23 as a Category 3 Source.
Chairman	The Chairman of the Board
Central Alarm Station	An installation, located inside the Protected Area, which provides for the complete and continuous alarm monitoring, assessment and communication with guards, facility management and response forces.
Channel	An arrangement of interconnected components within a system that initiates a single output. A Channel loses its identity where single output signals are combined with signals from other Channels (e.g. from a monitoring Channel or a Safety actuation Channel).
Classified Information	Information of a highly sensitive nature related to National Nuclear Security. Classified information will include Sensitive Nuclear Information.
Clearance	Removal of Radioactive Material or radioactive objects from any further Regulatory Control by the Authority



Terms and Abbreviations

Closure	Administrative and technical actions directed at a repository at the end of its operating lifetime – such as covering of the disposed waste (for a near surface repository) or backfilling and/or sealing (for a geological repository and the passages leading to it) – and the termination and completion of activities in any associated structures.
Commercial Grade Item	An item that was not designed and manufactured as an important to safety item.
Commissioning	The process by means of which systems and component of Facilities and Activities, having been constructed, are made operational and verified to be in accordance with the Design and to have met the required performance criteria. Commissioning may include non-nuclear and/or non-radioactive and nuclear and/or radioactive testing.
Competent Authority	A governmental organization or institution that has been designated by a State to carry out one or more nuclear security functions, including providing the physical protection of nuclear facilities and nuclear materials in use, storage and transport
Conditioning	The operations that produce a waste package suitable for handling, transport, storage and/or disposal. Conditioning may include the conversion of the Radioactive Waste to a solid form, enclosure of the Radioactive Waste in containers and, if necessary, provision of an overpack
Consignee	Defined in IAEA TR-S-1 as any person, organisation or government which is entitled to take delivery of a consignment.
Consignment	Consignment shall mean any package or packages, or load of radioactive material, presented by a consignor for transport.
Consignor	Defined in IAEA TR-S-1 as any person, organization or government which is entitled to take delivery of a consignment.
Containment	Methods or physical structures designed to prevent or control the release and the dispersion of radioactive substances.



Terms and Abbreviations

Containment

Containment is defined as:

- a) the structural features of a Facility;
- b) containers or equipment which are used to establish the physical integrity of an area; or
- c) items (including Nuclear Safeguards Equipment or Records) to maintain the continuity of knowledge of the area or items by preventing undetected access to, or movement of, Nuclear Material or other material, or interference with such items.

The continuing integrity of the Containment itself is usually assured by Seals or surveillance measures and by periodic examination of the Containment during inspection.

Common Cause Failure (CCF)

Failure of two or more structures, systems or components due to a single specific event or cause.

Concept of Operations

A brief description of the ideal response to an Emergency.

Control Systems

Instrumentation, hardware and software used to monitor, maintain or change the operating state of the plant systems or components. Control Systems are functionally independent of the Protection System (although some components, such as sensors, may be shared) and do not perform Safety Functions.

Controlled Area

A defined area in which specific protective measures or safety provisions are or could be required for a) controlling normal exposures; b) preventing the spread of contamination during normal working conditions; or c) preventing or limiting the extent of potential exposures.

Construction & Operating Experience Feedback (COEF)

Events, conditions, observations and new information that could affect nuclear and radiation safety, security and safeguards not limited to experience from operating nuclear facilities, but including experience from research, design, fabrication, construction, commissioning, operating and decommissioning activities and materials licensee activities.



Terms and Abbreviations

Construction & Operating Experience Report(s) (COER)	A report made to FANR by a Nuclear Facility Licensee to provide information regarding an event or condition adverse to quality and safety that includes an event or condition description, safety assessment, cause analysis, lessons learned, corrective actions and categorisation
Construction	The process of manufacturing and assembling the components of a Facility, the carrying out of civil works, the installation of components and equipment and the performance of associated tests.
Coolable Core Geometry	Fuel assembly rod bundles retain geometry with adequate coolant channels to permit removal of residual heat.
Core Damage Frequency (CDF)	The likelihood of Accidents that would cause damage to a reactor core; the sum of the frequencies of those Accidents that result in uncover and heat-up of the reactor core to the point at which prolonged oxidation and severe fuel damage are anticipated and involving enough of the core, resulting into fission products release from the fuel that if released to the environment would result in offsite public health effects.
Country of Origin (CoO)	The country whose regulatory body approved the nuclear power plant Design being proposed for the State
Critical Digital Assets (CDAs)	A digital device or system that plays a role in the Operation or Maintenance of a Critical Digital System and can impact the proper functioning of a Critical Digital System.
Critical Digital System	Those systems and networks associated with Items Important-to-Safety; security; safeguards; or Emergency Preparedness functions; including onsite and offsite communications; and support systems and equipment.
CSIRT	Cyber Security Incident Response Team
Cutset (CS)	A representation of the combination of Basic Events that can lead to a fault trees top event. The fault tree top event can represent a subsystem, system, plant function or an overall risk metric



Terms and Abbreviations

Cyber Attack

The manifestation of either physical or logical (i.e., electronic or digital) threats against computers, communication systems, or networks that may: (1) originate from either inside or outside the applicant/Licensee's facility; (2) have internal and external components; (3) involve physical or logical threats; (4) be directed or not-directed in nature; (5) be conducted by threat agents having either malicious or no malicious intent; and (6) have the potential to result in direct or indirect adverse effect or consequence to CDAs or CDS. These attacks may occur individually or in any combination.

Cyber Security

The protection of equipment, systems, and networks against attacks by individuals or organisations that would seek to cause harm, damage, or adversely affect the confidentiality, integrity, or availability of an information system or that seek to use an information control system for an unauthorised purpose that will affect the functions performed by such equipment, systems, and networks. Cyber Security provides a high assurance that digital computer, network and communication systems are adequately protected against cyber-attacks up to and including the DBT.



Terms and Abbreviations

D

Decommissioning

Administrative and technical actions taken to allow the removal of some or all of the Regulatory Controls from a Nuclear Facility (except for a Radioactive Waste Repository or for certain Nuclear Facilities used for the Disposal of residues from the mining and processing of Radioactive Material, which are closed and not decommissioned).

Defective or Non-Compliance Report (DNCR)

A report made to the Authority by a supplier or Nuclear Facility Licensee identifying defects or non-compliances in items or services important to safety or, on a voluntary basis, commercial grade items.

Defence-in-Depth

A hierarchical deployment of different levels of diverse equipment and procedures to prevent the escalation of anticipated operational occurrences and to maintain the effectiveness of physical barriers placed between a Radiation Source or Radioactive Material and workers, members of the public or the environment, in operational states and, for some barriers, in Accident Conditions.

Design

The process of developing a concept, detailed plans, supporting calculations and specifications for a Facility or one of its parts.

Design Basis

The range of conditions and events taken explicitly into account in the design of a facility, according to established criteria, such that the facility can withstand them without exceeding authorised limits by the planned operation of safety systems.

Design Basis Accident (DBA)

Accident Conditions against which a Nuclear Facility is designed according to established design criteria, and for which the damage to the fuel and the release of Radioactive Material are kept within authorised limits.



Terms and Abbreviations

Design Basis Threat (DBT)	The largest reasonable threat against which a regulated Guard Force shall be expected to defend. It describes the attributes and characteristics of potential insider and/or external adversaries, who might attempt unauthorized removal of Nuclear Material or sabotage, against which a Physical Protection system is designed and evaluated.
Deterministic Effect	A health effect of radiation for which generally a threshold level of dose exists above which the severity of the effect is greater for a higher dose. Such an effect is described as a severe deterministic effect if it is fatal or life threatening or results in a permanent injury that reduces quality of life.
Diagnostic Reference Level	<p>A level used in medical imaging to indicate whether, in routine conditions, the Dose to the patient or the quantity of Radioactive Material administered in a specified radiological procedure is unusually high or low for that procedure.</p> <p>Diagnostic Reference Levels are established following consultation with health competent authorities and relevant professional bodies and are based upon surveys or published values appropriate to the circumstances in the State.</p>
Director General	The Director General of the Authority.
Discharge	Planned and controlled release of (whether gaseous, liquid or otherwise) Radioactive Material to the environment.
Disposal	Emplacement of waste in an appropriate Facility without the intention of retrieval.
Diversity	The presence of two or more redundant systems or components to perform an identified function, where the different systems or components have different attributes so as to reduce the possibility of Common Cause Failure.
Dose(s)	A measure of the energy deposited by radiation in a target.



Terms and Abbreviations

Dose Constraint

A prospective and source-related restriction on the individual dose from a source, which provides a basic level of protection for the most highly exposed individuals from a source, and serves as an upper bound on the dose in optimisation of protection for that source. For occupational exposures, the dose constraint is a value of individual dose used to limit the range of options considered in the process of optimisation. For Public Exposure, the Dose Constraint is an upper bound on the annual doses that members of the public should receive from the planned operation of any controlled source.

Dust Storm

Particles of dust energetically lifted by a strong and turbulent wind. Dust storms are usually associated with hot, dry, and windy conditions. Dust particles typically have a diameter less than 0.08 mm and consequently can be lifted to far greater heights than sand.



Terms and Abbreviations

E

Effective Dose

The quantity E defined as a summation of the tissue Equivalent Doses, which is each multiplied by the appropriate Tissue Weighting Factor where H_T is the Equivalent Dose in tissue T and w_T is the Tissue Weighting Factor for tissue T.

$$E = \sum_T w_T H_T$$

From the definition of Equivalent Dose, it follows that where w_R is the Radiation Weighting Factor for radiation R and $D_{T,R}$ is the average absorbed dose in the organ or tissue

$$E = \sum_T w_T \sum_R w_R \cdot D_{T,R}$$

Effective Kilogram

A special unit used in the safeguarding of Nuclear Material. The quantity of Nuclear Material in effective kilograms is obtained by taking:

- for plutonium, its weight in kilograms;
- for uranium with an enrichment of 0.01 (1%) and above, its weight in kilograms multiplied by the square of its enrichment;
- for uranium with an enrichment below 0.01 (1%) and above 0.005 (0.5%), its weight in kilograms multiplied by 0.0001;
- for depleted uranium with an enrichment of 0.005 (0.5%) or below, and for thorium, its weight in kilograms multiplied by 0.00005.

Emergency(ies)

A non-routine situation that necessitates prompt action, primarily to mitigate a hazard or adverse consequences for human health and Safety, quality of life, property, or the environment. This includes nuclear and radiological emergencies and conventional emergencies such as fire, release of hazardous chemicals, storms or earthquakes. It includes situation for which prompt action is warranted to mitigate the effects of a perceived hazard.



Terms and Abbreviations

Emergency Action	An action performed to mitigate the impact of an Emergency.
Emergency Action Level (EAL)	A specific, predetermined, observable criterion used to detect, recognize and determine the classification of the Emergency.
Emergency Event Report (EER)	A report made to FANR by a Nuclear Facility Licensee to provide notification of a declaration or change in declaration of an emergency class as specified in the Licensees approved emergency response plan.
Emergency Measures	Plans, procedures, checklists and any other measures prepared and implemented to prevent or minimise the occurrence or impact of an Emergency, including an Emergency Plan.
Emergency Operations Facility (EOF)	The facility that coordinates the onsite and offsite response to an Emergency which warrants offsite Protective Action.
Emergency Plan	A description of the concept, policy and objectives of operations for the response to an Emergency and of the structure, authorities and responsibilities for a systematic coordinated and effective response. The Emergency Plan serves as the basis for the development of other plans, procedures and checklists.
Emergency Preparedness	The capability to take action that will effectively mitigate the consequences of an Emergency.
Emergency Preparedness Systems	Systems, components, and equipment that provide reasonable assurance that adequate protection and mitigation measures can be taken in the event of a radiological emergency at the Nuclear Facility. Systems include those that provide for prompt communications among principal response organisations, onsite facilities and equipment to support the Emergency Preparedness, and methods and equipment on site for assessing and monitoring actual or potential offsite consequences.
Emergency Response	The performance of actions to mitigate the consequences of an Emergency. It may also provide a basis for the resumption of normal social and economic activity.



Terms and Abbreviations

Emergency Worker	A worker who may be exposed in excess of occupational dose limits while performing actions to mitigate the consequences of an Emergency for human health and safety, quality of life, property and the environment.
Emergency Zone	The precautionary action zone and/or the urgent protective action planning zone.
Enforcement Action	Actions taken by the Authority for the purpose of ensuring operator's compliance with this Decree by Law, regulation and requirements specified by the Authority, including corrective actions, written warnings, revoking of a licence and any other administrative penalties or fines the Authority may impose according to this Decree by Law and regulations in force. The authority shall, when taking Enforcement Action, take into consideration the suitability of the action with the Enforcement Action to be adopted.
Enrichment	A process or operation the purpose of which is to produce uranium containing greater mass percentage of uranium – 235 than 0.72%.
Environmental Sampling	Collection of samples from the environment with a view to analysing them for traces of materials that can reveal information about nuclear material handled or activities conducted
Exempt(ion) from Safeguards	Under the Comprehensive Safeguards Agreement the State may request that a limited amount of Nuclear Material be exempted from safeguards (i.e., reporting to the IAEA) on account of its use or quantity. De-exemption is reapplication of IAEA safeguards on Nuclear Material previously exempted from safeguards.
EQ	Equipment Qualification
Equipment Operator	The operator who works in the Nuclear Facility, normally outside the control room, under the direction of Reactor Operators and Senior Reactor Operators.



Terms and Abbreviations

Equivalent Dose

The quantity $H_{T,R}$, is defined as where $D_{T,R}$ is the Absorbed Dose delivered by radiation type R averaged over a tissue or organ T and w_R is the Radiation Weighting Factor for radiation type R:

$$H_{T,R} = w_R \cdot D_{T,R}$$

When the radiation field is composed of different radiation types with different values of w_R the Equivalent Dose is:

$$H_T = \sum_R w_R \cdot D_{T,R}$$

Exemption

The determination by the Authority that a Source or practice is exempted from some or all aspects of Regulatory Control on the basis that the exposure (including potential exposure) due to the Source or practice is too small to warrant the application of those regulatory aspects or that this is the optimum option for prevention irrespective of the actual level of the Doses or risks

Exempt(ion) from Safeguards

Under the Comprehensive Safeguards Agreement the State may request that a limited amount of Nuclear Material be exempted from safeguards (i.e., reporting to the IAEA) on account of its use or quantity. De-exemption is reapplication of IAEA safeguards on Nuclear Material previously exempted from safeguards.

Exploitable Maintenance

Maintenance activities that can be utilised by an adversary because of their potential to reduce the effectiveness of a plant's defensive strategy.

Exposure Pathway

A route by which radiation or radionuclides can reach humans and cause exposure

External Events

Events unconnected with the Operation of a Facility or the conduct of an activity which could have an effect on the Safety of the Facility or activity



Terms and Abbreviations

External Zone

The area immediately surrounding a proposed Site Area in which population distribution and density, and land and water uses, are considered with respect to their effects on the possible implementation of Emergency Measures



Terms and Abbreviations

F

Facility

Includes Nuclear Facilities, irradiation installations, some mining and raw material processing facilities, such as uranium mines; Radioactive Waste Management Facilities, and any other places where Radioactive Material is produced, processed, used, handled, stored, or disposed of, or where radiation generators are installed, on such a scale that consideration of protection and Safety is required

Facility

A reactor, critical facility, conversion plant, fabrication plant, reprocessing plant, isotope separation plant or a separate storage installation or any location where Nuclear Material in amounts greater than one Effective Kilogram is customarily used

Fault Tree

A deductive logic diagram that depicts how a particular undesired event can occur as a logical combination of other undesired events.

Formula Quantity

Special Nuclear Material in any combination, in a quantity of 5000 grams or more computed by the formula:

grams = (grams contained U-235) + 2.5 (grams U-233 + grams plutonium).

Free Zone

A portion of clearly defined and isolated land or setting, with a special tax, customs, import and export regime.

FSAR

Final Safety Analysis Report.

Fuel Damage

Any fuel relocation, fuel clad interaction or clad degradation that limits the fuel lifetime, power level or compromises assumptions in the Safety analysis.



Terms and Abbreviations

Functional Event Sequence (FS)

A group of similar Accident sequences into an event class. Similar Accident sequences are those that have similar initiating events and display similar Accident behaviour in terms of system failures and/or phenomena and lead to similar end states. Similar Accident sequences are likely to have the same systems, structures and components credited for Accident prevention and/or mitigation.

Functional Isolation

Prevention of influences from the mode of Operation or failure of one circuit or system on another.

Fussell-Vesely (FV) Importance Measure

For a specified Basic Event, Fussell-Vesely importance is the fractional contribution to the total of a selected figure of merit for all Accident sequences containing that Basic Event. For PRA quantification methods that include non-minimal Cutsets and success probabilities, the Fussell-Vesely importance measure is calculated by determining the fractional reduction in the total figure of merit brought about by setting the probability of the Basic Event to zero.



Terms and Abbreviations

G

General Emergency

An event resulting in an actual release, or substantial probability of a release, requiring implementation of Urgent Protective Actions off-site.

This includes: (1) actual or projected damage to the reactor core or large amounts of spent fuel; or (2) releases off-site resulting in doses exceeding intervention levels for Urgent Protective Actions within hours. When a General Emergency is declared, Urgent Protective Actions are recommended immediately for the public near the facility.

Government

The Government of the State.

Guard Force

An armed member of the security organisation designated by the Competent Authority who is trained and qualified to perform security duties for the protection of the nuclear facility and nuclear material.



Terms and Abbreviations

H

Hostile Event

An act directed toward a Facility or their personnel that includes the use of violent force to destroy equipment, take hostages, and/or intimidate 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.



Terms and Abbreviations

I

IAEA

International Atomic Energy Agency

IAEA Safety Standards

Standards of safety provided for in the Statute of the IAEA

Imminent Threat

A large-threat aircraft that is heading toward and within five minutes of the site.

Incident(s)

Any unintended event, including operating errors, equipment failures, initiating events, accident precursors, near misses, or other mishaps, or unauthorised act, malicious or non-malicious, the consequences or potential consequences of which are not negligible from the point of view of protection or safety.

Independent Safety Verification (ISV)

A written verification performed by suitably qualified and experienced individuals, who did not participate in the original Safety Assessment, to determine whether the approach taken in conducting such Safety Assessment was reasonable and in accordance with international best practice.

Informational Threat

A large-threat aircraft that is heading toward and is greater than 30 minutes of the site.

Initial Test Programme

A programme consisting of preoperational and initial start-up tests. Pre-operational testing consists of those tests conducted following completion of construction and construction-related inspections and tests, but prior to fuel loading, to demonstrate, to the extent practical, the capability of SSCs to meet the performance requirements to satisfy the design criteria.

Initial start-up testing consists of those test activities that are scheduled to be performed during and following fuel loading. These activities include fuel loading, pre-critical tests, initial criticality, low-power tests, and power ascension tests that confirm the design bases and demonstrate, to the extent practical, that the plant will operate in accordance with design and is capable of responding as designed to anticipated transients and postulated accidents as specified in the Safety Analysis Report



Terms and Abbreviations

Inspection

An examination, observation, measurement or test undertaken to assess structures, systems and components and materials as well as operational processes, organisational processes, procedures and personnel competence.

Inspection, Tests and Analysis

Activities that are conducted under specified conditions and/or assumptions to verify that a given system, structure or component meets its acceptance criteria.

Institutional Control

Control of a Radioactive Waste site by an Authority or institution designated under the laws of the State. This control may be active (monitoring, surveillance, remedial work) or passive (land use control) and may be a factor in the design of a Nuclear Facility (e.g., near surface repository).

Most commonly used to describe controls over a repository after closure or a facility undergoing. Also refers to the controls placed on a site that has been released from regulatory control under the condition of observing specified restrictions on its future use to ensure that these restrictions are complied with.

I&C

Instrumentation and Controls

Intrusion Detection System

An electrical, electromechanical, electro-optical, electronic or similar device that detects and alerts an intrusion by unauthorised personnel.

Inventory Change

An increase or decrease, in terms of Batches, of Nuclear Material in an MBA. Such a change shall involve one of the following:

- Increases: import, domestic receipt, nuclear production, accidental gain, retransfer from retained waste and de-exemption of nuclear material from IAEA safeguards;
- Decreases: export, domestic shipment, nuclear loss, other loss, measured discard, transfer to retained waste, exemption of nuclear material from IAEA safeguards, and termination of IAEA safeguards on nuclear material transferred to non-nuclear use.



Terms and Abbreviations

Inventory Change Report

Reference FANR-REG-10, Article (12)1:

The Licensee shall complete an Inventory Change Report following any change, adjustment, and correction to the inventory of Nuclear Material in each Material Balance Area. Such Inventory Change Report shall be submitted to the Authority by using the Inventory Change Report form in the Annex I.2 of this regulation or by another method and in another format as notified to the Licensee by the Authority for such purpose;

Reports of receipts of Nuclear Material shall be submitted to the Authority within five (5) days of the receipt of such Nuclear Material;

Reports of shipments of Nuclear Material shall be submitted no later than the close of business the next working day after the shipment. Reports of shipments shall not be released to the public until the shipment is complete and shall be marked by the Licensee as “Classified Information”;

Reports of other changes to inventory that are not referred to in Article (10)(2)(e), e.g. nuclear decay (spontaneous disintegration of a radioactive substance), nuclear loss (consumption of Nuclear Material because of its transformation into other elements as a result of nuclear reactions), nuclear production (conversion of Nuclear Material into Special Fissionable Material through irradiation in a nuclear reactor) shall be submitted within 10 days after the start of a Physical Inventory Taking and shall accompany the Material Balance Report and a Special Report where applicable.

Ionising Radiation

Radiation capable of producing ion pairs in biological materials



Terms and Abbreviations

IRS	International Reporting System for Operating Experience
Items Important to Safety	<p>An item that is part of a Safety Group and/or whose malfunction or failure could lead to radiation exposure of the site personnel or members of the public, including:</p> <ul style="list-style-type: none">• Those SSCs whose malfunction or failure could lead to undue radiation exposure of site personnel or members of the public• Those SSCs that prevent anticipated operational occurrences from leading to Accident Conditions• Those features that are provided to mitigate the consequences of malfunction or failure of SSCs



Terms and Abbreviations

J

Justification

The process of determining whether the conduct or a set of related conducts of a Regulated Activity using Regulated Material is, overall, beneficial; that is, whether the benefits to individuals and to the society from introducing or continuing the conduct or conducts outweigh the harm (including radiation detriment) resulting.



Terms and Abbreviations

K

**Key Measurement Point
(KMP)**

A location where Nuclear Material appears in such a form that it may be measured to determine material flow or inventory. KMPs and thus include, but are not limited to, the inputs and outputs (including measured discards) and Storages in MBAs.



Terms and Abbreviations

L

Large Release Frequency (LRF)	The sum of the frequencies of those Accidents leading to unmitigated release of airborne fission products from the Containment to the environment such that there is the potential for health effects (such Accidents generally include releases associated with Containment failure, Containment bypass events, or loss of Containment isolation).
Large-Threat Aircraft	A large commercial aircraft that is heading or may potentially head toward the plant.
Law	The Federal Law by Decree No. 6 of 2009, Concerning the Peaceful Uses of Nuclear Energy
Licence	The approval issued by the Authority granting authorisation to the Licensee to perform one or more specific Regulated Activities related to a Facility or Activity. Or any other authorisation granted by the Authority to the applicant to have the responsibility for the Siting, Design, Construction, Commissioning, Operation or Decommissioning of a nuclear installation or granted to carry out any Activity related to management of nuclear spent fuel or of Radioactive Waste.
Licensee	A Person holding a valid Licence.
Licensing Basis	A set of regulatory requirements applicable to a nuclear installation
Lifetime	The period during which an authorised facility is used for its intended purpose, until decommissioning or closure
Limited Access Area	A designated area containing a Nuclear Facility and Nuclear Material to which access is limited and controlled for Physical Protection purposes.
Limited Construction Licence	The Limited Licence for Parts and Stages of Construction of a Nuclear Facility issued by the Authority granting authorisation to carry out different parts and stages of Construction of a Nuclear Facility prior to the issuance of a Construction Licence.



Terms and Abbreviations

LOCA	Loss of Coolant Accident
Location Outside Facility (LOF)	Any installation or location, which is not a Facility, where Nuclear Material is customarily used in amounts of one Effective Kilogram or less; also, a location containing Nuclear Material customarily used outside Facilities.
Low Strategic Significance	Less than an amount of Special Nuclear Material of Moderate Strategic Significance



Terms and Abbreviations

M

Maintenance

The organised activity, both administrative and technical, of keeping structures systems and components in good operating condition, including both preventive and corrective (or repair) aspects.

Management System

A set of interrelated or interacting elements (system) for establishing policies and objectives and enabling the objectives to be achieved in an efficient manner.

Management System Review

A regular and systematic evaluation by senior management of an organisation of the suitability, adequacy, effectiveness and efficiency of its Management System in executing the policies and achieving the goals and objectives of the organisation.

Material Balance Area (MBA)

An area in or outside of a Facility such that:

- the quantity of Nuclear Material in each transfer into or out of each MBA can be determined; and
- the Physical Inventory of Nuclear Material in each MBA can be determined when necessary, in accordance with specified procedures, in order that the material balance can be established for IAEA safeguards purposes.



Terms and Abbreviations

Material Balance Reports	<p>Reference FANR-REG-10, Article (12)2:</p> <p>The Licensee shall complete a Material Balance Report for each Material Balance Area under its control after each Physical Inventory of the Material Balance Area, using the codes in Annex I.4 of this regulation, and submit them to the Authority either using the Material Balance Report form in Annex I.3 of this regulation or by another method and in another format as notified to the Licensee by the Authority for such purpose;</p> <p>Each Material Balance Report shall be submitted within 10 days after the start of the Physical Inventory Taking;</p> <p>Each Material Balance Report shall include the following entries: beginning Physical Inventory; Inventory Changes (increases and decreases); ending Book Inventory; shipper/receiver differences; adjusted ending Book Inventory; ending Physical Inventory; and Material Unaccounted For;</p> <p>The Licensee shall explain any amount of Material Unaccounted For in a concise note accompanying any Material Balance Report.</p>
Material Unaccounted For (MUF)	<p>The difference between Book Inventory and Physical Inventory. The difference can be either positive (apparent gain of material) or negative (apparent loss of material). MUF should be zero, and non-zero MUF is an indication of a problem (e.g. accounting mistakes) which should be investigated.</p>
Medical Exposure	<p>Exposure incurred by patients for the purpose of medical or dental diagnosis or treatment; by carers and comforters; and by volunteers in a program of biomedical research involving their exposure</p>
Medical Physicist	<p>A health professional (an individual licensed by the competent authorities of the State to practise a profession related to health), with education and specialist training in the concepts and techniques of applying physics in medicine, competent to practise independently in one or more of the subfields (specialities) of medical physics.</p>



Terms and Abbreviations

**Medical Radiation
Technologist**

A health professional (an individual licensed by the competent authorities of the State to practise a profession related to health), with specialist education and training in medical radiation technology, competent to carry out radiological procedures, on delegation from the Radiological Medical Practitioner, in one or more of the specialities of medical radiation technology.

**Moderate Strategic
Significance**

Less than a Formula Quantity of Special Nuclear Material, but more than 1000 grams of U-235



Terms and Abbreviations

N

Non-Emergency Event Report (NEER)

A report made to FANR by a Nuclear Facility Licensee to provide notification of an event that does not involve declaration of an emergency class but that falls into one of the significant categories of events defined in Appendix A of FANR-REG-16.

Normal Operation

Operation within specified operational limits and conditions. For a nuclear power plant this includes start-up, power operation, shutting down, maintenance, testing and refuelling.

NPPs

Nuclear Power Plant(s)

Nuclear Events

In the context of the reporting and analysis of events, an event is any occurrence unintended by the operator, including operating error, equipment failure or other mishap, and deliberate action on the part of others, the consequences or potential consequences of which are not negligible from the point of view of protection or Nuclear Safety.

Nuclear Facility

A Facility including associated buildings and equipment in which Nuclear Material is produced, processed, used, handled, stored or disposed of including Radioactive Waste Repository.

Nuclear Fuel

Fissionable nuclear material in the form of fabricated elements for loading into the reactor core of a civil nuclear power plant or research reactor.



Terms and Abbreviations

Nuclear Fuel Cycle-Related R&D Activities	Reference FANR-REG-10, Article (22)1: Those research and development activities which are specifically related to any process or system development aspect of any of the following: <ul style="list-style-type: none">• Conversion of Nuclear Material;• Nuclear fuel fabrication• Nuclear reactors;• Critical facilities;• Processing (not including repacking or conditioning not involving the separation of elements, for Storage or Disposal) of intermediate or high-level waste containing plutonium, high enriched uranium or uranium-233.
Nuclear Incident(s)	Any occurrence or series of occurrences having the same origin which causes nuclear damage or, but only with respect to preventive measures, creates a grave and imminent threat of causing such damage.
Nuclear Material Accountancy	The practice of Nuclear Material accounting as implemented by the Facility Licensee and the State System of Accounting for and Control of Nuclear Material (SSAC), inter alia, to satisfy the requirements in the safeguards agreement between the IAEA and the State; and as implemented by the IAEA, inter alia, to independently verify the correctness of the nuclear material accounting information in the facility records and the reports provided by the SSAC to the IAEA
Nuclear Material Accountancy and Control	The practice of Nuclear Material accountancy and the control of Nuclear Material pursuant to this regulation.
Nuclear Reactor	A device in which nuclear fuel is used in to control nuclear fission reactions, and to sustain the required environment for controlled fission reactions without causing an explosion during chain reactions. It includes research reactors and power reactors.



Terms and Abbreviations

**Nuclear Safeguards
Equipment**

Any equipment mandated by, or installed by, the Authority or IAEA for the Containment and surveillance of Nuclear Material.

Nuclear Safety

The achievement of proper operating conditions, prevention of Accidents or mitigation of Accident consequences, resulting in protection of workers, the public and the environment from undue radiation hazards.

Nuclear Sector

The Sector related to the Regulated Activities.

Nuclear Security

The prevention and detection of, and response to, theft, sabotage, unauthorised access, illegal transfer or other malicious acts involving Nuclear Material, other radioactive substances or their associated facilities.



Terms and Abbreviations

O

Occupationally Exposed	Exposed to radiation in the course of work
Occupational Exposures(s)	Exposure of workers incurred in the course of their work, with the exception of excluded exposures and exposures from exempt practices or exempt Sources according to specifications set by the Authority.
Operating Lifetime	The period during which an authorised facility is used for its intended purpose, until decommissioning or closure.
Operating Records	Records kept at each Facility or Location Outside Facility on the operation of such Facility or Location Outside Facility regarding the use or handling of Nuclear Material, including calibration related equipment and activities taken for accounting purposes.
Operating Personnel	The Senior Reactor Operator, the Reactor Operator, or the Equipment Operator at a Nuclear Facility.
Operation	All activities performed to achieve the purpose for which an authorised Facility, by the Authority was constructed.
Operational Intervention Levels (OILs)	A calculated level, measured by instruments or determined by laboratory analysis, which corresponds to an intervention level or action level.
Operational Limits and Conditions	A set of rules setting forth parameter limits, the functional capability and the performance levels of equipment and personnel approved by the regulatory body for safe operation of an authorized facility.
Operational States	States defined under normal operation and anticipated operational occurrences
Operational Support Centre (OSC)	The facility for operational control of personnel performing Emergency Response tasks (e.g. environmental monitoring, health physics, damage control and fire fighting) and providing health physics support for personnel responding from offsite.



Terms and Abbreviations

Operator

Any person authorised and/or responsible for nuclear safety, radiation safety, Radioactive Waste or transport Safety when undertaking activities or in relation to any Nuclear Facilities or Sources of Ionising Radiation. This includes, inter alia, individuals in their personal capacity, governmental bodies, co-signers or carriers, Licensees, hospitals, self-employed persons, etc.

Optimisation

The process of determining what level of Protection and Safety makes exposures, and the probability and magnitude of potential exposures, “as low as reasonably achievable (ALARA)” , economic and social factors being taken into account, as required by the International Commission on Radiological Protection System of Radiological Protection.

Organisation

A unit of people systematically arranged for a particular purpose

Orphan Sources

A Radioactive Source which Is not under the Regulatory Control, either because it has never been under such Regulatory Control or because it has been abandoned, lost, misplaced, stolen or whose possession or ownership has otherwise been transferred in the absence of an appropriate Licence.

Owner Controlled Area

An area outside of the Protected Area, but inside the site boundary.



Terms and Abbreviations

P

Passive Component

A component whose functioning does not depend on an external input such as actuation, mechanical movement or supply of power.

Periodic Safety Review

A systematic reassessment of the Safety of an existing Facility (or Activity) carried out at regular intervals to deal with the cumulative effects of ageing, modifications, operating experience, technical development and siting aspects, and aimed at ensuring a high level of Safety throughout the service life of the Facility (or Activity)

Person

Natural or juridical persons in the public or private sector

Physical Inventory (of Nuclear Material)

The sum of all the measured or derived estimates of Batch quantities of Nuclear Material physically present at a given time within a MBA, in accordance with specified procedures. It is determined by the Facility Licensee as a result of a Physical Inventory Taking (PIT) and is reported to the IAEA in a Physical Inventory Listing (PIL).



Terms and Abbreviations

Physical Inventory Listing (PIL)

Reference FANR-REG-10, Article (12)3:

The Licensee shall complete a Physical Inventory Listing and submit it to the Authority either by using the Physical Inventory Listing form in Annex I.1 of this regulation or by another method and in another format as notified to the Licensee by the Authority for such purpose;

The Physical Inventory Listing shall, inter alia, list all Batches of Nuclear Material separately and specifying material identification and Batch data for each Batch

The Licensee shall submit the Physical Inventory Listing within 10 days after the start of the Physical Inventory Taking at a Material Balance Area;

Physical Inventory Listing shall be accompanied by the Material Balance Report with exception of the first Physical Inventory Listing to be conducted on the relevant Material Balance Area, which shall not require a Material Balance Report;

All Inventory Changes occurring on the Physical Inventory Taking date should be reflected in the corresponding Physical Inventory Listing and Material Balance Report.

Physical Inventory Taking (PIT)

A process to produce a complete list of the Nuclear Material for an MBA as a basis for allowing verification of Physical Inventory.

Physical Protection

Measures for the protection of Nuclear Material or authorised Facilities, designed to prevent unauthorised access or removal of fissile material or sabotage with regard to safeguards, as, for example, in the Convention on the Physical Protection of Nuclear Material or other related international agreements, to which the State is a party



Terms and Abbreviations

Physical Protection Plan	A plan that describes the duties and responsibilities of members of the security organisation. The Plan shall address: organisation and staffing; Physical Protection including the designation of Protected Areas and Vital Areas; guard training and qualification; information security; Cyber Security; and responses to security contingencies including consideration of concurrent Nuclear Safety related Emergencies and security threats.
Physical Separation	Separation by geometry (distance, orientation, etc.), by appropriate barriers, or by a combination thereof.
Planned Exposure Situation	A situation of exposure to ionising radiation that arises from the planned operation of a source or from a planned Activity that results in an exposure from a source.
Plant States	Includes operational states and accident states. Operational states consist of normal operation and Anticipated Operational Occurrences. Accident Conditions consist of DBAs and beyond DBAs.
Postulated Initiating Event (PIE)	An event identified in Design as leading to anticipated Operational occurrences or accident conditions. A PIE is not and accident itself, but the event that initiates a sequence and leads to an Operational occurrence, a design basis accident or a severe accident depending on the additional failures that occur, including equipment failures such as pipe breaks, human errors, human induced events and natural events.
Pre-disposal	Any waste management steps carried out prior to disposal, such as pre-treatment, treatment, conditioning, storage and transport activities.
PTS	Pressurised Thermal Shock
Probable Threat	A large-threat aircraft that is heading toward and is between five and 30 minutes of the site.



Terms and Abbreviations

Probabilistic Risk Assessment (PRA)

A comprehensive, structured approach to identifying failure scenarios constituting a conceptual and mathematical tool for deriving numerical estimates of risk.

Level 1 comprises the assessment of failures leading to the determination of the frequency of core damage.

Level 2 constitutes the assessment of containment response and leads to the determination of frequency of containment failure resulting in release to the environment of a given percentage of the reactor core's inventory of radionuclides.

PRA Peer Review

A process used to demonstrate conformance with FANR-REG-05. The process uses a documented procedure to direct the peer review team when evaluating the adequacy of a PRA.

PRA Peer Review Team

Group of individuals assembled by the applicant or licensee to provide a review of the scope and quality of the PRA against a defined standard. The peer review team members shall be independent of the personnel who developed the PRA, familiar with the areas of the plant design modelled in the PRA and have expertise in the technical areas and methods used in developing the PRA.

Processing

Any operation that changes the characteristics of waste including pre-treatment, treatment and conditioning.

Processing of Radioactive Waste

Any operation that changes the characteristics of Radioactive Waste, including pre-treatment, treatment and conditioning

Protected Area

An area encompassed by physical barriers and to which access is controlled; the outermost of two barriers to provide protection against unauthorized access to the Nuclear Facility.

Protection and Safety

The protection of people against exposure to ionizing radiation or Radioactive Material and the safety of Radiation Sources, including the means for achieving this, and the means for preventing Accidents and for mitigating the consequences of Accidents should they occur.



Terms and Abbreviations

Protection System	System which monitors the Operation of a reactor and which, on sensing an abnormal condition, automatically initiates actions to prevent an unsafe or potentially unsafe condition.
Protective Action	An action, other than a remedial action, for the purposes of avoiding or reducing doses that might otherwise be received in an Emergency exposure situation.
PSAR	Preliminary Safety Analysis Report
Public Exposure(s)	Exposure incurred by members of the public from Radiation sources, excluding any occupational or medical exposure and the normal local natural background radiation but including exposure from authorised sources and practices and from intervention situations.



Terms and Abbreviations

Q

Qualified Expert

An individual who, by virtue of certification by appropriate boards or societies, professional licences or academic qualifications and experience, is duly recognized as having expertise in a relevant field of specialisation.

Quality Assurance

The function of a Management System that provides confidence that specified requirements will be fulfilled.



Terms and Abbreviations

R

Radiation Generator

A device capable of generating ionizing radiation, such as X-rays, neutrons, electrons or other charged particles, that may be used for scientific, industrial or medical purposes.

Radiation Protection

The protection of people from the effects of exposure to Ionising Radiation, and the means for achieving this.

Radiation Protection Officer

A person technically competent in radiation protection matters relevant for a given type of Regulated Activity with Regulated Material who is designated by the Licensee to oversee the application of relevant requirements established in this regulation.

Radiation Source

A radiation generator, or a Radioactive Source or other Radioactive Material outside the nuclear fuel cycles of research power reactors.

Radiation Weighting Factor

The number by which the absorbed dose in a tissue is multiplied to reflect the relative biological effectiveness of the radiation in inducing stochastic effects at low doses, the result being the Equivalent Dose.

The radiation weighting factors published in 'The 1990 Recommendations of the International Commission on Radiological Protection (ICRP 60)' shall be applied until the Authority determines that the revised radiation weighting factors published in 'The 2007 Recommendations of the International Commission on Radiological Protection' (ICRP 103) shall be applied.

Radioactive Material

Material designated by the Authority as being subject to Regulatory Control because of its radioactivity.



Terms and Abbreviations

Radioactive Source

Radioactive Material that is permanently sealed in a capsule or closely bonded and in a solid form and which is not exempt from Regulatory Control. This also includes any Radioactive Material released if the Radioactive Source is leaking or broken, but does not include material encapsulated for Disposal, or Nuclear Material with the nuclear fuel cycles of research and power reactors.

Radioactive Waste

Waste that contains or is contaminated with, radionuclides at concentrations or activities greater than levels as established by the Authority.

Radioactive Waste Management

All administrative and operational activities involved in the handling, pre-treatment, treatment, conditioning, transport, Storage and Disposal of Radioactive Waste.

Radioactive Waste Management Facilities

Facility specifically designated to handle, treat, condition, temporarily store or permanently dispose of Radioactive Waste.

Radioactive Waste Repository

A repository to deposit Radioactive Waste for disposal purposes.

Radiological Medical Practitioner

A health professional (an individual licensed by the competent authorities of the State to practise a profession related to health), with education and specialist training in the medical uses of radiation, who is competent to independently perform or oversee procedures involving Medical Exposure in a given category.

Radiological Sabotage

Any deliberate act directed against a Nuclear Facility, or against nuclear material in use, storage, or transport, which could directly or indirectly endanger the health and Safety of personnel, the public by exposure to radiation or the release of radioactive material.

Radiopharmacist

A health professional (an individual licensed by the competent authorities of the State to practise a profession related to health), with education and specialist training in radiopharmacy, who is competent to prepare and dispense radiopharmaceuticals used for the purposes of medical diagnosis and therapy.



Terms and Abbreviations

RBCoO	Regulatory Body of the Country of Origin
Reactor Operator	The control room operator who normally manipulates the Nuclear Facility controls, particularly the controls affecting reactor reactivity.
Receiver	A person, organization or government which is entitled to take delivery of a consignment. In IAEA TR-S-1 a Receiver is called a Consignee.
Records	For Safeguards defined as Accounting Records, Operating Records, all Reports and clarifications thereof, source documents related to Nuclear Material Accountancy and Control, notifications to the Authority, requested reports, studies and experiments, and any other selected items that the Authority identifies to the Licensee in connection with its regulations.
Recovery	Steps taken to restore a system or device to its original state of Operation following a catastrophic or partial loss of functionality or when an original state of Operation is challenged by either an event (such as a Cyber Attack) or anomaly (behaviour not expected from Normal Operation).
Redundancy	Provision of alternative (identical or diverse) SSCs, so that anyone can perform the required function regardless of the state of operation or failure of any other.
Referring Medical Practitioner	A health professional (an individual licensed by the competent authorities of the State to practise a profession related to health) who, in accordance with the requirements of the state, may refer individuals to a Radiological Medical Practitioner for Medical Exposure.
Regulated Activities	The activities identified in Article 25 of this Law by Decree.



Terms and Abbreviations

Regulated Material

Any Radioactive Material, special materials and equipment, Radioactive Waste, nuclear spent fuel and any other material, product, service or asset whether tangible or intangible, which, in the opinion of the Authority, is or may in the future be related to or connected with the Nuclear Sector and designated as such from time to time by implementing regulations; and

Any other Radioactive Material and Sources of ionising Radiation as designated by the Authority from time to time as requiring its direct oversight.

Regulatory Control

Any form of control or regulation applied to Facilities or Activities by the Authority for reasons relating to Radiation Protection or to the Safety or security of Radioactive Sources.

Regulatory Inspection

Inspection undertaken by or on behalf of the authority to ensure the Licensee's compliance with the provisions of this Law by Decree, the implementing regulation, regulations in force and terms of the Licence.

Reports

For safeguards are defined as Special Reports, Physical Inventory Listings, Material Balance Reports, Inventory Change Reports and any other report drafted by the Licensee for any reason.

Representative Person

An individual receiving a dose that is representative of the more highly exposed individuals in the population.

Reprocessing

A process or operation, the purpose of which is to extract radioactive isotopes from nuclear spent fuel for further use.

Residual Dose

The dose expected to be received or measured/assessed after Protective Actions have been fully implemented (or a decision has been taken not to implement any Protective Actions) and any remedial actions have been terminated.

Response Organisation

An organisation responsible for managing or implementing any aspect of an Emergency Response.

Risk Achievement Worth (RAW) Importance

For a specified Basic Event, risk achievement worth importance reflects the increase in a selected figure of merit when an SSC is assumed to be unable to perform its function due to testing,



Terms and Abbreviations

- Measure** Maintenance, or failure. It is the ratio or interval of the figure of merit, evaluated with the SSC's Basic Event probability set to one, to the base case figure of merit.
- Risk Significant Equipment** Equipment identified in the Probabilistic Risk Assessment whose failure contributes substantially to the core damage frequency.



Terms and Abbreviations

S

Sabotage

Any deliberate act directed against a Radioactive Source or any facility in which a Radioactive Source is located or stored that could directly or indirectly endanger the health and safety of personnel, the public or the environment by exposure to radiation or release of radioactive substances.

Safeguards Agreement

The Agreement between the State and IAEA for the application of Safeguards in connection with the Treaty on the Non-Proliferation of Nuclear Weapons (2003) and the Protocol Additional to that Agreement *(2009).

Safety

The protection of people and environment from exposure to Radiation risks, the safety of facilities including safety of nuclear facilities and radiation safety and safety of management of radioactive materials and the safety transport of radioactive materials, and the means for preventing Accidents and for mitigating the consequences of Accidents, and does not include safety aspects not related to radiation field.

Safety Analysis Report (SAR)

The detailed demonstration of the safety, security and safeguards of a nuclear facility presented in the form of an integrated report that presents the necessary and sufficient information in support of the licence application for authorization of the regulated activity requested.

Safety Assessment

Assessment of all aspects of a practice that are relevant to protection and Safety: for an authorised Facility this includes siting, Design and Operation of the Facility.

Analysis to predict the performance of an overall system and its impact, where the performance measure is the radiological impact or some other global measure of the impact on Safety.

The systematic process that is carried out throughout the design process to ensure that all relevant Safety requirements are met by the proposed (or actual) design. Safety Assessment includes, but is not limited to, the formal Safety analysis required by the Authority.



Terms and Abbreviations

Safety Case	A collection of arguments and evidence in support of the safety of a facility or activity including the findings of a Safety assessment and a statement of confidence in these findings.
Safety Culture	The assembly of characteristics and attitudes in organisations and individuals which establishes that, as an overriding priority, protection and safety issues receive the attention warranted by their significance.
Safety Evaluation Report (SER)	The regulatory review and assessment of the construction licence application and the operator licence application, presented in the form of an integrated report that summarizes the review and assessment performed by or for the regulatory body and provides a clear conclusion about the safety of the authorized activity.
Safety Function(s)	A specific purpose that must be accomplished for Safety.
Safety Group(s)	The assembly of equipment designated to perform all actions required for a particular PIE to ensure that the limits specified in the design basis for anticipated operational occurrences and DBAs are not exceeded.
Safety Related System(s)	A system important to Safety that is not part of a safety system.
Safety Significance / Safety Significant	Any system, structure, component or human action whose failure can cause a change in PRA results that exceed predefined risk criteria.
Safety System(s)	A system important to Safety, provided to ensure the safe shutdown of the reactor or the residual heat removal from the core, or to limit the consequences of anticipated operational occurrences and DBAs.
Safety System Settings	The levels at which protective devices are automatically actuated in the event of anticipated operational occurrences or Accident Conditions, to prevent Safety limits being exceeded.



Terms and Abbreviations

Sandstorm	An ensemble of particles of sand energetically lifted by a strong and turbulent wind. The forward portion of the sandstorm may have the appearance of a wide and high wall. The height to which sand is raised will increase with increasing wind speed and instability.
Seal	A Tamper-indicating Device used by the Authority or IAEA to join movable segments of a Containment in a manner such that access to its contents without opening the Seal or breaking of the Containment is difficult.
Secondary Alarm Station	An installation, which provides for redundant functionality of the Central Alarm Station.
Security Breach	Unauthorised access to or the theft, loss, damage or unauthorised use, removal or transfer of any Category 1, 2 or 3 Source; or Sabotage of any Category 1, 2 or 3 Source.
Security Controls	Countermeasures employed to avoid, counteract, or minimise security risks. Management, technical, and operational controls collectively referred as Security Controls. NIST SP 800-82, "Guide to Industrial Control Systems (ICS) Security".
Security Culture	Characteristics and attitude in organisations and of individuals which establish that security issues receive the attention warranted by their significance.
Security Plan	An integrated set of measures designed to deter, detect, delay and respond to any Security Breach, together with management measures addressing access control, trustworthiness, information protection, training and qualification, accounting and record keeping. Each Security Plan shall be formulated and submitted to the Authority for approval in accordance with the requirements set forth in this regulation.
Security Response Force	Armed members of the security organisation who are trained and qualified in accordance with the training and qualification plan to respond to contingency events. They have the primary responsibility of responding to threats against the Nuclear Facility up to and including the DBT.



Terms and Abbreviations

Segregation	An activity where types of Radioactive Waste are separated or are kept separate on the basis of radiological, chemical and/or physical properties, to facilitate the handling and/or processing of Radioactive Waste.
Senior Management	Senior Management means the person who, or group of people which, directs, controls and assesses an organisation at the highest level.
Senior Reactor Operator	The senior control room operator who oversees and directs the activities of Reactor Operators and Equipment Operators.
Sensitive Nuclear Information	Information (in electronic format as well as hard copy) that describes details of the Physical Protection Plan, the contingency response plan, the security officer training and qualification plan for Nuclear Facilities, or the transportation of Nuclear Material.
Severe Accidents	Accident conditions more severe than a DBA and involving significant core degradation.
Severe Accident Mitigation	Termination of or reduction in consequences of core melt Accidents.
Severe Accident Prevention	Prevention of reactor core from melt. Correction measures to any imbalance and disorder that may lead to melt the nuclear reactor core.
Shipper	A person, organization or government that prepares a consignment for transport. In IAEA TR-S-1 a Shipper is called a Consignor.
Single Failure	A failure which results in the loss of capability of a component to perform its intended Safety Function(s), and any consequential failure(s) which result from it.
Single Failure Criterion	A criterion (or requirement) applied to a system such that it must be capable of performing its task in the presence of any Single Failure.



Terms and Abbreviations

Site	For Safeguards means an area delimited by the State in the relevant design information for a Facility, including a closed-down Facility, and in the relevant information on a Location Outside Facility where nuclear material is customarily used, including a closed-down Location Outside Facility where Nuclear Material was customarily used. It shall also include all installations, collocated with the Facility or Location Outside Facility, for the provision or use of essential services.
Site Area	A geographical area that contains an authorised Facility, authorised Activity or source and within which the management of the authorised Facility or authorised Activity may directly initiate Emergency Actions.
Site Area Emergency	<p>An event resulting in a major decrease in the level of protection for the public or on-site personnel.</p> <p>This includes: (1) a major decrease in the level of protection provided to the reactor core or large amounts of spent fuel; or (2) conditions where any additional failures could result in damage to the reactor core or spent fuel; or (3) high doses on-site. When a Site Area Emergency is declared, preparations should be made to take Protective Actions off-site and to control the doses to on-site personnel.</p>
Siting	The process of selecting a suitable site for a Facility, including appropriate assessment and definition of the related design basis.
Source Material	Uranium containing the mixture of isotopes occurring in nature; uranium depleted in isotope 235; thorium; any of the foregoing in the form of metal, alloy, chemical compound, or concentrate; any other material containing one or more of the foregoing in such concentration as the Authority shall from time to time determine based on the decision of the IAEA Board of Governors; and such other material as the Authority shall from time to time determine based on the decision of the IAEA Board of Governors; but the term Source Material shall not be interpreted as applying to ore or ore residue



Terms and Abbreviations

Source Monitoring	The measurement of activity in Radioactive Material being released to the environment or of external dose rates due to sources within a Nuclear Facility.
Special Fissionable Material	Plutonium-239; uranium-233; uranium enriched in the isotopes 235 or 233; any material containing one or more of the foregoing; and such other fissionable material as the Authority shall from time to time determine based on the decision of the IAEA Board of Governors; but the term Special Fissionable Material does not include Source Material.
Special Reports	For Safeguards are reports given to the Authority by the Licensee pursuant to Article (13) of this FANR-REG-10.
Spent Nuclear Fuel	Nuclear fuel removed from a reactor following irradiation that is no longer usable in its present form.
State	United Arab Emirates
State System of Accounting for & Control of Nuclear Material (SSAC)	A system of accounting for and control of all Nuclear Material subject to safeguards under the Safeguards Agreement, which is established and maintained at the State level
Storage	The holding of Radioactive sources, nuclear spent fuel or Radioactive Waste in a Facility that provides for their/its containment, with the intention of retrieval.
Structures, Systems and Components (SSCs)	A general term encompassing all the elements of a Facility or Activity which contributes to protection and safety, except human factors. Structures are the passive elements such as building vessels and shielding. A System comprises several components assembled in such a way as to perform a specific active function and a Component is a discrete element of a system.
Supervised Area	A defined area not already designated as a Controlled Area but where Occupational Exposure conditions need to be kept under review even though specific protective measures and safety provisions are not normally needed.



Terms and Abbreviations

Supplier	Any legal person to whom a Licensee delegates duties, totally or partially, in relation to the design, manufacture, production or construction of a source. An importer of a source is considered a Supplier of a source.
Source Monitoring	The measurement of activity in Radioactive Material being released to the environment or of external dose rates due to sources within a Nuclear Facility.
Substantial Safety Hazard	The inability of a system in a Nuclear Facility to perform its safety function such that there is a major reduction in the degree of protection provided to the public health and safety.



Terms and Abbreviations

T

Tamper-indicating Device	A device used on a container or Containment in a manner that will provide an indication of any violation of the integrity of the container contents.
Target Elements	Components or functions performed by plant Licensees the loss, destruction, or incapacitation of which would result in core damage or Spent Nuclear Fuel damage.
Target Sets	Sets of Target Elements.
Technical Support Centre (TSC)	The facility that provides technical support for the control room Licensees in mitigating the consequences of the Emergency and regaining control of the Nuclear Facility.
The Authority	The Federal Authority for Nuclear Regulation.
Tissue Weighting Factor	<p>The multiplier of the Equivalent Dose to a tissue or organ used for radiation protection purposes to account for the different sensitivities and tissues to the induction of stochastic effects of radiation.</p> <p>The tissue weighting factors published in 'The 1990 Recommendations of the International Commission on Radiological Protection (ICRP 60)' shall be applied until the Federal Authority for Nuclear Regulation (FANR) determines that the revised tissue weighting factors published in 'The 2007 Recommendations of the International Commission on Radiological Protection (ICRP 103) shall be applied.</p>
Transport Index	A number assigned to a package, overpack or freight container, or to unpackaged LSA-I or SCO-I, which is used to provide control over radiation exposure.
Transport Security Plan	A transport security plan specifying requirements relating to any transportation of a Category 1, 2 or 3 Source, formulated and submitted to the Authority for approval in accordance with the requirements set forth in this regulation.



Terms and Abbreviations

Treatment

Operations intended to benefit Safety by changing the characteristics of the Radioactive Waste. Three basic Treatment objectives are: (a) volume reduction; (b) removal of radionuclides from the Radioactive Waste; (c) change of composition.



Terms and Abbreviations

U

Ultimate Heat Sink

A medium into which the residual heat can always be transferred, even if all other means of removing the heat have been lost or are insufficient.

Urgent Protective Action

A Protective Action in the event of an Emergency which must be taken promptly (normally within hours) in order to be effective, and the effectiveness of which will be markedly reduced if it is delayed.



Terms and Abbreviations

V

Vital Area	An area inside a Protected Area containing equipment, systems or devices, or Nuclear Material, the sabotage of which could directly or indirectly lead to unacceptable radiological consequences.
Vital Equipment	Any equipment, system, device, or material, the failure, destruction, or release of which could directly or indirectly endanger the public health and safety by exposure to radiation. Equipment or systems which would be required to function to protect public health and safety following such failure, destruction, or release are also considered to be vital.
Vulnerability	A weakness in the physical or electronic configuration of a Critical Digital Asset or connected digital asset that could allow an action that compromises the cyber security of the asset.



Terms and Abbreviations

W

Worker(s)

Any person who works full-time, part-time or on a temporary basis in a nuclear facility and who has recognised rights and duties in relation to occupational radiation protection

Workplace Monitoring

The measurement of radiation dose or contamination in the workplace for reasons related to the assessment or control of exposure to radiation or radioactive material and the interpretation of the results