



ATOMIC ENERGY COUNCIL

**GUIDANCE ON
DOCUMENTING QUALITY ASSURANCE PROGRAM, EMERGENCY
PLAN AND LOCAL RULES IN INDUSTRIAL PRACTICES**

January, 2021

1.0 QUALITY ASSURANCE PROGRAM

Quality assurance program refers to a systematic program of controls applied by the authorized person aimed at providing adequate confidence that the standards of safety prescribed in the Atomic Energy Regulations, 2012 is achieved in practice. Under this, key elements to document include;

a. Facility information

- Please provide the name and address (both physical and postal) of the facility,
- Radiation sources inventory, purpose and their locations.
- Radiation workers inventory at the facility (Name, qualifications, experience & telephone contacts)
- Details and appointment date of the Radiation Safety Officer (The appointment letter must be attached indicating the specific roles as per the Atomic Energy Regulations, 2012)
- Facility layout and design of the installation of industrial X-rays or storage area (Attach the lay out)
- Location of the temporal or job site
- Type of the installation

b. Equipment specifications

- Name of equipment, Manufacturer, Serial number, and Model

c. Designation of Responsibilities in the Department

- Clearly document roles and responsibilities for persons having roles directly related to radiation protection and safety (who is responsible for what).
- Such persons may include; Qualified experts, Technicians, Radiation Safety Officer, Radiation Safety Committee, Service/maintenance engineers,...etc.

d. Quality control tests/Program

Document a detailed quality control program for the key components of the radioactive sources or Industrial X-rays.

The quality control program must specify;

- The different tests to be performed (e.g. Leak and wipe tests,..etc.)
- Written step by step procedures for carrying out each test
- The equipment used to perform the tests (Name, Model, S/N, Manufacturer);
- The frequency of the tests;
- Persons responsible for performing the tests and the role each will play;
- The expected results;
- Tolerance values in line with regulatory limits and manufacturer's limits
- The actions required when the tolerance levels are exceeded

e. Maintenance program

This should entail at least the following:

- Maintenance results
- Names of persons involved /service provider

- Periods of maintenance
- Criteria for maintenance (restricted to radioactive sources)

f. Training program.

- Describe the training and retraining offered in radiation protection.
- Provide a brief on frequency of the training
- Attach copies of training certificates for each radiation worker where applicable

g. Individual or Workplace monitoring program

The program should describe;

i. Mobile Gauges

- Describe the survey instruments used,
- Calibration status and testing of detection equipment done per schedule.
- The individual monitoring devices used,
- Monitoring periods,
- Service provider,
- Authorized dose levels,
- Investigation levels and procedures to be followed in the event that such levels are exceeded.
- Availability of records of worker monitoring results from the service provider
- Records of all monitoring results are kept. e.g. dose rates, maintenance firm, calibration dates, test certificates...etc.

ii. Fixed Gauges/Fixed Radiation Generating Equipment

- Describe how the workplace monitoring is done
- Dose assessment results in the controlled and supervised areas

h. Arrangements for female employees

(Restrict practices: Mobile gauging, Well logging and Industrial radiography)

Indicate detailed procedures for a female employee working in a radiation area who may become pregnant to;

- informing her manager if she is pregnant,
- Appropriate arrangements would be made for the radiation protection of the foetus.

i. Promotion of Safety culture

Describe how radiation safety culture is promoted in your organization.

j. Periodic review of the Quality Assurance Program.

- State who will review the effectiveness of the quality assurance program. The review can be done internally or by an external entity.
- State the frequency of the review (annually or bi-annually).

k. Records.

- Such records should at least contain: records of individual or workplace monitoring, maintenance, training, quality control tests among others

2.0 EMERGENCY PLAN

An emergency plan provides licensees with the guidance and instruction to persons who will respond to and manage radiological incidents and accidents in case they occur. The emergency response plan should be prepared by the Radiation Safety Officer in line with the following;

- a. Possible radiological emergencies;**
- b. Mitigation measures;**
Response actions for each to prevent further spreading and causing more harm
- c. Persons or organizations or local authorities involved;**
..... at all stages (including their telephone contacts, mobile and fax numbers, email and postal addresses)
- d. Detail the procedures to be followed;**
.... at various incident phases (i.e initial identification/notification phase, the incident response phase, the recovery phase and the post-accident and follow-up phase)
- e. Details of protection strategy for responders;**
Protective gears, Shielding, Equipment and Zoning
- f. Details of emergency medical support;**
.....In Life threatening situations, and their relevant contact name and telephone numbers e.g response medical hospital where injured persons will be treated.
- g. Available response equipment & Personal Protective Equipment;**
.....including the number of detection equipment and personal protective equipment to be used to respond to emergencies: Include a list of the type, availability and location of all emergency equipment
- h. Detail procedures for communicating and cooperating;**
..... with other relevant organizations/stakeholders including reporting the Atomic Energy Council within 24hours of occurrence of the incident.
- i. Description of the arrangements for informing the public;**
.....and those who will issue statements to the media concerning measures being taken to limit the consequences of the accident or incident where applicable
- j. Dosimetry requirements during emergency;**
..... to determine the estimates of the doses received by all personnel affected or involved in the incident such as response persons and medical personnel.
- k. Description of Training programs and drills/exercises;**
.....for staff and organizations that will be involved in the response, type and frequency of the trainings and drills
- l. Arrangements for maintaining, reviewing and updating of emergency plans;**
.....state the procedures and incorporation of lessons learned from operating experience and emergency drills and exercises.

3.0 LOCAL RULES

The scope of the local rules varies from facility to facility, and depends on the risk, category and nature of the practice. The local rules should be in line with at least the following item

a. Radiation monitoring;

Wearing, reading, storage of TLDs, and dose Investigation levels e.g. In case the radiation dose to the exceed the regulatory limit or above average.

b. Access to radiation premises Control Rules;

Classification/designation of controlled and supervised areas, use of warning systems and symbols,...etc

c. Rules for reporting of incidents and accident rules;

To stop unsafe operations and faulty equipment, report immediately to relevant authorities, and to AEC.

d. Rules for protection of pregnant workers;

Access, timely reporting,...etc

e. Rules for interns , trainees and other workers not to operate equipment:

Such as students/interns, trainees, other workers not to operate equipment

f. Practice specific rules during use, transport of radioactive sources, and storage of radioactive sources where applicable;

g. Rules on Records keeping;

Indicate which kind of documentations are kept and their specific locations, and how long