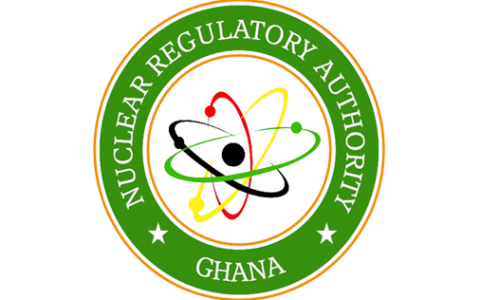
**NUCLEAR REGULATORY AUTHORITY,**

**GHANA**

****

**DRAFT LICENSING REGULATIONS FOR NUCLEAR INSTALLATIONS AND MANUFACTURERS OF SAFETY CLASS EQUIPMENT AND COMPONENTS IN GHANA**

**NRA\_LICENSING\_DRAFT**

Nuclear Regulatory Authority (NRA), Ghana

Houses 1 & 2, Neutron Avenue, P.O. Box AE 50, Atomic- Kwabenya, Accra

[official.mail@nra.gov.gh](mailto:official.mail@nra.gov.gh)

**2024**

**LICENSING REGULATIONS FOR NUCLEAR INSTALLATIONS IN GHANA**

ARRANGEMENT OF REGULATIONS

Regulation

[Preliminary Provisions 4](#_Toc172629092)

[Application and Scope 4](#_Toc172629093)

[Obligations of the Authorised Person 5](#_Toc172629094)

[Licensing Procedure 7](#_Toc172629095)

[Inspections 8](#_Toc172629096)

[Licensing Process 9](#_Toc172629097)

[Site Approval and Site Permit 9](#_Toc172629098)

[Design Approval or Certification 9](#_Toc172629099)

[Construction Licence 10](#_Toc172629100)

[Commissioning Licence 11](#_Toc172629101)

[Operating Licence 12](#_Toc172629102)

[Revalidation of Operating Licence 13](#_Toc172629103)

[Modification 14](#_Toc172629104)

[Licensing Beyond Design Life 14](#_Toc172629105)

[Decommissioning Licence 15](#_Toc172629106)

[Release from Regulatory Control 15](#_Toc172629107)

[Requirements for Revoking and Surrender of Licence 15](#_Toc172629108)

[Manufacturing of Safety Class Equipment and Components 16](#_Toc172629109)

[Licensing of Nuclear Safety Class Equipment and Components Manufacturers 16](#_Toc172629110)

[Inspection of Facilities for Manufacturing of Safety Class Equipment 16](#_Toc172629111)

[Public Engagement 17](#_Toc172629112)

[Public Involvement in Licensing Process 17](#_Toc172629113)

[Qualification, Training and Licensing of Specific Positions 18](#_Toc172629114)

[Qualification and Training of Personnel. 18](#_Toc172629115)

[Criteria for Obtaining Shift Supervisor Licence. 21](#_Toc172629116)

[Criteria for Obtaining Shift Engineer (SE) Licence 25](#_Toc172629117)

[Criteria for Obtaining Reactor Operator (RO) Licence. 29](#_Toc172629118)

[Criteria for Appointment of Individual Responsible for Safety of a Nuclear Power Plant. 32](#_Toc172629119)

[Criteria for Appointment of Radiation Protection Officer (RPO). 33](#_Toc172629120)

[Permit for Commercial Transactions 34](#_Toc172629121)

[Permit for Commercial Transactions involving Nuclear Facility 34](#_Toc172629122)

[Permit for Transactions involving Nuclear Material 38](#_Toc172629123)

[Miscellaneous 39](#_Toc172629124)

[Penalties 39](#_Toc172629125)

[Appeals 39](#_Toc172629126)

[Interpretation 39](#_Toc172629127)

[Schedules 42](#_Toc172629128)

[Schedule I: Documents to be Submitted along with Application for Licence 42](#_Toc172629129)

[Schedule II: Requirements for Transfer of Licence of Operating Personnel among Different Plants of the Same Type 47](#_Toc172629130)

In exercise of the power conferred on the Minister responsible for the Nuclear Regulatory Authority (hereinafter referred to as the Authority) acting on the advice of the Board by Section 91 of the Nuclear Regulatory Authority Act, 2015 (Act 895) (hereinafter referred to as the Act) these Regulations are made this …. day of…

## 

# Preliminary Provisions

## Application and Scope

**1**. (1) These Regulations apply to the licence requirements for all phases in the lifecycle of a nuclear installation.

(2) A person, who does not, in accordance with Section 21 of the Act, have an authorisation issued by the Authority, shall not in relation to a nuclear installation,

(a) conduct site evaluation;

(b) carry out the construction of a structure or a facility;

(c) commission a structure, facility or an installation;

(d) operate the installation;

(e) revalidate an operation licence;

(f) modify any structure, facility or installation;

1. operate beyond the design lifetime of the installation;
2. decommission the installation;
3. import, export, use, store or transport nuclear material, nuclear dual-use item and related equipment; and
4. release from regulatory control any nuclear material, nuclear dual-use item or any other related material or equipment.
5. A person who intends to carry out any of the activities listed in subparagraph (2), shall in accordance with Section 21 of the Act, apply to the Authority for a licence that authorises the conduct of the activity.
6. A person who applies for a construction license shall, as a condition for the grant of the license, submit to the Authority a design for approval or certification.

(5) A person shall not manufacture, assemble, fabricate, or distribute nuclear safety class equipment if that person does not have a licence, issued by the Authority for that purpose.

## Obligations of the Authorised Person

**2**.(1) An authorised person shall, in addition to complying with the obligations set out in the Act, particularly Section 23 of the Act,

(a) ensure the presence and availability of qualified personnel to carry out the licensed activity in a safe, secure and sustainable manner;

(b) establish and document policies and procedures for training, qualifying and maintaining qualification of persons tasked with performing the licensed activity;

(c) train the personnel to carry on the licensed activity in accordance with the Act, the Regulations made under the Act, and the terms and conditions of the licence;

(d) take every reasonable precaution to protect the environment and the health and safety of persons and to maintain the security of the nuclear installations and nuclear substances;

(e) require that each person at the site of the licensed activity uses equipment, devices, clothing and procedures in accordance with the Act, the Regulations made under the Act, and the terms and conditions of the licence;

(f) comply with national legislations, regulations, and technical standards as agreed with the Authority to ensure the safety and security of the nuclear installation;

(g) be subject to the regulatory supervision of the Authority, and report promptly the actual safety and security conditions in case of nuclear incidents;

(h) until relieved by the Authority, remain responsible for the safety, and security of the nuclear installation, even after the expiry of the authorisation; and

(i) instruct the employees on the physical security programme at the site of the licensed activity and on their obligations under that programme.

1. The authorised person shall

(a) have prime responsibility for safety and security of the nuclear installation and shall not delegate this responsibility;

(b) ensure that each activity concerned with the nuclear installation is carried out with utmost priority given to safety, security and safeguards of the installation, personnel, public and the environment;

(c) keep the Authority informed of the schedule and progress of the activities during each phase of the development of the nuclear installation;

(d) maintain the nuclear installation and carry out activities of the installation in line with the contents of documents submitted and in accordance with the terms and conditions approved by the Authority for the grant of the authorisation and shall not make any change to the documents submitted in accordance with the terms and conditions without the approval of the Authority;

(e) maintain a list of each change made in the documents approved by the Authority, and identify the change and the approval date of the change;

(f) provide all safety-related information to the Authority, including information from suppliers, even if the information is proprietary; and

(g) keep a record of information that relates to the licence and that is submitted to the Authority.

1. Each person who is required to keep a record by the Act, Regulations made under the Act, or the terms and conditions of a licence, shall retain the record for the period specified in the applicable Regulations made under the Act or, if no period is specified in the Regulations, for the period ending one year after the expiry of the licence that authorises the activity in respect of which the records are kept.
2. A person who intends to establish an independent spent fuel storage or a pre-disposal radioactive waste management installation shall apply to the Authority for a grant of a licence for that purpose, where the installation is not covered under a licence of an operating nuclear power plant or a research reactor.

## Licensing Procedure

**3**. (1) A person who intends to undertake an activity under Regulation 2 shall submit the application for the licence to the Director-General of the Authority or an officer duly authorised to act on behalf of the Director-General.

1. The applicant shall

(a) submit a letter of intent to the Authority at least three (3) months before the application is made;

(b) submit three paper copies of the application along with a read-only and a read-write electronic copy;

(c) include as part of the application the documents and information required by the Schedule to these Regulations;

(d) ensure that the documents submitted as part of the application are duly signed by the applicant or a designated person; and

(e) include the articles of incorporation of the applicant, and the fees prescribed to be paid to the Authority.

1. The applicant shall

(a) provide sufficiently detailed information to permit the licensing reviews to proceed without incurring delays; and

(b) ensure that the application contains the names and addresses of the principal officers of the legal entity seeking for authorisation.

1. On the basis of the review of the relevant documents and subsequent inspection, the Authority may grant a licence to an applicant, subject to the terms and conditions that the Authority considers necessary.
2. A licence granted by the Authority may be

(a) for a specific period of time or for a specific phase or phases in the lifetime of the nuclear installation.

(b) for an indefinite period of time, where it is a permanent licence, under certain conditions and until the licence is officially revoked by the Authority;

(c) for a specific activity or a specific condition of the nuclear installation ; or

(d) to authorise one or more of the activities specified in regulation 2.

1. A licence is valid for the period specified in the licence, subject to

(a) the payment of annual renewal fee in accordance with the approved fees and charges, where applicable; and

(b) satisfactory compliance with the regulatory requirements and the requirements in other national Regulations as determined by the Authority.

1. The authorised person shall apply for a renewal of the licence, at least one year before the expiration of the licence, and the application for the renewal shall be accompanied with the necessary and updated relevant documents required by the Schedule of these Regulations.
2. In respect of relevant documents to be submitted by an applicant, the applicant may where local nuclear safety, safeguards and security standards are not available, rely on current relevant standards from a country where the related applicable technology was developed or has been deployed and is being regulated effectively, as determined by the Authority, in the preparation of the documents.

(9) The Authority may, in accordance with Sections 6 and 75 of the Act, amend, suspend, or revoke an authorisation, or take other enforcement action, in the event of noncompliance with the Act, the Regulations or the terms and conditions of the licence.

## Inspections

**4**. (1) The Authority may in exercise of the power conferred on the Authority by Section 6 (k) of the Act, at intervals that the Authority may determine, carry out an inspection of the practices, facilities and the nuclear installations of an authorised person.

(2) The Authority may in pursuance of sub regulation (1), appoint inspectors and analysts, in accordance with Section 72 of the Act.

(3) An inspector or analyst may in the exercise of the power of inspection in compliance with Section 73 of the Act,

(a) inspect documents, equipment, facilities, number of personnel and records of personnel to verify whether information submitted to the Authority relating to safety, security and safeguards is in conformity with the actual conditions.

(b) verify whether the activities related to use, storage and transport of nuclear material and siting, manufacturing, construction, commissioning, operation, modification and decommissioning of the nuclear installation comply with the requirements of the Authority as specified in the Regulations and the terms and conditions of the licence; and

(c) exercise any other power conferred by Section 73 of the Act.

# Licensing Process

## Site Approval and Site Permit

**5**. (1) An applicant shall, before the conduct of site evaluation studies,

(a) undertake a site selection process to obtain the preferred site of the applicant from a set of proposed sites; and

(b) submit to the Authority for the purpose of site approval, a site approval report together with other documents required by the Schedule.

1. The applicant shall, for the purpose of obtaining a Site Permit,

(a) conduct a site evaluation study and in compliance with Section 37 of the Act and the Site Evaluation Regulations, prepare a Site Evaluation Report; and

(b) submit to the Authority for review and assessment, the Site Evaluation Report and other documents specified in the Schedule.

## Design Approval or Certification

**6**. An applicant shall, for the purpose of obtaining a design approval or certification,

(a) submit to the Authority, a detailed design of the nuclear installation which is in line with the Design of Nuclear Installations Regulations;

(b) demonstrate that the proposed installation design conforms to relevant safety, security and safeguards requirements;

(c) ensure that safety measures and nuclear security measures are designed and implemented in an integrated manner so that nuclear security measures do not compromise safety, and safety measures do not compromise nuclear security measures over the proposed lifetime of the installation; and

(d) submit to the Authority, a preliminary safety analysis report demonstrating the adequacy of the design of the nuclear installation and other documents listed in the Schedule.

## Construction Licence

**7**. (1) An applicant shall,

(a) after the receipt of design approval from the Authority, for the purpose of obtaining a construction licence submit to the Authority, documents listed in the Schedule;

(b) not begin the construction of nuclear installation on the site until a construction licence has been issued and, in this regard, the pouring of the concrete in the foundation is deemed to be the beginning of construction;

(c) before the commencement of construction, set up a configuration management programme for updating the design basis of the nuclear installation while ensuring that the nuclear installation remains in compliance with the originally approved design basis; and

(d) construct the nuclear installation in accordance with the design that has been approved by the Authority and follow the requirements of the Construction of Nuclear Installations Regulation.

1. A construction licence is valid for a period of ten years or as specified in the licence.

(3) After the expiry of a construction licence, construction activities may only commence or continue after the renewal of the construction licence.

(4) The authorised person, who intends to renew a construction licence after the licence has lapsed, shall submit the request for renewal to the Authority, together with

(a) updates of the documents and reports that were initially submitted for the grant of the construction licence;

(b) the reasons for the delay of the request for renewal along with justification for commencing or for continuing with the construction; and

(c) an evaluation of the impact in design as a result of changes including changes in the design, nuclear safety standards, industrial standards, and experience feedback.

(5) Where the authorised person is unable to start construction of the nuclear installation within a period of five years after the issuance or renewal of the construction licence, the licence shall be deemed to have been cancelled and the authorised person who intends to commence construction or continue with construction shall have to re-submit the case for issuance of a construction licence.

## Commissioning Licence

**8**. (1) An authorised person shall, at least six months before the proposed starting date of commissioning of the nuclear installation, submit to the Authority, a request for permission to commission along with the commissioning programme and management system for the commissioning phase, in addition to other documents specified in the Schedule.

1. The Authority shall, after the receipt of the request under sub regulation (1), conduct reviews, assessments and inspections to determine whether:

(a) the programme is complete and contains a set of well-defined operational limits, test acceptance criteria, conditions, and procedures; and

(b) the commissioning tests can be safely and securely conducted as proposed by the authorised person and whether their justification is appropriate.

(3) The commissioning shall be in line with the Commissioning of Nuclear Installations Regulation and shall be in two main stages as follows:

(a) non-nuclear testing which shall be conducted before the introduction of nuclear or certain types of radioactive material into the nuclear installation; and

(b) nuclear testing which shall be conducted after the introduction of nuclear or certain types of radioactive material into the nuclear installation.

(4) The authorised person shall

(a) ensure that completed structures, systems and components important to safety and security are only put into use after they have been inspected by the Authority;

(b) prepare and submit a physical protection system commissioning programme to the Authority for approval, at least thirty days before the scheduled start of the commissioning activities;

(c) conduct the commissioning of the physical protection system before the arrival of nuclear material on-site;

(d) demonstrate the implementation of Emergency Preparedness Plans and Physical Protection System in drills and exercises before the introduction of nuclear material into the systems of the nuclear installation;

(e) ensure that fissile or radioactive material is brought onto the site only when authorised by the Authority;

(f) after the introduction of fissile and radioactive material into the nuclear installation, operate the nuclear installation only under the control and supervision of authorised operating personnel; and

(g) have an approved emergency preparedness and response plan, coordinated with the other national agencies.

## Operating Licence

**9**. (1) An authorised person shall,

(a) within six months after completion of the commissioning, apply to the Authority for an Operating Licence and shall, as part of the application, submit the information specified in the Schedule; and

(b) commence operations only when the regulatory requirements are met, and authorisation is granted.

(2) The Authority shall as a condition for the grant of an Operating Licence, through review, assessment and inspection verify

(a) the results of the commissioning tests;

(b) the operational limits and conditions;

(c) the operating instructions and procedures and adequacy of staffing to implement the operating instructions and procedures properly, taking into account the need to work in shifts, when appropriate;

(d) the qualification and experience of operators and other workers in radiation safety and nuclear security;

(e) the site security plan and design information questionnaire;

(f) the arrangements for emergency preparedness and response; and

(g) the final safety analysis report.

(3) The authorised person shall not operate the installation outside the design limits.

(4) An Operating Licence is valid for ten years or as contained in the licence.

(5) The authorised person shall have at the installation, the minimum complement of staff at all times, to operate the installation under normal or abnormal conditions.

(6) The authorised person shall ensure that at all times the operation of the nuclear installation follows the requirements provided in the Operation of Nuclear Installations Regulation.

## Revalidation of Operating Licence

**10**. (1) An authorised person shall, at intervals of not more than 10 years,

(a) carry out a safety review, referred to in these Regulations as Periodic Safety Review, to assess the cumulative effects of plant ageing and plant modifications, operating experience, technical developments, and siting aspects on operations of the installation; and

(b) submit to the Authority a request for revalidation of the operating licence of the authorised person together with the documents listed in the Schedule.

1. The authorised person shall in the Periodic Safety Review, assess

(a) the validity of the current licensing basis;

(b) the actual condition of the plant, taking into consideration the cumulative effects of aging and operating experience;

(c) the degree of conformance to modern codes, standards, best practices, operating experience, and research findings to re-baseline the safety analysis report and site security plan; and

(d) practicable modifications or enhancements that should be made to

(i) enhance safety performance to a level approaching that of modern plants during the Periodic Safety Review period; and

(ii) support long term operation.

1. The authorised person shall

(a) submit to the Authority an annual report of Physical Protection System performance and an annual operating report; and

(b) continuously implement safety and security improvement strategies based on operating experience and increased knowledge in applied sciences.

## Modification

**11**. (1) An authorised person who intends to modify a component or procedure in respect of the nuclear installation shall apply to the Authority for approval of the modification.

(2) The application for approval of the modification shall

(a) contain the information required by the Schedule, and

(b) include a description of the desired changes, safety analysis and justification for the modification.

(3) The Authority shall approve the request for modification if upon the review of the documents, the Authority is satisfied that the modification meets all the safety, security, and safeguards requirements.

## Licensing Beyond Design Life

**12**. (1) Where an authorised person, intends to operate the nuclear installation beyond its design life, the authorised person shall apply to the Authority for approval of the extension, at least three years before the end of design life of the installation.

(2) The application shall be submitted together with the documents specified in the Schedule.

(3) The Authority shall upon approval of the submitted documents grant to the authorised person a licence to operate the nuclear installation beyond its design life for the duration of the time specified in the licence.

## Decommissioning Licence

**13**. (1) An authorised person, who intends to decommission a nuclear installation, shall apply to the Authority for a licence for that purpose.

(2) The application for a licence to decommission a nuclear installation shall contain the Decommissioning Plan together with the other documents specified in the Schedule .

(3) The authorised person shall, three years before the permanent cessation of authorised activities, submit to the Authority the final Decommissioning Plan and the other specified documents.

(4) The Authority shall upon approval of the documents, terminate the Operating Licence and issue to the authorised person the licence for Decommissioning of the installation.

(5) The authorised person shall at all times ensure that all the requirements of the Decommissioning of Nuclear Installations Regulation are fully adhered to.

## Release from Regulatory Control

**14**. (1) The authorised person shall, after completion of the decommissioning programme, submit to the Authority, a “Decommissioning Completion Report” and “Final Radiological Survey Report” that declares every nuclear and radioactive material has been removed from the site and that safety, security and safeguards concerns do not exist.

1. Where the Authority is satisfied that the potential for radiation hazard does not exist to endanger the use of the site for any other purposes, the Authority may upon approval of the documents, remove the site from the regulatory control of the Authority.

## Requirements for Revoking and Surrender of Licence

**16**. (1) Where an authorised person fails to comply with the terms and conditions of the licence of that authorised person, the Authority may, in addition to the exercise of the power under section 75 of the Act, revoke the licence of the authorised person.

(2) The responsibility of an authorised person as regards safety and security of the nuclear installation, does not end after the surrender or revocation of the licence but continues until the Authority relieves the authorised person of the responsibility.

# Manufacturing of Safety Class Equipment and Components

## Licensing of Nuclear Safety Class Equipment and Components Manufacturers

**17**. (1) A person, who intends to engage in the manufacture of nuclear safety class equipment and components, shall apply to the Authority for a licence for that purpose.

(2) The applicant shall, by relevant documentation and any other form of credible evidence that the Authority may require, satisfy the Authority that it has

(a) the capacity to guarantee the quality of the work and of the product; and

(b) the requisite management system to ensure that the activities related to the manufacturing of the safety class equipment and components satisfy the safety requirements.

(3) Upon the grant of the licence, the holder of the licence, who is the authorised person, shall retain the capabilities for the manufacture of the safety class equipment and components, for the entire period of the validity of the licence and, in writing, inform the Authority of any change in the capabilities.

(4) The authorised person shall comply with the requirements of any other relevant government organisations and authorities.

## Inspection of Facilities for Manufacturing of Safety Class Equipment

**18**. (1) An authorised person shall grant to an inspector of the Authority access to premises where manufacturing or testing activities are carried out, to enable the inspector

(a) to verify whether the information submitted to the Authority is in conformity with the actual conditions;

(b) to verify whether the activities related to fabrication, assembling, manufacturing, or testing comply with the requirements of the Authority, the terms and conditions of the licence and the agreed codes and standards; and

(c) to exercise any of the other regulatory powers provided for in Section 73 of the Act.

(2) The authorised person shall, for the purpose of approval and for record purposes, submit to the Authority before the commencement of production, quality plans, process flow diagrams relating to the production technology and manufacturing schedules for each safety class equipment, component, package or cask to be manufactured under the licence.

(3) The Authority may select control points for inspections from the quality plans.

(4) The inspector may, in the exercise of the powers under Section 73 of the Act and in the performance of the function under these regulations,

(a) have access to the facility where the licenced activities, including fabrication, assembling, manufacturing, testing, are being carried out and to the relevant documents, records, and persons; and

(b) investigate and collect information related to safety.

(5) Where the authorised person conducts some of the authorised activities outside the premises of the authorised person, the inspection shall be subject to notice being given to the authorised person.

(6) The cost of the notice for inspection shall be borne by the authorised person.

# Public Engagement

## Public Involvement in Licensing Process

19. (1) The authorised person shall ensure that

(a) the process and the conduct of public engagement in respect of issue of licence or authorisation, are in a manner that enables

(i) individuals or resident communities and societal groups to provide their input and to fully participate; and

(ii) awareness about safety to be increased and trust to be built between the parties; and

b) the public participation process together with, participation of local, national and international interested parties are open, transparent, well described and balanced.

(2) The authorised person may, subject to criteria that the Authority define and the minimum restrictions necessary to protect security or proprietary interest, withhold from public disclosure, information concerning nuclear security or proprietary matters.

(3) The authorised person shall

(a) inform and, where appropriate, consult interested parties about the radiation risks associated with the operation of the nuclear installation; and

(b) make available to relevant interested parties decisions with regard to measures for protection and safety.

(4) A hearing request or an intervention petition to the Authority shall be filed within sixty days after the date of the publications of the "Notice of Opportunity for Hearing".

(5) For the purpose of public participation in the licensing of a nuclear installation,

(a) regular meetings, formal hearings and other appropriate channels of communication shall be open to the public, media and interested parties and announced at least four (4) weeks before the date for the meeting or hearing;

(b) members of the public shall be given the opportunity to express their views at meetings and formal hearings and through any other appropriate means of communication; and

(c) comments from the public shall be responded to with due diligence at every stage of the licensing process.

# Qualification, Training and Licensing of Specific Positions

## Qualification and Training of Personnel.

**20.** (1) The authorised person shall ensure that all activities are performed by suitably qualified and competent personnel that meet the requirements on staff qualification and training as stated in the Commissioning and Operation Regulations.

1. The authorised person shall
   1. clearly define the criteria for qualification and competence to ensure that personnel performing safety related functions are capable of performing their duties safely; and
   2. ensure that individuals performing certain functions important to safety hold formal licence issued by the Authority.
2. The authorised person shall ensure that
   1. suitably qualified personnel are selected and given necessary training and instructions to enable them perform their duties correctly, for different operational states of the plant and in accident conditions, in accordance with the appropriate procedures; and
   2. the plant management is responsible for qualification and competence of plant personnel ensuring that
      1. managers and supervisors determine the needs for training, and ensure operating experience is included in the training; and
      2. managers and supervisors do not interfere the conduct of training programme with production needs;
   3. all personnel, who may be required to perform safety related duties, have
      1. a sufficient understanding of the plant and its safety features; and
      2. other relevant competences such as managerial and supervisory skills to perform their duties properly and with due attention to safety.
3. The authorised person shall ensure that
   1. a suitable training programme is established and maintained for the training of personnel before their assignment to safety related duties;
   2. the training programme includes provision for periodic confirmation of the competence of personnel and for refresher training on a regular basis;
   3. the refresher training also includes retraining provisions for personnel having extended absence from their authorised duties;
   4. the training emphasises the importance of safety in all aspects of plant operation and promotes safety culture;
   5. operating experience of events at the plant as well as of relevant events at other plants, is appropriately factored into the training programme; and
   6. the root cause of events, determination and implementation of the corrective actions to prevent their recurrence are addressed in the training programme.
4. The authorised person shall ensure that
   1. performance based programmes for initial and continuing training are developed and implemented for each major group of personnel;
   2. the content of each programme is based on a systematic approach;
   3. training programme equip personnel to give safety issues the attention that they warrant;
   4. the training programme is assessed and improved by means of periodic reviews; and
   5. a system is established for the timely modification and update of training facilities, computer models, simulators and materials to adequately reflect current plant conditions and operating policy, and that any differences are justified.
5. The authorised person shall ensure that
   1. adequate training facilities, including a representative simulator, appropriate training materials, and maintenance and technical training facilities are made available for the training of plant personnel; and
   2. simulator training incorporates training for plant operational states and for accident conditions.
6. The authorised person shall ensure that
   1. all instructor positions are held by adequately qualified and experienced personnel, who are capable of providing the requisite technical knowledge and skills;
   2. instructors are technically competent in their assigned areas of responsibility and have the necessary instructional skills, and are also familiar with routines and practices at the workplace; and
   3. qualification requirements are established for the instructors.
7. The authorised person shall ensure that
   1. plant personnel receive training in the management of design extension conditions;
   2. operating personnel are trained to be familiar with the symptoms of design extension conditions and with the procedures for accident management; and
   3. the qualifications and training of external personnel performing safety related duties are adequate for the functions to be performed.

## Criteria for Obtaining Shift Supervisor Licence.

**21.** (1) The authorised person shall ensure that Shift Supervisor holds a valid licence from the Authority.

1. The authorised person shall ensure that
   1. an applicant for Shift Supervisor licence has completed the plant in-class and field training, and acquired the minimum prescribed experience;
   2. the candidate meets the following eligibility criteria:
      1. The candidate shall possess a valid Shift Engineer licence of the plant;
      2. The candidate shall have acquired a minimum of one (1) year in shift experience after the award of Shift Engineer licence at the plant;
      3. this experience may also include participation in commissioning at the plant; and
      4. the candidate qualifies for the written, oral and operating examinations;
   3. in addition to the above criteria, a candidate having Shift Engineer licence at one plant and intending to appear for Shift Supervisor licence at another plant of the same type with major design differences has:
      1. a minimum of one (1) year work experience in operations which may include experience in installation and commissioning at the new type or design, as the case may be, of plant;
      2. experience participating in cold and hot functional tests (without nuclear fuel in the reactor); and
      3. acquired training on Full Scope Training Simulator of the plant for handling operational states and accident conditions;
   4. the eligibility criteria for candidate having Shift Engineer licence at one plant and intends to appear for Shift Supervisor licence at other plant of the same type with minor design differences includes the following:
      1. the candidate possesses Shift Engineer licence at the plant of the same type and shall have acquired a minimum of one (1) year shift experience after the award of Shift Engineer licence;
      2. the candidate has acquired training on Full Scope Training Simulator of the plant for handling operational states and accident conditions;
      3. the candidate has undergone additional training including design differences; and
      4. the candidate has qualified for the written, oral and operating examinations.
2. The authorised person shall ensure that
   1. the technical knowledge, skills and abilities of a candidate to perform the duties, as per approved operation documents, in a safe manner under all operational states and accident conditions are determined through written, oral and operating examination and each candidate has to pass these examinations separately;
   2. the written examinations is conducted with no less than 50% marks in descriptive (non-objective) type of questions;
   3. the syllabus for the written examination, at least, cover the following topics:
      1. Authority’s Regulations;
      2. nuclear safety;
      3. radiation protection and radioactive waste management;
      4. physical protection;
      5. operating limits and conditions;
      6. nuclear specifics;
      7. conventional specifics;
      8. reactor physics;
      9. emergency preparedness and response;
      10. industrial safety;
      11. management system;
      12. safety culture and security culture; and
      13. safety and physical protection interface; and
   4. the syllabus for the written examination, training and retraining is prepared and duly approved by the Authority.
3. The authorised person shall
   1. ensure that oral and operating examination of the candidate are supervised by the Authority;
   2. ensure that the candidate qualifies for oral and operating examination only if all the written papers are passed separately and is recommended by the plant management and the passing mark for the written papers is 80 % for each paper;
   3. arrange with the Authority for oral and operating examination on the prescribed application form for licensing of operating personnel along with the assessment on a separate sheet; and
   4. provide certification of the latest medical and psychological fitness of the candidate along with the application and the certificates also indicate whether the candidate is or has been on prolonged medical treatment during the last twelve (12) months.;
4. The authorised person shall ensure that
   1. all licensed operating personnel undergo a formal retraining for two (2) periods of one (1) month duration each during a calendar year;
   2. the retrained licensed individuals are examined to assess their continued technical and professional competence for the assigned job;
   3. this assessment along with medical and psychological fitness certificates are submitted to the Authority at the time of renewal of the licence;
   4. the application for annual renewal of license containing necessary documents shall be submitted to the Authority one (1) month prior to its expiry date, each year; and
   5. The licence shall remain valid until the disposition of application for the annual renewal by the Authority.
5. The authorised person shall ensure that
   1. licence of operating personnel routinely involved in shift duties remain valid for a period of eight (8) years subject to annual renewal whereas, licence of operating personnel involved in activities other than plant operation (regular shift duties) remain valid for a period of four (4) years subject to annual renewal.
   2. a licence is cancelled automatically on one of the following reasons:
      1. inability of a licensed individual to carry out his duties for medical reasons as recommended by a duly constituted medical board;
      2. permanent physical disability that renders the licensed individual unable to carry out the duties;
      3. lack of familiarity as a result of being away from operations of the plant, for which the licence was issued, for a period of more than one (1) year;
      4. inability of licensed individual to complete retraining successfully; and
      5. failure of licensed individual to perform a minimum of twenty (20) shift duties as an independent in-charge of the shift during a year and participation in one (1) start-up (at plant or at Full Scope Training Simulator);
   3. upon issuance of notice of gross negligence or incompetence in performance of duties as assessed by the plant management or by the Authority, as the case may be, the licence is summarily suspended and, in such cases, the aggrieved party may submit appeal within two (2) weeks to the Authority for review of the decision, but the licence shall remain suspended until the appeal is disposed off by the Authority;
   4. licenced individuals who are at the plant but fail to perform twenty (20) shift duties in plant operations as Shift Supervisor or have remained away from the plant operation (shift duties) for a period of more than one (1) year but less than two (2) years, must re-acquire operation licence after doing the following:
      1. successful completion of retraining;
      2. performance of one (1) month shift duty along with a licenced counterpart; and
      3. oral and operating examination supervised by the Authority to ascertain familiarity of the candidate with the current status of the plant and the plant operating procedures;
   5. licenced individuals who fail to perform twenty (20) shift duties in plant operation as Shift Supervisor or remained away from the plant operation (shift duties) for a period of more than two (2) years undergo complete licensing examination.
6. The authorised person shall
   1. apply for revalidation of licence of operating personnel three (3) months before expiry of the licence subject to fulfilment of requirements mentioned in Requirement 21(5) above along with comprehensive assessment of the candidate for the last eight (8) years and the licence shall not expire until disposition of the revalidation application by the Authority; and
   2. ensure that oral examination of these candidates are supervised by the Authority and upon successfully passing the oral examinations, the operating licence may be revalidated by the Authority for the next period.
7. The authorised person shall ensure that
   1. record of written examination, medical fitness and all retraining exercises are retained by the plant management for ten (10) years; and
   2. the requirements regarding transfer of licence of operating personnel among different plants of the same type is as described in Schedule II.

## **Criteria for Obtaining Shift Engineer (SE) Licence**

**22.** (1) The authorised person shall ensure that Shift Engineer holds a valid licence from the Authority.

1. The authorised person shall ensure that
   1. an applicant for Shift Engineer licence has completed the plant in-class and field training, and acquired the minimum prescribed experience;
   2. the minimum educational qualification for Shift Engineer licence is a bachelor’s degree in engineering or its equivalent from a university recognised by the Ghana Tertiary Education Commission (GTEC);
   3. the candidate possesses a minimum of three (3) years of total operation experience at a plant, which shall include at least one (1) year experience in operation of the plant for which licence is required including at least three (3) months working in Main Control Room which may include participation in commissioning at the plant and also includes in-class and field training for operating personnel arranged by the authorised person or plant management; and
   4. the candidate qualifies for the written, oral and operating examinations.
2. The authorised person shall ensure that
   1. the technical knowledge, skills and abilities of a candidate to perform the duties, as per approved operation documents, in a safe manner under all operational states and accident conditions are determined through written, oral and operating examination and each candidate pass these examinations separately.
   2. the written examinations is conducted with no less than 50% marks in descriptive (non-objective) type of questions;
   3. the syllabus for the written examination, at least, cover the following topics:
      1. Authority’s Regulations;
      2. nuclear safety;
      3. radiation protection and radioactive waste management;
      4. operating limits and conditions;
      5. nuclear specifics;
      6. conventional specifics;
      7. reactor physics;
      8. emergency preparedness and response;
      9. industrial safety;
      10. safety culture; and
      11. management system; and
   4. the syllabus for the written examination, training and retraining is prepared and duly approved by the Authority.
3. The authorised person shall
   1. ensure that oral and operating examination of the individuals are supervised by the Authority;
   2. ensure that the candidate qualify for oral and operating examination only if all the written papers are passed separately and he is recommended by the plant management with the passing marks for the written papers at 80 % for each paper;
   3. arrange with the Authority for oral and operating examination on the prescribed application form for licensing of operating personnel along with the assessment on a separate sheet; and
   4. provide certification of the latest medical and psychological fitness of the candidate along with the application with the certificate also indicating whether the candidate is or has been on prolonged medical treatment during the last twelve (12) months.
4. The authorised person shall ensure that
   1. all licenced operating personnel undergo a formal retraining for two (2) periods of one (1) month duration each during a calendar year;
   2. after retraining, such licenced individuals are examined by the authorised person or plant management, as the case may be, to assess their continued technical and professional competence for the assigned job;
   3. this assessment along with medical and psychological fitness certificates are submitted to the Authority at the time of renewal of the licence; and
   4. the application for annual renewal of licence containing necessary documents is submitted to the Authority one (1) month prior to its expiry date, each year with the licence remaining valid until the disposition of application for the annual renewal by the Authority.
5. The authorised person shall ensure that
   1. licence of operating personnel routinely involved in shift duties is subject to annual renewal and is valid for a period of eight (8) years whereas, licence of operating personnel involved in activities other than plant operation (regular shift duties) is valid for a period of four (4) years and is subject to annual renewal;
   2. a licence is subject to automatic cancellation on one of the following reasons:
      1. inability of a licensed individual to carry out his duties for medical reasons as recommended by a duly constituted medical board;
      2. permanent physical disability that renders the licensed individual unable to carry out the duties;
      3. lack of familiarity as a result of being away from operations of the plant, for which the licence was issued, for a period of more than one (1) year;
      4. inability of licenced individual to complete retraining successfully; and
      5. failure of a licensed individual to perform a minimum of twenty (20) shift duties during a year and participation in one (1) startup (at plant or at Full Scope Training Simulator) with these twenty (20) shifts duties performed as acting independent in-charge of the shift;
   3. upon issuance of notice of gross negligence or incompetence in performance of duties as assessed by the plant management or by the Authority, as the case may be, the licence is summarily suspended and
      1. in such cases, the aggrieved party may submit appeal within two (2) weeks to the Authority for review of the decision; and
      2. the licence remains suspended until the appeal is disposed of by the Authority;
   4. licenced individuals who are at the plant but fail to perform twenty (20) shift duties in plant operations as Shift Engineer or have remained away from the plant operation (shift duties) for a period of more than one (1) year but less than two (2) years, can re-acquire operation license after doing the following:
      1. successful completion of retraining;
      2. performance of one (1) month shift duty along with a licenced counterpart; and
      3. oral and operating examination supervised by the Authority to ascertain familiarity of the candidate with the current status of the plant and the plant operating procedures;
   5. licenced individuals who fail to perform twenty (20) shift duties in plant operation as Shift Engineer or remained away from the plant operation (shift duties) for a period of more than two (2) years undergo complete licensing examination.
6. The authorised person shall
   1. apply for revalidation of licence of operating personnel three (3) months before expiry of the licence subject to fulfilment of requirements, along with comprehensive assessment of the candidate for last eight (8) years and the licence will not expire until disposition of the revalidation application by the Authority; and
   2. ensure that oral examination of these candidates are supervised by the Authority and upon successfully passing the oral examinations, the operating licence may be revalidated by the Authority for the next period.
   3. ensure that records of written examination, medical fitness and all retraining exercises are retained by the plant management for ten (10) years;
   4. ensure that the requirements regarding transfer of licence of operating personnel among different plants of the same type is as described in Schedule II.

## Criteria for Obtaining Reactor Operator (RO) Licence.

**23.** (1) The authorised person shall ensure that Reactor Operator holds a valid licence from the Authority.

1. The authorised person shall ensure that
   1. an applicant for Reactor Operator licence has completed the plant in-class and field training, and acquired the minimum prescribed experience;
   2. the minimum educational qualification for Reactor Operator licence is a bachelor’s degree in Engineer or its equivalent from an institute recognised by the Ghaan Tertiary Education Commission;
   3. the candidate possesses a minimum of three (3) years of total operation experience at a plant, which includes at least one (1) year experience in operation at the plant which may include participation in commissioning at the plant, and in-class and field training for operating personnel arranged by the plant management;
   4. the candidate passes the written, oral and operating examinations;
   5. the technical knowledge, skills and abilities of a candidate to perform the duties, as per approved operation documents, in a safe manner under all operational states and accident conditions are determined through written, oral and operating examination and each candidate has to pass these examinations separately;
   6. the written examinations is conducted with no less than 50% marks in descriptive (non-objective) type of questions;
   7. the syllabus for the written examination, at least, cover the following topics:
      1. Authority’s Regulations;
      2. nuclear safety;
      3. radiation protection;
      4. operating limits and conditions;
      5. nuclear general;
      6. conventional general;
      7. safety culture; and
      8. management system;
   8. the syllabus for the written examination, for training and retraining, is duly approved by the Authority;
   9. oral and operating examination of the individuals are supervised by the Authority;
   10. candidates who have passed all the written papers separately with a passing mark of 80 % and above in each paper and recommended by the plant management qualify for oral and operating examination;
   11. arrange with the Authority for oral and operating examination on the prescribed application form for licensing of operating personnel along with the assessment on a separate sheet; and
   12. certification of the latest medical and psychological fitness of the candidate along with the application is provided indicating whether the candidate is or has been on prolonged medical treatment during the last twelve (12) months.
2. The authorised person shall ensure that
   1. all licenced operating personnel undergo a formal retraining for two (2) periods of one (1) month duration each during a calendar year;
   2. after retraining, such licensed individuals are examined by the authorised person or plant management, as the case may be, to assess their continued technical and professional competence for the assigned job with the assessment along with medical and psychological fitness certificates submitted to the Authority at the time of renewal of the licence.
   3. the application for annual renewal of licence containing necessary documents are submitted to the Authority one (1) month prior to its expiry date, each year with the licence remaining valid until the disposition of application for the annual renewal by the Authority;
   4. licence of operating personnel routinely involved in shift duties are subject to annual renewal over the eight (8) year valid period, whereas, licence of operating personnel involved in activities other than plant operation (regular shift duties) are subject to annual renewal over the eight (4) year valid period;
   5. a licence is automatically cancelled on one of the following reasons:
      1. inability of a licenced individual to carry out his duties for medical reasons as recommended by a duly constituted medical board;
      2. permanent physical disability that renders the licenced individual unable to carry out the duties;
      3. lack of familiarity as a result of being away from operations of the plant, for which the licence was issued, for a period of more than one (1) year;
      4. inability of licensed individual to complete retraining; and
      5. failure of a licenced individual to perform a minimum of twenty (20) shift duties during a year and participation in one (1) startup (at plant or at Full Scope Training Simulator) with these twenty (20) shifts duties been performed acting as independent in-charge of the operation;
   6. upon issuance of notice of gross negligence or incompetence in performance of duties as assessed by the plant management or by the Authority, as the case may be, the licence is summarily suspended and in such cases, the aggrieved party may submit appeal within two (2) weeks to the Authority for review of the decision during which the licence will remain suspended until the appeal is disposed off by the Authority;
   7. licenced individuals who are at the plant but fail to perform twenty (20) shift duties in plant operations as RO or have remained away from the plant operation (shift duties) for a period of more than one (1) year but less than two (2) years, can re-acquire operator licence after doing the following:
      1. successful completion of retraining;
      2. performance of one (1) month shift duty along with a licenced counterpart; and
      3. complete oral and operating examination by the Authority to ascertain familiarity of the candidate with the current status of the plant and the plant operating procedures; and
   8. licenced individuals who fail to perform twenty (20) shift duties in plant operations as Reactor Operator or remained away from the plant operation (shift duties) for a period of more than two (2) years undergoes complete licensing examination.
3. The authorised person shall
   1. apply for revalidation of licence for operating personnel three (3) months before expiry of the licence subject to fulfilment of requirements, along with comprehensive assessment of the candidate for last eight (8) years made by the authorised person or plant management, as the case may be where the licence will not expire until disposition of the revalidation application by the Authority;
   2. ensure that oral examination of these candidates are supervised by the Authority after which the operating licence may be revalidated upon successfully passing the oral examinations; and
   3. ensure that record of written examination, medical fitness and all retraining exercises are retained by the plant management for ten (10) years.

## Criteria for Appointment of Individual Responsible for Safety of a Nuclear Power Plant.

**24**. (1) The authorised person shall appoint an individual responsible for the safety of the plant with assurance of required qualities of his safety leadership and conservative decision making so as to implement effective policies that give due priority to safety.

1. The authorised person shall ensure that
   1. the individual has an overall power plant experience of about twenty-five (25) years, including a minimum of fifteen (15) years’ experience at a plant and proven managerial and administrative skills.
   2. the individual has worked as a licenced Shift Supervisor at the plant or has participated in commissioning of the plant or of a plant of similar design.
   3. the individual has deputy, who has an overall power plant experience of about ten (10) years and worked as a licenced Shift Supervisor at the plant or have participated in commissioning of the plant or of a plant of similar design and in the absence of deputy, the senior most licenced Shift Supervisor assumes that mandate.
   4. the individual has knowledge and skills in all areas of nuclear safety, particularly in the following:
      1. legislative and regulatory regime.
      2. safety and security culture.
      3. problem analysis and conservative decision making.
      4. radiological safety.
      5. emergency plan and procedures.
      6. interpersonal and departmental communication; and
      7. administrative policies and procedures.
   5. ensure that the Authority is informed of the appointment of the individual addressing all the above criteria before or at the time of appointment.

## Criteria for Appointment of Radiation Protection Officer (RPO).

**25.** (1) The authorised person shall designate a Radiation Protection Officer

1. meeting the qualification criteria as given below:
   1. a graduate in engineering or bachelor in basic science from an institution recognised by the Ghana Tertiary Education Commission with a minimum of six (6) years related experience which includes four (4) years at a plant in supervision of radiation protection, monitoring, and control measures and familiar with radiation protection documentation; or
   2. masters in Nuclear Engineering or Nuclear Power Engineering or Medical Physics or Radiation Physics or Basic Science from an institution recognized by the Ghana Tertiary Education Commission with a minimum of four (4) years related experience which includes two (2) years at a plant in supervision of radiation protection, monitoring, and control measures and familiar with radiation protection documentation.
2. who has the following additional qualifications:
   1. familiar with the regulatory requirements, policies, principles, plans, procedures and practices related to nuclear safety, radiation protection, emergency preparedness and response, environmental monitoring, and industrial safety;
   2. familiar with the testing and maintenance requirements for radiation protection, emergency preparedness and response, and environmental monitoring infrastructure including systems and components;
   3. capable of performing his role in routine and emergency situations;
   4. capable of coordination with off-site organisations and authorities for development and effective implementation of various plans of the plant;
   5. familiar with the mechanism of reporting the incidents significant to safety, emergency, and physical protection, to the Authority in accordance with the relevant national regulations; and
   6. possessing good interpersonal and communication skills.
3. The authorised person shall inform the Authority of the appointment of the individual meeting the above criteria before or at the time of his employment.

# Permit for Commercial Transactions

## Permit for Commercial Transactions involving Nuclear Facility

**26.** (1) The Authority shall issue permits for commercial transactions involving nuclear facilities, which are under commissioning, are commissioned or operated following the procedure according to this section.

1. The provisions under this section shall be correspondingly applied to issuing permits for commercial transactions involving nuclear facilities in the process of construction under an already issued construction permit, if the transferee under the transaction holds an operating licence for another nuclear installation.
2. Any permit for a commercial transaction involving nuclear installation shall be issued to the applicant under Regulation 26 and the conditions of the permit shall be specified according to the requirements under Regulation 4.
3. The permit under Sub-regulation 3 shall serve as a basis for concluding the transaction, for

taking a decision, and for furnishing a financial security against nuclear damage liability.

1. Any permit for commercial transaction involving nuclear installation shall be issued for a term of validity up to one year.
2. The applicant shall ensure that
   1. the application for a commercial transaction permit involving transfer of portions or all of a nuclear facility, or the right of use over the nuclear facility, is signed and submitted by both parties to the transaction, i.e., the authorised person and the transferee under the transaction;
   2. the application contains the information provided for in Regulation 3 pertaining to parties to the transaction, and the registration number of the licence or permit in force, which is related to the nuclear installation; and
   3. in the cases under Sub-regulation 2, the registration number of the construction licence shall also be indicated.
3. The applicant shall ensure that the following documents are attached to the application:
   1. application for suspension of the respective licence or permit in accordance with the requirements below, signed by the authorised person;
      1. any application for licence or permit suspension under this condition includes the applicant’s identification data;
      2. the licence or permit registration number;
      3. measures taken and measures necessary for ensuring nuclear safety, radiation protection and physical protection.
   2. application for issuing a licence or permit of the same type in accordance with the requirements signed by the transferee under the transaction with the following documents attached to the application:
      1. a copy of the document certifying the business registration of the applicant;
      2. document certifying that the applicant is not subject to bankruptcy proceedings;
      3. document declaring lack of previous convictions for crimes of general nature for the members of the management and supervisory bodies of the applicant;
      4. documents confirming that the applicant possesses sufficient financial resources for performing the activity in conformity with the nuclear safety, radiation protection, and physical protection requirements, standards and rules;
      5. documents confirming that the applicant possesses sufficient technical resources for performing the activity in conformity with the nuclear safety, radiation protection, and physical protection requirements, standards and rules;
      6. documents confirming that the applicant possesses sufficient material resources for performing the activity in conformity with the nuclear safety, radiation protection, and physical protection requirements, standards and rules;
      7. documents related to the management and organisational structure of the applicant;
      8. documents related to the actual number of personnel, specifying the level of education, qualification, and allocation of duties;
   3. plan for the activities necessary with regard to the transfer of the nuclear facility or portions of it, which shall specify the procedure for undertaking legal actions concerning the transaction and the conditions, stages and procedure for nuclear installation delivery of management to the transferee;
   4. programme containing measures for maintaining
      1. a high level of nuclear safety, radiation protection and physical protection, and their continuous improvement during the transfer, and after facility has been transferred; and
      2. sufficient number of well qualified personnel for whole period until the final delivery to the transferee under the transaction;
   5. payment documents of the application review fees for issuing a permit for commercial transactions involving nuclear installations.
4. The applicants shall ensure that for a transaction involving a nuclear installation, which is a part of a nuclear power plant, the following shall also be attached to the application:
   1. plan to guarantee the use and functioning of any other facility located on the same site and necessary for the safe operation of the nuclear power plant which is subject of the transaction; or
   2. plan for entire separation of the nuclear power plant subject to the transaction.
5. The applicant shall ensure that if at the moment of submission of the application under this regulation, the licence or permit issued to the authorised person is suspended under the procedure prescribed by the Authority, the application in these cases is submitted with the registration number of the suspended licence or permit indicated.
6. The Authority shall review the applications under Regulation 26 in order to verify the correspondence with the provisions and shall issue a permit for a commercial transaction involving nuclear installation on the condition that:
   1. the transferee under the transition complies with the requirements under Regulation 3 for licence or permit issuance;
   2. the plan and the programme under Regulation 26, Sub-regulation 7, paragraphs c and d are well detailed and satisfactory;
7. The applicants shall ensure that
   1. conditions under Sub-regulation 10 are complied with and that any non-compliance with this provision may lead to the denial or rejection of the application by the Authority with the issuance of an order;
   2. within fourteen (14) days after completion of the activities under Sub-regulation 4, the transferee submits to the Authority the documents confirming the conclusion of the transaction and availability of a financial security;
   3. within fourteen (14) days after submission of the documents under Sub-regulation (11) b, a request is made to the Authority to
      1. suspend the licence or permit issued to the existing authorised person, except for the cases under Sub-regulation 9; and
      2. issue the same type of licence or permit to the transferee under the transaction.

## Permit for Transactions involving Nuclear Material

**27.** (1) The Authority shall issue a permit for each specific transaction involving nuclear material following the procedure under this section on the condition that the nuclear safety, radiation protection and physical protection requirements, standards and rules are fulfilled.

1. The provisions of this section shall not be applied to issuing permits involving transport, import or export of nuclear material.
2. The applicant shall ensure that
   1. the application for a permit for transaction involving nuclear material is submitted by one of the parties to the transaction and contains the registration numbers of the licences and permits for manufacturing, use, processing, reprocessing, or storage of nuclear material issued to the parties to the transaction;
   2. the application under Sub regulation 3(a) shall contain the information provided for in Regulation 3 of these regulations concerning both parties;
   3. the following documents are attached to the application:
      1. draft contract between the parties to the transaction; and
      2. specification of the type, form and quantity of the nuclear material, including its chemical and physical form, enrichment with fissile isotope and radioisotope composition;
   4. depending on the subject, place of delivery and other transaction characteristics, the following documents shall also be attached to the application:
      1. document containing information on the purpose for which the nuclear material will be used;
      2. document containing information about the nuclear material packaging and for the transport mode; and
      3. documents certifying that the transport of the respective nuclear material through the territory of Ghana will be performed by a holder of a permit for transport of nuclear material;
   5. depending on the type of the transaction and the nuclear material type or characteristics, other necessary documents shall also be submitted;
   6. within fourteen (14) days after completion of the transaction, the permit holder shall submit to the Authority the documents demonstrating that fact.

# Miscellaneous

## Penalties

**28.** A person who contravenes any of the provisions of these Regulations commits an offence and is liable to penalty provision in Regulation 80 of the Basic Ionising Radiation Control Regulations.

## Appeals

**29.** A person who is not satisfied with a decision taken by the Authority may appeal in accordance with sections 81, 82, 83, 84 and 85 of the Nuclear Regulatory Authority Act, 2015 (Act 895).

## Interpretation

**30**. In these Regulations, unless the context otherwise requires

“Act” means the Nuclear Regulatory Authority Act, 2015 (Act 895);

“Authority” means the Nuclear Regulatory Authority established in section 3 of the Nuclear Authority Regulatory Act, 2015 (Act 895);

“Applicant” means a person or entity who is applying for a license or permit from the Authority.

“commercial transaction” pertains to contracts where one party (seller) agrees to transfer ownership of a nuclear facility or activity to another party (buyer) in exchange for a sum of money or its equivalent

"commissioning" means the process during which systems and components of a nuclear installation, are made operational and verified to be in accordance with the design, and to have met the required performance criteria;

"construction" means the process of manufacturing and assembling the components of a nuclear installation, the carrying out of civil works, the installation of the components and equipment and the performance of associated tests;

“construction licence” means the authorisation issued by the Authority which allows the authorised person to pour concrete in any nuclear safety related structure or to start manufacturing of any of the component or equipment of systems important to nuclear safety;

"decommissioning" means administrative and technical actions taken to allow the removal of some or all of the regulatory controls from an installation;

"design" means the process and the result of developing a concept, detailed plans, supporting calculations and specifications for a nuclear installation and its parts;

“incident” means any unintended event, including operating error, equipment failures, initiating events, accident precursors, near misses or other mishaps, the consequences or potential consequences of which are not negligible from the point of view of protection and safety;

"inspection" means an examination, observation, surveillance, measurement or test undertaken to assess structures, systems, components and materials, as well as operational activities, technical and organisational processes, procedures and personnel competence;

“inspector” means an officer designated by a general or specific order of the Authority to perform such functions as prescribed by Section 73 of Act 895;

"limit" means the value of a quantity used in certain specified activities or circumstances that must not be exceeded;

“management system” means a set of interrelated or interacting elements which together form an established set of structures and procedures and the basis for establishing policies and objectives and enabling the objectives to be achieved in an efficient and effective manner;

“manufacturer” means any individual, corporation, partnership, firm, association, trust, estate, public or private institution, group, or any other entity involved in the manufacturing of equipment, components or parts of these, important to safety;

"nuclear safety" means the achievement of proper operating conditions, prevention of accidents and mitigation of accident consequences, resulting in protection of workers, the public and the environment from undue radiation risks;

“nuclear safety class equipment and component” means an equipment or a component that is part of a safety system;

“operating licence” means the licence issued by the Authority for the operation of a nuclear installation;

“operation” means the activities performed to achieve the purpose for which an authorised nuclear installation was constructed and for nuclear reactors, include maintenance, refuelling, in-service inspection and other associated activities;

"Periodic Safety Review" means a systematic reassessment of the safety of an existing nuclear installation carried out at regular intervals to deal with the cumulative effects of ageing, modifications, operating experience, technical developments, siting aspects, and aimed at ensuring a high level of safety throughout the service life of the installation;

"Probabilistic Safety Assessment" means a comprehensive, structured approach to identifying failure scenarios, constituting a conceptual and mathematical tool for deriving numerical estimates of risk;

"PSA level-1" means the full scope assessment of plant failure leading to the determination of core damage frequency and includes an assessment of internal initiating events in full power operating conditions, low power and shutdown modes, internal and external hazards including fire, flood and earthquakes;

“safety system” means 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 design basis accidents;

"site" means the geographical area containing the nuclear installation, and within which the management of the installation or first responders may directly initiate emergency actions;

"siting" means the process of selecting a suitable site for a nuclear installation, including appropriate assessment and definition of the related design bases;

"site personnel" means a person working in the site area of the authorised installation, either permanently or temporarily;

“Site Permit” means the authorisation issued by the Authority to an applicant to allow preparation of a site for the construction of a nuclear installation;

"testing" means the determination or verification of the capability of an item to meet specified requirements by subjecting the item to a set of physical, chemical, environmental or operational conditions; and,

"transferee" means a person or entity two whom a nuclear installation or portions of it is being transferred to based on a commercial agreement with an authorised person.

# Schedules

## Schedule I: Documents to be Submitted along with Application for Licence

This Schedule provides the list of documents required to be submitted by the applicant during different stages of the licensing process for reference, record and approval, as the case may be.

**Site Approval and Site Permit**

**1**. (1) For the purposes of site approval, the following documents are required:

(a) Site Approval Report;

(b) Plan for Site Evaluation;

(c) Proof of Initial Arrangements with Land Owners;

(d) Clearance from relevant Ministries, Departments, Agencies and Authorities in Ghana;

(e) Management System for Site Selection;

(f) Site Selection Threat Risk Assessment Report;

(g) Site Organisation for Safeguards Implementation Report; and

(h) Public Engagement Programme.

(2) For the purposes of Site Permit, the following documents are required:

(a) Site Approval;

(b) Site Evaluation Report;

(c) Proof of Land Ownership;

(d) Environmental Impact Assessment Report; and

(e) Management System for Site Evaluation.

**Design Approval**

**2**. For the purpose of design approval the following documents are required:

(a)Preliminary Safety Analysis Report.

(b) Design Specifications.

(c) Management System for Design.

(d) Design Information Questionnaire; and

(e) Preliminary Security Plan.

(f) Human Factor Engineering Program (HFEP)

**Construction Licence**

**3**.For the purpose of a construction licence the following documents are required:

(a) Preliminary Safety Analysis Report;

(b) Design Probabilistic Safety Assessment of full power internal initiating events in respect of nuclear power plants only;

(c) Management System for Construction Phase;

(d) Fuel Storage Plan;

(e) Updated Design Information Questionnaire;

(f) Defence Strategy;

(g) Security Programme;

(h) Preliminary Decommissioning Plan;

(i) Equipment Certification and Qualification; and

(j) Public Engagement Programme.

**Commissioning**

**4**. (1) The documents required for the Commissioning Stage is categorised into the non-nuclear testing and nuclear testing submissions.

(2) For the purpose of Non-nuclear testing the documents required are

(a) Commissioning Programme;

(b) Probabilistic Safety Analysis, Level-I, in respect of nuclear power plants only;

(c) Physical Protection System Commissioning Programme;

(d) Emergency Preparedness and Response Plans;

(e) Management System for Commissioning;

(f) Site Security Plan;

(g) Updated Equipment Certification or Qualification;

(h) Arrangements for Transportation of Fuel and Nuclear Dual Use items;

(i) Updated Fuel Storage Plan;

(j) Updated Design Information Questionnaire;

(k) Updated Preliminary Decommissioning Plan; and

(l) Public Engagement Programme.

(3) For the purpose of nuclear testing, the authorised person shall, before the proposed date of introducing nuclear material into the system of the nuclear installation, submit an application for the introduction of the nuclear material along with the following documents:

(a) Non-Nuclear Testing Report;

(b) Final Safety Analysis Report;

(c) Radiation Protection Programme;

(d) Environmental Monitoring Programme;

(e) Radioactive Waste Management Programme;

(f) Updated Preliminary Decommissioning Plan;

(g) Pre-Service Inspection/In-Service Inspection Programme;

(h) Management System for Operation;

(i) Results of the Physical Protection System Commissioning;

(j) Physical Protection Operating Instructions and Procedures;

(k) Final Security Plan;

(l) Contingency Plan;

(m) Programmes for maintenance, testing, surveillance and inspection of structures, systems and components important to safety, security and safeguards; and

(n) Fire Protection Programme.

**Operating Licence**

**5.** For the purposes of an operating licence the following documents are required:

(a) Results of the first start-up, criticality, low power tests, power ascension tests and full power tests; and

(b) Updates of the documents specified in Section 4 of this Schedule to which amendments have been made.

**Revalidation of Operating Licence**

**6.** For the purpose of revalidation of an operating licence, the following documents are required:

(a) Latest report of Periodic Safety Review; and

(b) Updates of the documents specified in Section 4 of this Schedule to which amendments have been made.

**Modification**

**7.** For the purpose of modification, the following documents are required:

(a) Description of Modification Required;

(b) Updated Safety Analysis Report; and

(c) Updated Documents in Section 4 that are impacted by the Modification.

**Licensing Beyond Design Life**

**8.** For the purpose of the grant of a licence beyond the design life of an installation, the following documents are required:

(a) Latest report of Periodic Safety Review; and

(b) Updates of the documents specified in section 5 of this Schedule.

**Licence for Decommissioning**

**9.** For the purpose of the grant of a licence for decommissioning, the following documents are required:

(a) Final Decommissioning Plan;

(b) Operational Limits and Conditions during Decommissioning;

(c) Management System for Decommissioning;

(d) Emergency Preparedness and Response Plan;

(e) Physical Protection Programme;

(f) Radiation Protection Programme;

(g) Radioactive Waste Management Programme;

(h) Environmental Monitoring Programme;

(i) Update of Material Inventory Listing; and

(j) Public Engagement Programme.

**Release from Regulatory Control**

**10.** For the purpose of grant of release from regulatory control, the following documents are required:

(a) Decommissioning Completion Report; and

(b) Final Radiological Survey Report.

**Nuclear Safety Class Equipment and Components Manufacturers**

**11.** For the purpose of the grant of a licence for the manufacture of nuclear safety class equipment and components, the following documentations is required:

(a) a detailed description of the organisation’s capability for the scope of work that are carried out by the organisation and facilities available (including hardware and software) and past experience of the work;

(b) details of the organisation's technical manpower, their qualification and experience;

(c) details of equipment including the type and specifications that is to be manufactured and their safety classification;

(d) details of the Management System;

(e) details of the testing facilities including those that are to be used for destructive and non-destructive tests; and

(f) the details of the Public Engagement Programme.

## Schedule II: Requirements for Transfer of Licence of Operating Personnel among Different Plants of the Same Type

Following cases describe the requirements regarding transfer of licence of operating personnel from one plant to the other plant of the same type:

1. Case-1: Specific requirements for transfer of Shift Supervisor or Shift Engineer licence, as the case may be, from one plant to another plant of the same type with major and minor differences in design and operating limits and conditions:
2. candidate has Shift Supervisor licence of a plant and intends to get the licence for same position at another plant with major differences in design such as system level differences and operating limits and conditions
3. the candidate shall go through training mainly comprising design differences in addition to the normal retraining;
4. the authorised person or plant management, as the case may be, shall apply to the Authority for transfer of licence along with internal assessment of the candidate on a separate sheet;
5. oral and operating examination shall be supervised by the Authority with the focus on design differences, operating limits and conditions, and plant familiarisation; and
6. the candidate shall perform twenty (20) shifts (at least five (5) morning and five (5) evening) at the plant in shadow capacity before assumption of charge as independent Shift Supervisor or Shift Engineer, as the case may be. For first batch of a new unit, the experience of performing shift duties during hot commissioning before fuel loading may be accepted.
7. candidate has Shift Supervisor or Shift Engineer licence of a plant and intends to get the licence for same position at another plant with minor differences in design such as slight changes in configuration of plant systems and operating limits and conditions:
8. the authorised person or plant management, as the case may be, shall apply to the Authority for transfer of licence along with internal assessment of the candidate on a separate sheet;
9. the authorised person shall conduct an assessment of familiarisation of the candidate with the Main Control Room of the plant and report to the Authority;
10. Oral examination shall be supervised by the Authority; and
11. The candidate shall perform twenty (20) shifts (at least five (5) morning and five (5) evening) at the plant in shadow capacity before assumption of charge as independent Shift Supervisor or Shift Engineer, as the case may be. For first batch of a new unit, the experience of performing shift duties during hot commissioning before fuel loading may be accepted.

(2) Case-2: Specific requirements for transfer of Shift Supervisor or Shift Engineer licence, as the case may be, from one plant to another plant of the same type with no differences in design and operating limits and conditions

* 1. the authorised person or plant management, as the case may be, shall apply to the Authority for transfer of licence; and
  2. the candidate shall perform twenty (20) shifts (at least five (5) morning and five (5) evening) at the plant in shadow capacity before assumption of charge as independent SS or SE, as the case may be. For first batch of a new unit, the experience of performing shift duties during hot commissioning before fuel loading may be accepted.

(3) After successful transfer of licence of operator from one plant to other plant, the licence originally issued to the operator shall be cancelled. Only one licence shall be retained by the operator, at one plant, at a time.