
DRAFT REGULATION

Regulation for Emergency Preparedness and Response for Nuclear Facilities (FANR-REG-12)

Version 1

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PREAMBLE

This regulation is issued by the Federal Authority for Nuclear Regulation pursuant to the powers conferred to its Board of Management by Article (11) (4) of the Federal Law by Decree No 6 of 2009 Concerning the Peaceful Uses of Nuclear Energy (the Law).

DEFINITIONS

Article (1)

For the purposes of this regulation, the following terms shall have the meaning set forth below. Other capitalised terms used but not defined herein shall have the meaning ascribed to them in Article 1 of the *Federal Law by Decree No. 6 of 2009 Concerning the Peaceful Uses of Nuclear Energy* (the Law):

Alert	An event that warrants taking actions to assess and to mitigate the potential nuclear, radiological and non-radiological consequences at a Nuclear Facility. Upon declaration of this Emergency class, actions shall be taken promptly to assess and to mitigate the potential consequences of the event and to increase the readiness of the On-site Response Organisations. When an Alert is declared, the state of readiness of the Off-site Response Organisations is also increased.
Concept of Operations	A brief description of an optimal Emergency Response to a postulated nuclear or radiological Emergency, which is used to ensure that all those personnel and organisations involved in the development of a capability for Emergency Response share a common understanding of the said optimal Response.
Competent Authorities	All local and federal government authorities in the State that have some responsibilities among others in Radiation Protection, qualification and Emergency, crisis, and disaster management.
Emergency Action Level	A specific, predetermined criterion for observable conditions used to detect, recognise and determine the classification of an Emergency.
Emergency Classification	The process whereby a Licensee classifies an Emergency in order to declare an applicable Emergency class.
Emergency Exposure Situation	A situation of Exposure that arises as a result of an Accident, and requires a prompt action in order to avoid or to reduce adverse consequences.
Emergency Operations Facility	The Licensee's facility which is responsible for commanding and controlling the On-site Emergency Response and for coordinating with the Off-site Authorities the Emergency Response during Site Area Emergency or General Emergency.

Emergency Services	The local Off-site Emergency Response Organisations that are available and perform Emergency Response actions functions. These may include police, firefighters and rescue brigades, ambulance services and control teams for hazardous materials.
Emergency Worker	A person who has specific duties as a worker in response to an Emergency.
Existing Exposure Situation	A situation of Exposure which already exists when a decision on the need for control of the said Exposure needs to be taken.
Exposure	The state or condition of being subject to irradiation.
General Emergency	An event resulting in an actual release, or substantial probability of a release of Radioactive Material, requiring implementation of Urgent Protective Actions Off-site. This includes: (1) actual or projected damage to the reactor core or large amounts of Spent Nuclear Fuel; or (2) releases of Radioactive Material Off-site resulting in Doses exceeding intervention levels for Urgent Protective Actions. When a General Emergency is declared, Urgent Protective Actions and other Emergency Response actions are recommended immediately and shall be taken promptly.
Generic Criteria	Levels for the projected Dose, or the Dose that has been received at which Protective Actions and other Emergency Response actions are to be taken.
Hazard Assessment	Assessment of hazards associated with facilities and activities within or beyond the State borders in order to identify events and the associated areas for which Protective Actions and other response actions may be required within the State, and actions that would be effective in mitigating the consequences of such events.
Medical Treatment Facility	A facility located On-site where Emergency medical treatment is provided to persons with conventional injuries, to persons exposed to radiation and to persons contaminated with radionuclides.
ious Act	An act or attempt of Unauthorized Removal of nuclear material or Radiological Sabotage.
Off-site	Outside the site.
Off-site Authority	A Response Organisation responsible for leading or coordinating the Off-site Emergency Response actions.
Off-site Emergency Plan	An Emergency Plan that defines the Emergency Zones and determines the actions to be taken by the Competent Authorities to protect the population, property and environment in case of an Accident. The said Emergency Plan is to be prepared and maintained by the Competent Authorities and

coordinated by the Competent Authorities and the Licensee.

On-site	Within the site.
On-site Emergency Plan	An Emergency Plan for a Nuclear Facility that determines the actions to be taken by the Licensee for Accident mitigation and remediation of its consequences in coordination with the Off-site Response Organisations as per the Off-site Emergency Plan. The said Emergency Plan defines the responsibilities, arrangements the Licensee shall have and the actions the Licensee shall carry out both On-site and Off-site, and within the Urgent Protective Action Zone as a preparation for an Emergency and during an Emergency.
Operational Support Centre	An On-site facility for On-site assembly and for the operational control of Emergency Workers performing tasks like environmental monitoring, health physics, damage control and support for firefighting. This facility also provides health physics support for Emergency Workers from Off-site Emergency Services.
Planned Exposure Situation	A situation of Exposure that arises from the planned use of any source of Ionising Radiation or from a planned activity that results in an Exposure.
Plant Operator	Any member of the Nuclear Facility staff who, by virtue of training and experience, is qualified to assess the indications or reports for validity and to compare the same to the Emergency Action Levels in the Licensee's Emergency Classification scheme.
Precautionary Action Zone	An area around a Nuclear Facility for which Emergency arrangements have been made to take Urgent Protective Actions in the event of a nuclear or radiological Emergency in order to avoid or to reduce/ mitigate the risk of severe deterministic effects Off-site.
Protective Action	An action for the purpose of avoiding or reducing Doses that might otherwise be received in an Emergency Exposure Situation or in an Existing Exposure Situation.
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 or the environment by exposure to radiation or the release of Radioactive Material.
Residual Dose	The Dose expected to be received after Protective Actions have been terminated (or after a decision has been taken not to take Protective Actions).
Response Organisation	An organisation designated in a relevant Emergency Plan as being responsible for managing or implementing any aspect of

an Emergency Response and taking Emergency Response actions in accordance with the relevant Emergency Plan.

**Site Area
Emergency**

An event resulting in a major decrease in the level of protection for the public or On-site personnel of the Licensee and Response Organisations due to: (1) a major decrease in the level of protection of the reactor core or of large amounts of Spent Nuclear Fuel; or (2) conditions where any additional failures could result in damage to the reactor core or Spent Nuclear Fuel; or (3) high Doses On-site. When a Site Area Emergency is declared, preparations shall be made to take Protective Actions Off-site and to control the Doses of the persons On-site.

**Technical Support
Centre**

An On-site facility that provides technical support to the control room personnel of the Licensee during Emergency Response and regaining control of the Emergency On-site.

Unusual Event

An event in progress or an event that has occurred, which leads to a potential deterioration of the Safety of the Nuclear Facility or poses a security threat to the Nuclear Facility. In case of such even, no releases of Radioactive Material requiring an Off-site Emergency Response or monitoring are expected, unless further deterioration of the safety systems of the Nuclear Facility occurs.

**Urgent Protective
Action**

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

**Urgent Protective
Action Planning
Zone**

An area around a Nuclear Facility for which Emergency arrangements have been made to take Urgent Protective Actions in the event of an Emergency to avert Doses Off-site in accordance with international safety standards. The Urgent Protective Actions within this area are to be taken on the basis of environmental monitoring or as appropriate, prevailing conditions at the Nuclear Facility.

OBJECTIVE AND SCOPE

Article (2)

The objective of this regulation is to specify the Authority's requirements for:

- a) the preparation, planning for, and implementation of Emergency Response to an Emergency at a Nuclear Facility,
- b) the establishment of On-site Response Organisations; and
- c) the development of appropriate arrangements and coordination mechanisms for both On-site and Off-site Emergency Response to effectively respond to and

mitigate the consequences of an Emergency.

Article (3)

This regulation does not apply to Off-site Emergency Plan and Off-site Response Organisations. However, the Licensee shall ensure that the provisions of this regulation are complied with and followed by any member of an Off-site Emergency Service while On-site to support or assist the Licensee in Emergency Response or in training on Emergency Response.

GENERAL REQUIREMENTS

Emergency Management Article (4)

1. The Licensee's Emergency arrangements shall be consistent with the State Emergency requirements and arrangements.
2. The Licensee's Emergency management system, authorities, responsibilities and duties related to Emergency Response, including positions to which these are assigned shall be documented in an On-site Emergency Plan of the Licensee.
3. The Licensee's Emergency arrangements described in an On-site Emergency Plan shall demonstrate an effective interface between the On-site and Off-site Response Organisations.

Hazard Assessment Article (5)

1. The applicant for a Licence shall conduct a Hazard Assessment of the potential Emergencies associated with the Nuclear Facility and shall include results thereof in an On-site Emergency Plan of the said Nuclear Facility.
2. The Hazard Assessment shall include:
 - a) foreseeable events that might take place at the Nuclear Facility, even when those have very low probabilities;
 - b) Emergencies occurring at multiple Nuclear Facilities on site; and
 - c) All type of Emergencies irrespective of their cause.
3. The applicant for a Licence shall evaluate the probabilities of occurrence of severe Accidents and the consequences of major releases of Radioactive Material.
4. The applicant for a Licence shall conduct an assessment which shall be provided to the Competent Authorities for establishing the Emergency Zones (Precautionary Action Zone and Urgent Protective Action Planning Zone) and Emergency distances.

5. The applicant for a Licence shall support to Competent Authorities in the establishment of criteria for taking Protective Actions.
6. The Licensee shall periodically review and, as required, revise the Hazard Assessment. The frequency of the reviews shall be stated in the On-site Emergency Plan.
7. The Licensee shall review the adequacy of Emergency arrangements for the Nuclear Facility against the Hazard Assessment.

Emergency Classification Article (6)

1. The Licensee shall define a standard Emergency Classification scheme, the basis of which shall include Nuclear Facility systems, effluent parameters and any other indication of initiating conditions.
2. The Licensee shall include a description of the Emergency Classification system in the On-site Emergency Plan. Emergency classes shall include: (1) General Emergency; (2) Site Area Emergency; (3) Alert; and (4) Unusual Event.
3. The Licensee shall clearly document the Emergency Action Levels and shall review them on a periodic basis or when changes in procedures or equipment occur that could have an impact on the Emergency Action Levels.
4. The Licensee shall take Malicious Acts into account when defining the Emergency Action Levels.

FUNCTIONAL REQUIREMENTS

Emergency Identification and Notification Article (7)

1. The Licensee shall:
 - a) immediately identify or detect an Emergency;
 - b) declare the Emergency class within 15 minutes after the availability of indications to Plant Operators that an Emergency Action Level has been exceeded as set forth in Article 6 of this regulation;
 - c) notify within 15 minutes of the declaration of an Emergency class or initial Protective Action recommendation to the Authority and Off-site Authorities thereof;
 - d) activate its On-site Response Organisation;
 - e) take immediate Emergency Response actions, including as appropriate Protective Action recommendations; and
 - f) Implement Protective Actions.
2. The Licensee shall have a documented system for notifying and activating members of the On-site Response Organization.

3. The Licensee shall specify the target time for activating the On-site Emergency Response in accordance with the On-site Emergency Plan.
4. The Licensee shall provide periodic updates to the Authority and to the Off-site Authorities on the Emergency at the Nuclear Facility according to the format and frequency defined in the On-site Emergency Plan.
5. The Licensee shall notify within 15 minutes to the Authority and the Off-site Authorities when the Emergency class or the Protective Action recommendations change.

Emergency Assessment Article (8)

The Licensee shall have the capabilities to conduct an assessment during an Emergency, which includes:

- a) predicting potential releases of Radioactive Material including any plume characteristics and associated Doses based on Nuclear Facility conditions;
- b) conducting On-site radiation measurements and sampling to determine the existence and extent of any abnormal radiation levels or releases of Radioactive Material;
- c) projecting any plume characteristics and associated Doses based on On-site radiation measurements; and
- d) developing Protective Action recommendations and notifying the Authority and Off-site Authorities of them based on the Assessment of the Emergency.

Emergency Mitigation Article (9)

The Licensee shall have the capabilities to take Emergency Response actions such as:

- a) identifying the cause of the Emergency and regaining control of the situation; and
- b) minimising to the extent possible any increased radiation levels or releases of Radioactive Material resulting from the Emergency.

On-site Protective Actions Article (10)

1. The Licensee shall be capable of implementing Protective Actions that will protect personnel On-site, including visitors and Off-site Emergency Workers.
2. The Licensee shall coordinate with Off-site Authorities the evacuation of non-essential On-site personnel and visitors from the Site.

Protection of the Public Article (11)

When formulating Protective Action recommendations for protection of the public to Off-site Authorities in accordance with Article (8)1.d of this regulation, the Licensee shall:

- a) consider the Generic Criteria as defined in Appendix 2 of the IAEA Safety Standard GSR Part 7, as revised from time to time.
- b) seek to avoid Exposures above a reference level expressed in terms of Residual Dose of 20 mSv acute or annual Dose with the consideration of the justification and optimization principles.

Protection of Emergency Workers Article (12)

1. In an Emergency Exposure Situation, the Licensee shall ensure that no Emergency Worker is exposed in excess of the Dose limits for Occupational Exposure set forth in the Authority's *Regulation for Radiation Dose Limits and Optimisation of Radiation Protection for Nuclear Facilities* (FANR-REG-04), as revised from time to time, except as set forth in paragraph (3) of this Article.
2. The Licensee shall ensure that female workers who have notified the Licensee of their pregnancy are excluded from implementing Emergency Response actions during their pregnancy and while they are breastfeeding.
3. In exceptional circumstances Emergency Workers may be exposed to effective Doses greater than the occupational Dose limits established in the Authority's regulation FANR-REG-04, as revised from time to time. To the extent feasible, these Emergency Workers shall be trained in the actions that may be required to respond to the Emergency. The Licensee shall make all reasonable efforts to keep Doses below the guidance values set forth in Appendix 1 of the IAEA Safety Standard GSR Part 7, as revised from time to time whilst taking all reasonable precautions to ensure the protection against external Exposure and internal Exposure. The Dose received by personnel undertaking Emergency Response actions in the previous 12 months must also be taken into consideration.
4. Any Exposure of Emergency Workers above the annual Dose limits for Occupational Exposure as set forth in the Authority's regulation FANR-REG-04, as revised from time to time must be based on informed consent from the Emergency Worker and must be measured and documented.
5. The Licensee shall be responsible for the protection of Emergency Workers from Off-site Emergency Services whilst those are On-site to support or assist the Licensee during an Emergency or whilst training On-site.
6. The Licensee shall have arrangements in place to ensure that Emergency Workers not previously designated as such receive the same level of protection as pre-designated Emergency Workers. Arrangements shall include training, protection equipment, monitoring equipment, iodine thyroid blocking agents, instructions and supervision.

Medical Response Management Article (13)

1. The Licensee shall have a Medical Treatment Facility and arrangements in place for the management of persons injured at the Site and who may be contaminated with radionuclides. The Medical Treatment Facility shall be responsible for the decontamination of persons as applicable prior to their treatment and/or their transportation to an appropriate Off-site medical facility.
2. The Licensee's arrangements shall include capabilities to:
 - a) search for and rescue missing persons;
 - b) transport injured persons to a Medical Treatment Facility On-site;
 - c) prioritize life-saving Emergency care;
 - d) perform medical triage, stabilize injured persons, and decontaminate persons, or take actions to contain contamination as appropriate; prior to their follow-up treatment at a designated Off-site medical facility;
 - e) transport injured persons to a designated Off-site medical facility to provide primary and secondary care;
 - f) manage contaminated corpses
 - g) support Off-site medical personnel for radionuclides contamination control, Radiation Protection, surveys and decontamination of Persons, rooms and equipment; and
 - h) estimate the Dose received.
3. The Licensee shall document arrangements with Off-site medical facilities; these arrangements shall include considerations related to the admission of persons contaminated with radionuclides to a designated Off-site medical facility.

Non-radiological Consequences Article (14)

The Licensee shall have the arrangements and capabilities to mitigate the non-radiological impact of the Emergency, and shall work with the Authority, and Off-site Response Organisations, as necessary, to take the Emergency actions to mitigate such impact.

Public Communication Article (15)

1. The Licensee shall have arrangements and capabilities in place for providing information on an Emergency to Off-site Authorities for the purpose of communication with the public.

2. The respective roles of the Licensee, Off-site Authorities and Off-site Response Organisations in communicating with the public during and in aftermath of an Emergency shall be clearly described in the On-site Emergency Plan and Off-site Emergency Plan.

Termination of an Emergency Article (16)

1. The Licensee shall establish the conditions and criteria for terminating the On-site Emergency Response actions of a declared Emergency class.
2. The Licensee shall develop general arrangements for a transition to a Planned Exposure Situation or Existing Exposure Situation. The arrangements shall include a process for consultation with the Competent Authorities and for the approval from the Authority.

Radioactive Waste Management Article (17)

1. The Licensee shall have a documented strategy and arrangements in place for characterising and managing of the Radioactive Waste expected to be generated On-site during an Emergency. This shall be consistent with applicable State policies, the Law and regulations issued by the Authority.
2. The strategy and arrangements to be developed by the Licensee shall take into consideration the commitments and obligations of the Licensee towards Off-site Response Organisations on the management of Radioactive Waste generated during an Emergency.

Analysis of Emergency and Response Article (18)

The Licensee shall have a system in place to analyse the Emergency and the Emergency Response, as well as arrangements in place to keep information, records and documents, re-construct the Emergency, identify the root cause of the Emergency, and improve Emergency arrangements.

REQUIREMENTS FOR INFRASTRUCTURE

On-site Emergency Plan and Procedures Article (19)

1. The Licensee shall maintain Emergency arrangements including an On-site Emergency Plan, related procedures, facilities including the Technical Support Centre, Emergency Operations Facility, Medical Treatment Facility and Operational Support Centre, as well as equipment that demonstrate with reasonable assurance that adequate protective and mitigating actions can and will be taken in the event of an Emergency.
2. The applicant for a Licence shall provide the On-site Emergency Plan to the Authority for approval prior to the Commissioning of the Nuclear Facility.

3. The On-site Emergency Plan shall cover all the Emergency Response (general, functional and infrastructure) requirements stipulated in this regulation.
4. The applicant for a Licence and the Licensee shall ensure that the On-site Emergency Plan takes into account the Hazard Assessment referred to in Article 5 of this regulation.
5. The applicant for a Licence shall include a Concept of Operations in the On-site Emergency Plan, which demonstrates the applicant's Emergency Preparedness arrangements and addresses all phases of the Operation of a Nuclear Facility including re-fuelling and shut-down of the Nuclear Facility. The Licensee shall ensure that the referred arrangements are updated as needed.
6. The On-site Emergency Plan and related procedures shall define the role and responsibilities of the Licensee, coordination arrangements with Off-site Response Organisations in Emergency Preparedness, and Emergency Response in relation to the Nuclear Facility and Malicious Acts at the Nuclear Facility. The on-site Emergency Plan and related procedures shall address, inter alia, the following areas:
 - a) Emergency Preparedness:
 - i. development, maintenance and regular testing of the Emergency Preparedness engagements with the Off-site Response Organisations;
 - ii. maintenance of Off-site Emergency facilities for which the Licensee has a responsibility;
 - iii. maintenance of a warning system for the public in the Emergency Zones;
 - iv. maintenance of radiological monitoring systems On-site;
 - v. maintenance of arrangements for the treatment to persons with conventional injuries, to persons exposed to radiation and to persons contaminated with radionuclides; and
 - vi. continuous awareness of the public on various aspects of Emergency, Emergency Actions and Emergency Response.
 - b) Emergency Response:
 - i. Emergency notification and periodic information exchange arrangements with the Competent Authorities on emergency response;
 - ii. recommendations by the Licensee on Protective Actions for protection of the public;
 - iii. operation of Off-site Emergency facilities for which the Licensee has a responsibility;
 - iv. operation of a warning system for the public in the Emergency Zones;
 - v. warning the public in the Emergency Zones;
 - vi. preparation and dissemination of public information and communication on Emergency with the media; care and management of evacuees from the Site;

- including patients from the Medical Treatment Facility;
- vii. provision of iodine thyroid blocking, as appropriate;
 - viii. environmental data sharing and assessment consolidation with other organisations responsible for environmental surveys;
 - ix. transition to a Planned Exposure Situation or Existing Exposure Situation; and
 - x. termination of an Emergency Exposure Situation On-site.
7. The On-Site Emergency Plan shall identify the Off-site Emergency Services needed to respond to an On-Site Emergency.
 8. The On-site Emergency Plan shall include or refer to documented arrangements between the Licensee and the Off-site Emergency Services needed to assist the Licensee during an Emergency. These arrangements shall be mutual and shall state the type and level of support to be provided including the anticipated response time and duration.
 9. The On-Site Emergency Plan shall identify the interfaces between the Licensee's On-site Emergency Organisation and the Off-site Response Organisations.
 10. The On-Site Emergency Plan shall describe arrangements for protecting persons On-site during an Emergency including Emergency Workers, Nuclear Facility personnel, visitors and Off-site Emergency Services On-site..
 11. The On-site Emergency Plan shall include the arrangements for responding to Emergencies occurring simultaneously in more than one Nuclear Facility On-site.
 12. The Licensee shall coordinate On-site Emergency Preparedness, Emergency Response arrangements and On-site Nuclear Security and safeguards arrangements. The Licensee shall be able to demonstrate that the Emergency, Nuclear Security and safeguards arrangements support each other and do not compromise one another under any circumstances.

Emergency Organisation Article (20)

1. The Licensee shall ensure that on-shift personnel of the Licensee assigned Emergency functions are not assigned any responsibilities that would prevent them from performing their assigned Emergency functions when needed.
2. There Licensee shall have a staff augmentation strategy in place at the On-site Emergency Organisations to allow for the continuous management of a long-term Emergency.
3. An Emergency Preparedness programme to ensure Emergency Preparedness in coordination with the Off-site Response Organizations shall be developed and maintained.

Logistics

Article (21)

1. The applicant for a Licence and the Licensee shall have the facilities, equipment and locations necessary to respond to an Emergency and to support all the functional requirements stipulated in this regulation. Facilities, equipment and locations shall include, inter alia, the following:
 - a) the control room that in addition to being the location for operational control of the Nuclear Facility is also the location where detection and classification of the Emergency and activating the Licensee's Emergency Response actions are expected to occur;
 - b) the Emergency Operations Facility for the command and control of the overall On-Site Emergency Response effort and coordination with Off-site Authorities.
 - c) the Technical Support Centre that provides technical support to the control room personnel of the Licensee in mitigating the consequences of the Emergency and regaining control of the Operation of a Nuclear Facility;
 - d) the Operational Support Centre for the operational control of personnel performing Emergency Response tasks and providing health physics support for Off-site personnel responding to the Emergency On-site;
 - e) an On-site Emergency Medical Treatment Facility with staff and equipment to provide Emergency treatment to Persons with conventional injuries and to persons contaminated with radionuclides, and for their decontamination prior to treatment or transportation to an appropriate Off-site medical facility;
 - f) a system to warn people On-site and to give them information and instructions during an Emergency;
 - g) a system for evacuation of non-essential On-site personnel and visitors from the Site;
 - h) assembly points where On-site personnel not involved in Emergency Response and visitors are assembled, accounted for and sheltered, and from where they can be evacuated;
 - i) a system for Alert and notification of Emergencies to the Authority and to the Off-site Authorities;
 - j) a system for ensuring continued communication with the Authority and the Off-site Authorities;
 - k) systems and equipment for Emergency mitigation including severe Accident management, which are suitably located and available for deployment under all postulated Emergency conditions;
 - l) a radiological monitoring system and other equipment able to measure radiation levels both On-site and Off-site;
 - m) a system for integrating data from all organisations involved in radiological monitoring for the purpose of forming a consolidated Assessment of the radiological conditions and making appropriate Protective Action recommendations to the Off-site

Authorities for protection of the public;

- n) analytical laboratories and services, which are suitably located to determine and characterise sample contamination and have provisions to have increased staff numbers on-shift and Off-site back-ups in case the Licensee's facilities including the Technical Support Centre, Emergency Operations Facility, Medical Treatment Facility and Operational Support Centre, are no longer usable;
 - o) a system for staff accounting, which allows for the prompt identification of missing persons On-site;
 - p) systems and equipment to support Off-site Authorities in accordance with the arrangements in place;
 - q) On-site monitoring systems used for conducting Emergency Classification and assessment including, but not limited to, geophysical, meteorological, hydrological, seismic, radiological, process monitoring, and fire and combustion products detectors;
 - r) operational equipment to support Emergency operations including a reliable communications system for Emergency Workers;
 - s) personal protection equipment including thyroid blocking agents sufficient for the number of Emergency Workers needed and for the expected duration of Emergency including arrangements for increased staff numbers on-shift as required;
 - t) tools and instruments for environmental radiological sampling; and
 - u) tools and systems for personnel monitoring and decontamination of persons, including On-site Emergency Workers.
2. Each Emergency Response facility and system shall be either:
- a) designed to support the functions for which it is established and be usable under all postulated Emergency conditions; or
 - b) provided with an alternate facility or system that can perform the same function when the primary facility or system is unavailable.
3. The Licensee shall demonstrate the reliability of Emergency Response facilities, systems, tools and equipment.
4. The applicant for a Licence and the Licensee shall have a documented maintenance programme for Emergency Response facilities, systems, tools and equipment including the periodic testing of all Emergency Response facilities and related Emergency Response systems and equipment, and calibrating radiation measurement instruments as required.

Emergency Response Data System Article (22)

1. The Licensee shall implement an Emergency Response data system that provides for the automated transmission of timely and accurate updates of safety-critical Nuclear Facility

parameters from the Licensee's installed On-site computer system to the Emergency Operations Facility in the event of an Emergency.

2. The applicant for a Licence and the Licensee shall have a back-up system to provide information of safety-critical parameters of the Nuclear Facility in case of failure of the Emergency Response data system.
3. The Licensee shall test the Emergency Response data system quarterly.

Training, Drills and Exercises Article (23)

1. The applicant for a Licence and the Licensee shall provide training for all individuals that may be involved in an Emergency On-site.
2. The Licensee shall maintain a training programme describing what training needs to be provided to whom and at what frequency.
3. This training programme shall include testing to demonstrate that the individuals understand their assignments, duties and responsibilities in the event of an Emergency.
4. The Licensee shall maintain comprehensive training records and shall report to the Authority in a timely manner any deviation between the actual training records and the training programme.
5. The applicant for a Licence and the Licensee shall provide training to Off-site Emergency Services expected to provide support On-site during an Emergency. This training shall be included in the training programme. It shall cover all required knowledge and skills required to perform the expected On-site Emergency functions.
6. The Licensee shall conduct periodic drills of its On-site Emergency Plan to ensure that its employees are familiar with their specific Emergency Response duties.
7. The Licensee shall conduct appropriate drills involving the employees who have defined roles as Emergency Workers in the On-site Emergency Organisation at a frequency that ensures the effectiveness of all Emergency Workers during an Emergency.
8. The Licensee shall conduct exercises involving a broad participation of On-site and Off-site Emergency Organisations at least once every two years.
9. The drills and exercises shall include a broad range of postulated scenarios irrespective of their cause, shall cover all functional requirements stipulated in this regulation, and shall involve all On-site and Off-site Emergency Organizations over a period of eight years.
10. The Licensee shall review the results of these drills and exercises and make any necessary re-training or correction to the On-site Emergency Plan. Any relevant findings shall be reported to the Authority within a reasonable time after the drill or exercise.

Quality Management Programme Article (24)

1. The On-site Emergency Plan and arrangements shall be covered under the Licensee's Management System in accordance with the Authority's *Regulation for Management Systems for Nuclear Facilities (FANR-REG-01)*, as revised from time to time.
2. The applicant for a Licence and the Licensee shall establish a programme to ensure availability and reliability of supplies, equipment, communications systems and facilities, plans, procedures and other arrangements necessary to perform Emergency functions.
3. The Licensee shall document and maintain the review(s) and update(s) of the On-site Emergency Plan, procedures and other arrangements, and incorporate lessons learnt from research, operating experience (such as the response to an Emergency), and Emergency drills and exercises.
4. The Licensee shall ensure that its On-site Emergency Plan, facilities including the Technical Support Centre, Emergency Operations Facility, Medical Treatment Facility and Operational Support Centre, equipment and supplies are up-to-date and adequately maintained.
5. The Licensee shall have a process for the review and dissemination of the On-site Emergency Plan and procedures, which includes provisions for ensuring that the latest version of the On-site Emergency Plan and procedures are available to all relevant personnel and Competent Authorities.
6. The Licensee shall review the On-site Emergency Plan at least once a year or whenever there are changes that could affect the effectiveness of the Emergency arrangements.
7. The Licensee shall ensure that periodic, independent reviews of the On-site Emergency Plan and arrangements are conducted.
8. The Licensee shall assess the potential for adverse effects on the On-site Emergency Plan before implementing changes to the Nuclear Facility conditions, configurations, organisational structure or security.
9. The Licensee shall have a process for identifying changes that may be needed to the On-site Emergency Plan and to the arrangements including the performance and expected Emergency Response time. The Licensee shall also have a process to report to the Authority any issue that may decrease the effectiveness of the On-site Emergency Plan and arrangements.
10. The Licensee shall submit the On-site Emergency Plan to the Authority for review and, if appropriate, approval following any revision.

Entry into Force Article (25)

This Regulation shall be published in the Official Gazette and shall come into force one (1) month following the date of its publication in the Official Gazette.