

NIGERIAN NUCLEAR REGULATORY AUTHORITY



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NIGERIAN REGULATIONS ON MANAGEMENT SYSTEM FOR FACILITIES AND
ACTIVITIES

2019

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NUCLEAR SAFETY AND RADIATION PROTECTION ACT

(Act 19 of 1995)

Nigerian Regulations for Management Systems for Nuclear Facilities and Activities.

In exercise of the powers conferred on it by Section 47 of the Nuclear Safety and Radiation Protection Act 1995 and of all other powers enabling it in that behalf, THE NIGERIAN NUCLEAR REGULATORY AUTHORITY, with the approval of the President; hereby makes the following Regulations-

PART I- GENERAL

1.0. Interpretation:

For purposes of these Regulations, the following terms shall have the meanings set forth below.

“Activities” means the production, use, import and export of radiation sources for industrial, research and medical purposes; the transport of radioactive material; the decommissioning of facilities, radioactive waste management activities such as the discharge of effluence and some aspects of the remediation of site affected by residues from past activities.

“Assessment” means the process, and the result, of analyzing systematically and evaluating the hazards associated with practices, and associated protection and safety measures.

“Authority” means the Nigerian Nuclear Regulatory Authority

“Emergency” means a non-routine situation that necessitate prompt action, primarily to mitigate a hazard or adverse consequence for human life and health, property and the environment. This include nuclear and radiological emergency.

“Facilities” means 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 or where radiation generators are installed on such a scale that consideration of protection and safety is required.

“Graded Approach” means an application of safety requirements that is commensurate with the characteristics of a facility, an activity, or the source and with the magnitude and likelihood of the exposure.

“Institutional Control” means 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 decommissioning. 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.

“Licensee” means the person or organization having overall responsibility for a facility or activity

“Management System” means a set of interrelated or interacting elements (a system) for establishing policies and objectives and enabling the objectives to be achieved in an efficient and effective manner

“Nuclear Facility” means a facility (including associated buildings and equipment) in which nuclear material is produced, processed, used, handled, stored or disposed of.

“Nuclear Installation” means any nuclear facility subject to authorization that is part of the nuclear fuel cycle, except facilities for the mining or processing of uranium ores or thorium ores and disposal facilities for radioactive waste. This includes: nuclear power plants; research reactors (including subcritical and critical assemblies) and any adjoining radioisotope production facilities; storage facilities for spent fuel; facilities for the enrichment of uranium; nuclear fuel fabrication facilities; conversion facilities; facilities for the reprocessing of spent fuel; facilities for the predisposal management of radioactive waste arising from nuclear fuel cycle facilities; and nuclear fuel cycle related research and development facilities.

“Protection and Safety” means the protection of people against exposure to ionizing radiation or radioactive material and the safety of radiation sources, including the means of achieving this, and the means for preventing accident and for mitigating the consequences of accidents should they occur.

“Radiation” means ionizing radiation

“Radiation Risk” means detrimental health effects of exposure to radiation (including the likelihood of sure effects occurring), and any other safety related risks (including those to the environment) that might arise as a direct consequence of: exposure to radiation; the presence of radioactive material

(including radioactive waste) or its release to the environment; the loss of control over a nuclear reactor core, nuclear chain reaction, radioactive source or any other source of radiation.

“Resources” Includes human, infrastructure, the working environment, information and knowledge, and suppliers, as well as material and financial resources.

“Safety Culture” means the assembly of characteristics and attitudes in organizations and individuals which establishes that, as an overriding priority, protection and safety issues receive the attention warranted by their significance.

“Senior Management” means the person who, or group of people which, direct, controls and assesses an organization at the highest level.

2.0. Objectives:

The objectives of these regulations are to:

- i. Establish the requirements that support effective leadership and management for safety that must be implemented and sustained by organizations concerned with facilities and activities that give rise to radiation risks.
- ii. Establish the requirements that all practical efforts must be made to prevent and mitigate nuclear or radiation accidents.

3.0. Scope:

- a. These regulations define generic Management System requirements applicable throughout the lifetime of facilities and the duration of activities, for all operational states and for accident conditions, and in a nuclear or radiological emergency. The lifetime of a facility includes its siting and site evaluation, design, construction, commissioning, operation and decommissioning (or closure and the post-closure period, including any subsequent period of institutional control), until its release from regulatory control.
- b. These regulations is applicable to the establishment, implementation, assessment and continual improvement of Management Systems for:
 - i. Nuclear facilities;
 - ii. Nuclear Installations
 - iii. Activities using sources of ionizing radiation;
 - iv. Radioactive waste management;
 - v. The transport of radioactive material;
 - vi. Radiation protection activities;
 - vii. Any other practices or circumstances in which people may be exposed to radiation from naturally occurring or artificial sources;
- c. These regulations are also applicable in relation to the functions and activities of the Nigerian Nuclear Regulatory Authority to ascertain level of compliance with facility management systems

4.0. Application:

5.1 The application of these Regulations shall be in addition to other relevant extant regulations.

PART II- GENERAL REQUIREMENTS

5.0. Responsibility for Safety:

5.1. The registrant or licensee shall ensure that provisions are made to achieve the fundamental safety objective.

5.2. The senior management of organizations, in accordance with their accountabilities:

- a. Shall ensure the safe siting, design, construction, commissioning, operation and decommissioning (or closure) of facilities

- b. Shall ensure that equipment and activities meet safety standards, quality standards and management standards
- c. Shall ensure the safe management and control of all radioactive material and radiation sources that are produced, processed, used, handled, transported, stored or disposed of
- d. Shall ensure that managers at all levels in the organization develop and maintain an understanding of radiation risks and potential consequences, and of how to manage radiation risks relevant to their responsibilities
- e. Shall ensure that provision is made for adequate resources and funding, including for the long term management and disposal of radioactive waste, as well as for decommissioning (or closure) of facilities, with due consideration given to the protection of future generations
- f. Shall ensure that adequate arrangements are made where appropriate for preparedness and response for a nuclear or radiological emergency

6.0. Leadership for Safety

- 6.1. The senior management shall demonstrate leadership for safety by:
 - a. Establishing, advocating and adhering to an organizational approach to safety that stipulates that, as an overriding priority, issues relating to protection and safety receive the attention warranted by their significance;
 - b. Acknowledging that safety encompasses interactions between people, technology and the organization;
 - c. Establishing behavioural expectations and fostering a strong safety culture;
 - d. Establishing the acceptance of personal accountability in relation to safety on the part of all individuals in the organization and establishing that decisions taken at all levels take account of the priorities and accountabilities for safety.
- 6.2. Managers at all levels, taking into account their duties, shall ensure that their leadership includes:
 - a. Setting goals for safety that are consistent with the organization's policy for safety, actively seeking information on safety performance within their area of responsibility and demonstrating commitment to improving safety performance;
 - b. Development of individual and institutional values and expectations for safety throughout the organization by means of their decisions, statements and actions;
 - c. Ensuring that their actions serve to encourage the reporting of safety related problems, to develop questioning and learning attitudes, and to correct acts or conditions that are adverse to safety
- 6.3. Managers at all levels:
 - a. Shall encourage and support all individuals in achieving safety goals and performing their tasks safely;
 - b. Shall engage all individuals in enhancing safety performance;
 - c. Shall communicate clearly the basis for decisions relevant to safety.

7.0. Management for Safety

- 7.1. Senior management shall retain accountability for the management system even where individuals are assigned responsibility for coordinating the development, application and maintenance of the management system
- 7.2. Senior management shall be responsible for establishing safety policy.
- 7.3. Goals, strategies, plans and objectives for the organization shall be developed in such a manner that safety is not compromised by other priorities.
- 7.4. Senior management shall ensure that measurable safety goals that are in line with these strategies, plans and objectives are established at various levels in the organization.
- 7.5. Senior management shall ensure that goals, strategies and plans are periodically reviewed against the safety objectives, and that actions are taken where necessary to address any deviations.
- 7.6. Senior management shall identify interested parties for their organization and shall define an appropriate strategy for interaction with them.

7.7. Senior management shall ensure that the processes and plans resulting from the strategy for interaction with interested parties include:

- a. Appropriate means of communicating routinely and effectively with and informing interested parties with regard to radiation risks associated with the operation of facilities and the conduct of activities;
- b. Appropriate means of timely and effective communication with interested parties in circumstances that have changed or that were unanticipated;
- c. Appropriate means of dissemination to interested parties of necessary information relevant to safety;
- d. Appropriate means of considering in decision making processes the concerns and expectations of interested parties in relation to safety.

PART III – MANAGEMENT SYSTEMS

8.0. The Management System

8.1. The management system shall be developed, applied and continuously improved. It shall be aligned with the safety goals of the organization.

8.2. The management system shall be applied to achieve goals safely, to enhance safety and to foster a strong safety culture by:

- a. Bringing together in a coherent manner all the necessary elements for safely managing the organization and its activities;
- b. Describing the arrangements made for management of the organization and its activities;
- c. Describing the planned and systematic actions necessary to provide confidence that all requirements are met;
- d. Ensuring that safety is taken into account in decision making and is not compromised by any decisions taken.

8.3. Arrangements shall be made in the management system for the resolution of conflicts arising in decision making processes. Potential impacts of security measures on safety and potential impacts of safety measures on security shall be identified and shall be resolved without compromising safety or security.

8.4. The organizational structures, processes, responsibilities, accountabilities, levels of authority and interfaces within the organization and with external organizations shall be clearly specified in the management system.

8.5. Regulatory requirements shall be reflected in the management system.

8.6. Provision shall be made in the management system to identify any changes (including organizational changes and the cumulative effects of minor changes) that could have significant implications for safety and to ensure that they are appropriately analyzed.

8.7. Arrangements shall be established in the management system for an independent review to be made before decisions significant for safety are made.

8.8. The requirements on the independent nature of the review and on the necessary competences of the reviewers shall be specified in the management system.

9.0. Application of the graded approach to the management system:

9.1. The criteria used to grade the development and application of the management system shall be documented in the management system.

The following shall be taken into account:

- a. The safety significance and complexity of the organization, operation of the facility or conduct of the activity;
- b. The hazards and the magnitude of the potential impacts (risks) associated with the safety, health, environmental, security, quality and economic elements of each facility or activity
- c. The possible consequences for safety if a failure or an unanticipated event occurs or if an activity is inadequately planned or improperly carried out.

10.0. Documentation of the management system:

10.1. The documentation of the management system shall include as a minimum: policy statements of the organization on values and behavioral expectations; the fundamental safety objective; a description of the organization and its structure; a description of the responsibilities and accountabilities; the levels of authority, including all interactions of those managing, performing and assessing work and including all processes; a description of how the management system complies with regulatory requirements that apply to the organization; and a description of the interactions with external organizations and with interested parties.

10.2. Documents shall be controlled. All individuals responsible for preparing, reviewing, revising and approving documents shall be competent to perform the tasks and shall be given access to appropriate information on which to base their input or decisions.

10.3. Revisions to documents shall be controlled, reviewed and recorded. Revised documents shall be subject to the same level of approval as the initial documents.

10.4. Records shall be specified in the management system and shall be controlled. All records shall be readable, complete, identifiable and easily retrievable.

10.5. Retention times of records and associated test materials and specimens shall be established to be consistent with the statutory requirements and with the obligations for knowledge management of the organization. The media used for records shall be such as to ensure that the records are readable for the duration of the retention times specified for each record.

PART IV – MANAGEMENT OF RESOURCES

11.0. Provision of Resources

11.1. Senior management shall make arrangements to ensure that the organization has in-house, or maintains access to, the full range of competences and the resources necessary to conduct its activities and to discharge its responsibilities for ensuring safety at each stage in the lifetime of the facility or activity, and during an emergency response

11.2. Senior management shall determine which competences and resources the organization has to retain or has to develop internally, and which competences and resources may be obtained externally, for ensuring safety.

11.3. Senior management shall ensure that competence requirements for individuals at all levels are specified and shall ensure that training is conducted, or other actions are taken, to achieve and to sustain the required levels of competence. An evaluation shall be conducted of the effectiveness of the training and of the actions taken.

11.4. Competences to be sustained in-house by the organization shall include competences for leadership at all management levels; competences for fostering and sustaining a strong safety culture; and expertise to understand technical, human and organizational aspects relating to the facility or the activity in order to ensure safety.

11.5. Senior management shall ensure that individuals at all levels, including managers and workers:

- a. Are competent to perform their assigned tasks and to work safely and effectively;
- b. Understand the standards that they are expected to apply in completing their tasks.

11.6. All individuals in the organization shall be trained in the relevant requirements of the management system. Such training shall be conducted to ensure that individuals are knowledgeable of the relevance and the importance of their activities and of how their activities contribute to ensuring safety in the achievement of the organization's goals.

11.7. The knowledge and the information of the organization shall be managed as a resource.

PART V – MANAGEMENT OF PROCESS AND ACTIVITIES

12.0. Management of processes and activities

12.1. Each process shall be developed and shall be managed to ensure that requirements are met without compromising safety. Processes shall be documented and the necessary supporting documentation shall be maintained. It shall be ensured that process documentation is consistent with any existing documents of the organization. Records to demonstrate that the results of the respective process have been achieved shall be specified in the process documentation.

12.2. The sequencing of a process and the interactions between processes shall be specified so that safety is not compromised. Effective interaction between interfacing processes shall be ensured. Particular consideration shall be given to interactions between processes within the organization, and to

interactions between processes conducted by the organization and processes conducted by external service providers.

12.3. New processes or modifications to existing processes shall be designed, verified, approved and applied so that safety is not compromised. Processes, including any subsequent modifications to them, shall be aligned with the goals, strategies, plans and objectives of the organization.

12.4. Any activities for inspection, testing, and verification and validation, their acceptance criteria and the responsibilities for carrying out such activities shall be specified. It shall be specified when and at what stages independent inspection, testing, and verification and validation are required to be conducted.

12.5. Each process or activity that could have implications for safety shall be carried out under controlled conditions, by means of following readily understood, approved and current procedures, instructions and drawings. These procedures, instructions and drawings shall be validated before their first use and shall be periodically reviewed to ensure their adequacy and effectiveness. Individuals carrying out such activities shall be involved in the validation and the periodic review of such procedures, instructions and drawings.

13.0. Management of the supply chain

13.1. The organization shall retain responsibility for safety when contracting out any processes and when receiving any item, product or service in the supply chain.

13.2. The organization shall have a clear understanding and knowledge of the product or service being supplied. The organization shall itself retain the competence to specify the scope and standard of a required product or service, and subsequently to assess whether the product or service supplied meets the applicable safety requirements.

13.3. The management system shall include arrangements for qualification, selection, evaluation, procurement, and oversight of the supply chain.

13.4. The organization shall make arrangements for ensuring that suppliers of items, products and services important to safety adhere to safety requirements and meet the organization's expectations of safe conduct in their delivery.

PART VI – CULTURE FOR SAFETY

14.0. Fostering a Culture for Safety

14.1. All individuals in the organization shall contribute to fostering and sustaining a strong safety culture.

14.2. Senior managers and all other managers shall advocate and support the following:

- a. A common understanding of safety and of safety culture, including: awareness of radiation risks and hazards relating to work and to the working environment; an understanding of the significance of radiation risks and hazards for safety; and a collective commitment to safety by teams and individuals;
- b. Acceptance by individuals of personal accountability for their attitudes and conduct with regard to safety;
- c. An organizational culture that supports and encourages trust, collaboration, consultation and communication;
- d. The reporting of problems relating to technical, human and organizational factors and reporting of any deficiencies in structures, systems and components to avoid degradation of safety, including the timely acknowledgement of, and reporting back of, actions taken;

- e. Measures to encourage a questioning and learning attitude at all levels in the organization and to discourage complacency with regard to safety;
- f. The means by which the organization seeks to enhance safety and to foster and sustain a strong safety culture, and using a systemic approach (that is, an approach relating to the system as a whole in which the interactions between technical, human and organizational factors are duly considered);
- g. Safety shall be considered when making decision in all activities;
- h. The exchange of ideas between, and the combination of, safety culture and security culture.

PART VII- MEASUREMENT, ASSESSMENT AND IMPROVEMENT

15.0. Measurement, assessment and improvement of the management system

15.1. The effectiveness of the management system shall be monitored and measured to confirm the ability of the organization to achieve the results intended and to identify opportunities for improvement of the management system.

15.2. All processes shall be regularly evaluated for their effectiveness and for their ability to ensure safety.

15.3. The causes of non-conformances of processes and the causes of safety related events that could give rise to radiation risks shall be evaluated and any consequences shall be managed and shall be mitigated. The corrective actions necessary for eliminating the causes of non-conformances, and for preventing the occurrence of, or mitigating the consequences of, similar safety related events, shall be determined, and corrective actions shall be taken in a timely manner.

The status and effectiveness of all corrective actions and preventive actions taken shall be monitored and shall be reported to the management at an appropriate level in the organization.

15.4. Independent assessments and self-assessments of the management system shall be regularly conducted to evaluate its effectiveness and to identify opportunities for its improvement. Lessons and any resulting significant changes shall be analyzed for their implications for safety.

15.5. Responsibility shall be assigned for conducting independent assessments of the management system. The organizations, entities (in-house or external) and individuals assigned such responsibilities shall be given sufficient authority to discharge their responsibilities and shall have direct access to senior management.

In addition, individuals conducting independent assessments of the management system shall not be assigned responsibility to assess areas under the responsibility of their own line management.

15.6. Senior management shall conduct a review of the management system at planned intervals to confirm its suitability and effectiveness, and its ability to enable the objectives of the organization to be accomplished, with account taken of new requirements and changes in the organization.

15.7. The management system shall include evaluation and timely use of the following:

- a. Lessons from experience gained and from events that have occurred, both within the organization and outside the organization, and lessons from identifying the causes of events;
- b. Technical advances and results of research and development;
- c. Lessons from identifying good practices.

15.8. Organizations shall make arrangements to learn from successes and from strengths for their organizational development and continuous improvement.

16.0. Measurement, assessment and improvement of leadership for safety and of safety culture

16.1. Senior management shall ensure that self-assessment of leadership for safety and of safety culture includes assessment at all organizational levels and for all functions in the organization. Senior management shall ensure that such self-assessment makes use of recognized experts in the assessment of leadership and of safety culture.

16.2. Senior management shall ensure that an independent assessment of leadership for safety and of safety culture is conducted for enhancement of the organizational culture for safety (i.e. the organizational culture as it relates to safety and as it fosters a strong safety culture in the organization).

16.3. The results of self-assessments and independent assessments of leadership for safety and of safety culture shall be communicated at all levels in the organization. The results of such assessments shall be acted upon to foster and sustain a strong safety culture, to improve leadership for safety and to foster a learning attitude within the organization.

PART VIII – OFFENCES, PENALTIES AND APPEAL

17.0. Offences and Penalties

17.1. Any person who contravenes any of the provisions of these regulations commits an offence and is liable on conviction to penalties stipulated under the Act (section 45i) or any other extant law or guidelines made pursuant to the Act.

17.2. Notwithstanding the provisions of sub-regulation (16.1) of this regulation, the Authority may impose penalties such as administrative fine suspension, revocation of authorization, sealing of facility or any combination of these.

18.0. Appeal

18.1. Any person to whom these regulations apply may appeal to the Authority if he/she is not satisfied with the decision made against him/her.

19.0. CITATION

19.1. These Regulations may be cited as the Nigerian Management System for Nuclear Facilities and Activities Regulations, 2019.

Made in Abuja this Day of 2019

Dr Yau Idris
Ag. Director General/Chief Executive Officer
Nigerian Nuclear Regulatory Authority