Prime Minister Cabinet
Nuclear & Radiological Regulatory Authority
(ENRRA)
Chairman of the Board

رئاسة مجلس الوزراء
هيئة الرقابة النووية والإشعاعية
رئيس مجلس الإدارة

قرار مجلس إدارة هيئة الرقابة النووية والإشعاعية

رقم (١) لسنة ٢٠١٦

بإصدار لائحة إجراءات التفتيش على المنشآت النووية

مجلس إدارة هيئة الرقابة النووية والإشعاعية:

بعد الإطلاع علي:

- قانون تنظيم الأنشطة النووية والإشعاعية الصادر بالقانون رقم (٧) لسنة ٢٠١٠،
- وعلي اللائحة التنفيذية لقانون تنظيم الأنشطة النووية والإشعاعية رقم (٧) لسنة ٢٠١٠ الصادرة بقرار رئيس مجلس الوزراء رقم (١٣٢٦) لسنة ٢٠١١،
- وعلي موافقة مجلس إدارة هيئة الرقابة النووية والإشعاعية بجلسته رقم (١) لسنة ٢٠١٦ المنعقدة بتاريخ ٢٠١٦/١/٢٧.

- قـــرر -

مادة(١): تسري أحكام اللائحة المرفقة بشأن إجراءات التفتيش على المنشآت النووية.

مادة (٢): يعمل بهذا القرار اعتباراً من تاريخ صدوره، وعلى جميع المعنيين به – كل فيما يخصه – تنفيذه.

رئيس مجلس إدارة

هيئة الرقابة النووية والإشعاعية

أ.د. محمد رضا عز الدين

٢٠١٦/١/٢٧

٣ شارع أحمد الزمر– حي الزهور – مدينة نصر – ١١٧٦٢ القاهرة – مصر ص.ب: ٧٥٥١ ت: ٢٢٧٢٨٨٢٩(٢٠٢+) ف: ٢٢٧٤٠٢٣٨ (٢٠٢+)
3 Ahmed El-Zomor St. Nasr City, 11762 Cairo Egypt P.O.Box 7551. fax: (+202) 22740238 Tel: (+202) 22728829
E-mail: chairman@enrra.com

هيئـة الرقابـة النوويـة والإشعاعية

ENRRA

كود الوثيقة	تاريخ الإصدار	رقم الإصدار	عدد الصفحات
ENRRA-GE/NF/IR-01	12/1/2016	O	30

Regulatory Procedure on Inspection of Nuclear Installations in Operation Stage

Nuclear & Radiological Regulatory Authority
3 Ahmed Alzomor St. Nasr City, Cairo
Egypt
هيئة الرقابة النووية و الاشعاعية
3 شارع احمد الزمر، حى الزهور، مدينة نصر , القاهرة ,ص.ب 11787
جمهورية مصر العربية

FOREWARD

Pursuant to the law No. 7 /2010 for regulating nuclear and radiological activities, Nuclear and Radiological Regulatory Authority (ENRRA) is authorized to control, and regulate all activities related to nuclear and radiation applications. One of the main functions of ENRRA is to conduct inspection of nuclear installations during the various stages of lifetime including siting, construction, commissioning, operation and decommissioning. Theses regulatory inspections cover all structures, systems and components (SSC's) important to safety.

Regulatory inspections are performed to ensure that the installation is operated within specified operation limits and conditions (OLC's) and in accordance with the approved installation documents and ENRRA regulations. It is understood that the regulatory inspection will not relieve the licensee of his responsibility for carrying out his own inspections and surveillance activities to ensure the installation safety.

This regulation is amendment to the inspection program which was established by the Regulatory Inspection and Enforcement Unit of the previous National Center for Nuclear Safety and Radiation Control in 2004.

This document is the basis for performing inspection activities which will be applied by ENRRA with respect to operating nuclear installations in Egypt.

Table of Contents

Article (1)

Objective

The objective of this regulation is to provide rules for the effective conduct and administration of the regulatory inspection on Egyptian nuclear installations.

Article (2)

Scope

This regulation deals with inspection activities of ENRRA with respect to operating Research Reactors and Fuel Manufacturing Pilot Plant in Egypt.

Article (3)

Structure

This regulation contains authorities and responsibilities of ENRRA, Licensee responsibilities as defined by law No. 7/2010. Types of inspection, Methods of inspection and Inspection procedure implementation have been covered in this regulation.

Article (4)

Purpose of regulatory inspection activities

Purposes of regulatory inspection activities are to:

- Verify compliance with regulations and license requirements
- Verify compliance with implementing processes and procedures
- Verify adequacy of personnel
- Ensure that deficiencies are identified and corrected by the licensee.
- Ensure effective management system and safety culture

Article (5)

ENRRA authority and responsibility

With regard to regulatory inspection and as per articles 12, 17, 35 of the law No. 7/2010, ENRRA has the authority to:

- Establish regulations and issue guidance which, among other things, will serve as the basis for inspection
- Enter the premises of installation at any time for the purposes of inspection

- Require the preparation of, access to and submission of reports and documents from licensee and their contractors when necessary
- Seek the co-operation and support of other governmental bodies and consultants with competences or qualifications relevant to regulatory inspections
- Communicate information, findings, recommendations and conclusions from regulatory inspections to other governmental bodies or interested parties, including high level officials, as appropriate in view of the significance of the issue
- Communicate inspection finding to licensee
- Enforce compliance with its requirements and license conditions

Article (6)

Licensee responsibility

With regard to regulatory inspection and according to the article No 35 and 39 of law No. 7/2010, the licensee has the responsibility to:

- Give inspection personnel free and prompt access to any area of the installation for the purposes of regulatory inspection.
- Provide regulatory inspectors with free and prompt access to all relevant documentation and to discuss with personnel at the installation.
- Make appropriate arrangements to provide personnel conducting a regulatory inspection with access to his contractors and consultants where such access is deemed necessary by ENRRA for the discharge of its responsibilities for inspection
- Respond to ENRRA finding and take appropriate actions.

Article (7)

Inspectors and licensee relationship

ENRRA performs inspection in accordance with approved requirements and guidelines, OLC's, and installation documentations. Inspection plan for routine inspection should be provided to the licensee in advance. The inspection report should be provided to the licensee within two weeks from ending the inspection visit.
It is not allowed for inspectors to use installation information for non-purpose allotted.
Installation documents are considered to be confidential.
The licensee should notify ENRRA of his schedules for carrying out activities and tests and should submit or make available, in timely manner, the procedures for these activities.
The licensee is expected to provide prompt and unrestricted access to the installation at all times to inspectors. The licensee should provide assistance to inspectors. This may include:

- On-site working facilities;
- Access to means of communication;
- Facilitation of access to all pertinent information;
- Copies of relevant documents;

- Meetings with appropriate staff;
- Personal protection, including equipment for radiation protection.

Article (8)

Types of inspection

ENRRA conducts two types of inspections namely planned (routine) inspections, including special inspection, and reactive (non-routine) inspections. Inspections may be conducted by individuals or teams and may be announced or unannounced.

Planned (routine) inspections:
Planned inspections are carried out in fulfillment of, and in conformity with, prearranged inspection program developed by ENRRA. They are scheduled in advance.
Planned inspections provide an opportunity for the examination of the licensee's activities in order to confirm the licensee's performance and to identify potential problems at an early stage.
Considerations in relation to performing planned inspections include:

- Installation OLC's
- Approved requirements
- The safety significance of the area to be inspected
- Installation documents
- Licensee's overall performance
- Operational experience and lessons learned within the installation or in other countries

Reactive (Non-routine) inspections:
Reactive inspections are initiated by ENRRA in response to an unexpected, unplanned situation or incident in order to assess its significance and implication and the adequacy of corrective actions. A reactive inspection may be made in response to a generic problem encountered at another installation or identified by the review and assessment staff of ENRRA.
Licensee event report should be used for assistance in preparing the inspection.

Announced and unannounced inspection:
An announced inspection is an inspection of which the licensee has been notified in advance by ENRRA. The timing of the announcement may vary according to the circumstances of the inspection to be performed.
Unannounced inspection is an inspection which is carried out without notification to the licensee. It may be carried out at any time of the day or night so as to provide a more complete picture of the situation at the installation.

Article (9)

Methods of inspection

ENRRA inspection methods include:

A. Monitoring and direct observation (such as of working practices and equipment);
B. Discussions and interviews with personnel of the licensee and the contractor;
C. Examinations of procedures, records and documentation;
D. Tests and measurements.

A. Monitoring and direct observation:

1. Includes monitoring of SSCs, human factors significant to safety (performance of operating personnel, managerial attitudes), tests and other safety related activities carried out by the licensee.
2. ENRRA has right to require regulatory monitoring of a specific structure, system, component, test or activity as a condition for the licensee to be permitted to proceed to subsequent stages of work or operation in case of abnormal occurrence or finding of serious non-compliance.
3. Monitoring and direct observation can also be very useful as a means of verifying corrective actions at any stage over the lifetime of the installation, after an abnormal occurrence, or a finding of non-compliance.

B. Discussion and interviews with licensee personnel:

1. ENRRA inspectors have right to communicate and discuss with the licensee's personnel responsible for supervising and performing the activities and tests being inspected.
2. Interviews with the installation manager and other senior managers are standard features of most inspection visits.

C. Examinations of procedures, records and documentation:

1. The licensee is responsible for recording all activities, results and consideration important to safety during all stages of the installation, siting, design, construction, commissioning, operation and decommissioning or closure of the installation.
2. Documentations should be examined by regulatory inspectors to verify compliance with regulatory requirements and license conditions

3. Documentations examined by regulatory inspectors may include:

- Procedures and schedules for maintenance and testing;
- Quality assurance records;
- Test results and data;
- Operational and maintenance records;
- Records of deficiencies and incidents;
- Modification records including modifications to management and operating procedures;
- Training records;
- Radiological safety records.

D. Tests and measurements:

During inspection, independent tests, measurements and calculations by ENRRA inspectors will be performed as necessary, and after consultation with the installation manager. This shall not relieve the licensee of his prime responsibility for safety.

Article (10)

Walk-through inspection

Inspectors may perform a walk-through in the installation to make general observations of the condition of the installation. The walk-through should be performed early in the inspection. The inspector may need to return to some portions of the installation at a later time to observe specific activities, such as make direct observations of radiation safety systems or safety related components.

Article (11)

Training and qualification of inspectors

ENRRA is responsible for training and qualifying its inspection staff. Inspectors shall have the necessary technical capability to accurately observe and evaluate the installation. Inspectors shall have successfully completed the required training and qualification process as recommended by IAEA Tecdoc.-1254.

ENRRA can ask or nominate internal experts, external experts, consultants and contractors to participate in inspection activities as needed.

Article (12)

Inspection frequencies

For research reactors ENRRA should perform two routine inspections per year at least. Duration of each one should be from 3 to 5 days.

For other nuclear installations rather than reactors ENRRA should perform one routine inspection per year at least. Duration should be from 3 to 5 days.

The inspection team for routine inspection should be composed of three inspectors at least.

Inspection should cover all areas and activities mentioned in the relevant Annexes I and II.

During the reactor extended shutdown period, the frequency of routine inspection may be changed to be one time per year.

ENRRA has the right to perform non-routine inspection at any time for specific area or activity.

Article (13)

Inspection plan

Inspection plan shall be prepared in advance by the Lead Inspector and presented to the head of central administration of inspection and enforcement before conducting the routine inspection. The preparation for an inspection must be coordinated within ENRRA and in most cases with the licensee being inspected. Inspectors have the right to change and/or add to the elements listed depending on the ongoing inspection results.

The inspection plan shall include:

- The inspection objectives and scope
- The requirements and reference documents
- Dates and places where the inspection activities are to be conducted
- Identification of the area, activities, process, SSCs, function
- Expected time and duration for inspection activities including meetings with the licensee management, and inspection team meetings

A template for the inspection plan is provided in Appendix 1

Article (14)

Entrance and exit meeting management

Entrance meeting

Onsite inspection activities should begin with an entrance meeting with senior licensee management and designated licensee representative(s) responsible for the areas to be inspected. This meeting generally should take place as soon as practical after arriving on site.

The purposes of the entrance meeting are to:

- Coordinate ENRRA inspection activities with licensee management
- Present or to confirm inspection plan
- Establish communication

At the entrance meeting, the Lead Inspector should discuss the purpose, scope and expected duration of the inspection; the need to interview with identified staff, if applicable; documentation support requirements; and other requested administrative support requirements.

In the case of an unannounced inspection, the entrance meeting provides an opportunity to have the most knowledgeable individuals present to respond in the areas being inspected.

The licensee representative should be asked to identify any recent problems related to the licensed program, such as equipment failures and unusual radiological problems (i.e., excessive personnel exposures, unexpected releases to the environment, QA problems, etc.).
When an inspection is likely to involve proprietary or confidential information, given the technical area or other considerations of inspection scope, the inspector should discuss with licensee management during the entrance meeting how the information will be handled during the inspection. A template for the record of entrance meeting is provided in Appendix 2

Consideration should be outlined during the entrance meeting:

- Introduction of the delegates. Including an outline of their roles
- Confirmation of the inspection objectives, scope
- Confirmation of the inspection plan and other relevant arrangements with the licensee
- Methods and procedures to be used to conduct the inspection
- Confirmation of formal communication links between the inspection team and licensee
- Confirmation that during the inspection, the installation manager will be kept informed of inspection progress
- Confirmation that any resources and facilities needed by the inspection team are available
- Confirmation of matters relating to confidentiality
- Confirmation of work safety, emergency and security procedures
- Method of reporting
- Information about any inspection appeal system
- At the end of meeting opportunity should be given to the licensee to ask any questions

Intermediate meeting

Depending on the nature and scope of the inspection, the Lead Inspector may arrange for periodic or daily status meetings with licensee management to discuss the inspection progress and related issues. Significant unresolved safety issues shall be immediately brought to the attention of installation management as they are identified.

Exit meeting

Before the exit meeting, the inspection team members may be discussed together to agree about the inspection results

At the end of the inspection, the inspector (for a team inspection, the Lead Inspector) should conduct an exit meeting with a senior licensee representative at the installation.

During the exit meeting the most important findings which may affect safety should be communicated clearly to the licensee representative by the minutes of meeting signed by meeting attendees. A template for the record of exit meeting is provided in Appendix 3

Purpose of exit meeting is to:

- Summarize the conduct of the inspection

- Check extent of inspection plan that was implemented
- Determine facts, findings, and information received
- Define whether inspection objectives were met
- Agree on the content of the inspection minutes
- Describe after coming regulatory actions
- Describe expected actions from the licensee
- Sign the inspection minutes, close the inspection

In case of the licensee representative refuses to sign the minutes of meeting, the Lead Inspector shall inform the ENRRA chairman before leaving the installation site.

Article (15)

Inspection reports and findings

Responsibilities:
Lead inspector is responsible for preparing inspection report within five working days from the last day of the inspection. The report will be reviewed and approved by the head of regulatory inspection and enforcement central administration and then will be discussed with the head of review and assessment administration. The important issues will be forwarded to ENRRA chairman. Inspection reports will be maintained by the inspection and enforcement central administration head and shall be retrievable and controlled. ENRRA chairman is responsible for external distribution of findings or the whole inspection report.

Purpose of inspection reports:
The purposes of inspection reports are to:

- Record the results of all inspection activities
- Document and record an assessment of the licensee's activities
- Record discussions held with installation staff, plant management and other concerned persons
- Provide a basis for notifying the licensee of the findings of the inspection and any non-compliance with ENRRA requirements, and to provide a record of any enforcement actions taken
- Record any findings or conclusions reached by inspectors
- Record any recommendations by inspectors for future actions by the licensee or ENRRA and to record progress on recommendations from previous inspections
- Inform other members of ENRRA
- Contribute to maintaining an institutional memory

Contents of inspection reports:
Inspection report contains as a minimum the following essential elements:

- Identification of the installation inspected, the purpose and date of the inspection and the inspectors' names;
- The methods used in the inspection (interviews, observations, review of documents); reference to applicable requirements;
- Criteria used in the assessment;
- Details of installation areas, activities, documents, processes, systems or components which have been inspected, assessed or reviewed;
- A record of actual or potential problems relating to safety;
- A record of the results of any checks for compliance with the terms and conditions of the authorization for the installation and applicable national regulations;
- A record of any deficiency or violation found in regulatory inspections, including a record of which requirements or regulations have been contravened;
- A record of any regulatory action taken by inspectors and any consequent action taken by the licensee in the period covered by the report;
- A record of discussions held with the installation's staff, the licensee's managers and other persons, including a record of discussions with installation managers about points of concern;
- A record of the inspectors' opinion about the licensee's or relevant installation manager's response to any matter of concern to which their attention was drawn after a regulatory inspection;
- A record of the findings or conclusions of the inspectors, including corrective or enforcement actions that should be taken;
- A record of recommendations made by inspectors for future action, such as a need to advise other inspectors or licensees about particular problems,
- Proposals for further inspections or proposals for enforcement actions.

Distribution and use of inspection reports

Findings which are affecting safety of the installation may be sent to the Parliament/ Prime minister by ENRRA chairman.

Inspection reports or findings shall be forwarded to the licensee for necessary corrective action through an official channel. This is a part of the enforcement procedure.

Inspection reports and copies of documents received during the inspection shall be stored in a manner that permits ready retrieval. Head of inspection and enforcement central administration is responsible for keeping those reports and documents. ENRRA Inspectors including external experts and contractors shall consider all nuclear installation documents as confidential documents.

Publication of inspection findings:

- ENRRA shall inform the public about the installation safety, general findings of inspections and ENRRA decisions by several means including internet.
- Any confidential information such as security information, commercial information, medical information, and proprietary information shall not be published.
- All inspection information exchanged between ENRRA, governmental bodies, the licensee, advisory committees, consultants, and public shall be formally recorded and stored.

Article (16)

Corrective Action Request (CAR)

It is a form may be used by ENRRA to describe a nonconformity and request action from licensee.
Corrective action is an action taken to eliminate the cause of a detected nonconformity or other undesirable situation.
The Corrective Action Request (CAR) form is used to:

- Report nonconformities
- Show the level or classification of these nonconformities
- Record acceptance of nonconformities by licensee
- Record the action taken by licensee to correct the nonconformities.
- Record acceptance by ENRRA of the corrective action taken by licensee to resolve the nonconformity

The CAR shall contain reference to:

- The applicable area, activity, systems, or procedure
- Clause number of requirement
- Inspector's name
- Finding statement

Responsibilities of licensee:

- Investigate and clearly identify the problem
- Propose a program of long term corrective action
- Agree a target date for completion
- Verify effectiveness of corrective actions by internal audit
- Notify ENRRA of conformance

ENRRA has to evaluate the proposals for corrective action in order to ensure the immediate remedial action is taken.
To resolve the nonconformity, the licensee shall:

- Take immediate action to correct the nonconformity
- Analyze the effect of the nonconformity on the installation safety
- Identify the root cause of the problem
- Initiate a similar investigation into other areas
- Develop effective actions to prevent a recurrence of the nonconformity
- Implement and monitor the corrective action

A template for the corrective action request is provided in Appendix 4

Article (17)

Inspection for nuclear installations in extended shutdown

During the extended shutdown period, ENRRA is responsible for conducting inspections of the installation. The basic purpose of such inspections is to confirm that the approved extended shutdown plan is being implemented by the licensee and specific safety requirements established for this period are being met. A decision needs to be made concerning the systems and activities to be maintained as during normal operation. Systems to be considered include:

- Nuclear safety (handling and storage of fuel to avoid criticality whether in the reactor core or in a storage installation)
- Site utilities (electricity, water, heating, etc.)
- Radioactive waste discharge system
- Water purification system
- On and off-site radiation monitoring system
- Instruments and control systems
- Emergency power supply
- Fire protection system
- Personnel access control systems
- Solid waste packaging and handling systems
- Lightning protection systems
- Elevator/hoisting systems
- Communication and physical protection systems
- Radiation protection for persons
- Operating staff (number, training, re-training and re-licensing)

For return to operation, ENRRA carries out inspections during the re-commissioning of the installation, as needed. The useful information shall be submitted to ENRRA to support the return to operation such as:

- A list of systems and equipment that were subjected to normal operation and maintenance during the shutdown
- A list of systems and equipment that were subjected to reduced operation and maintenance and systems and equipment that were retired from service and stored under protective conditions
- The results and records of the maintenance and periodic testing during the extended shutdown period and the results of pre-operational tests conducted on the systems and equipment that were subjected to reduced operation and maintenance or retired from service and stored under protective conditions

Article (18)

Licensee event report

The licensee shall submit to ENRRA a Licensee Event Report (LER) for the following events:

- Abnormal test results
- Radioactive releases
- Any violation of operational limits and conditions
- Major modifications and corrective actions
- Unexpected exposure of personnel
- Unavailability of safety related equipment
- Any other situation giving rise to potential hazards for workers, the public and the environment
- Events which may lead to misinterpretation by the public or matters which concern the public

The content of the licensee event report is described in the ENRRA enforcement and notification regulation.

Article (19)

Regulatory enforcement

ENRRA has the power to enforce compliance with its approved requirements as specified in the applicable regulations and in license conditions. Including the authority to require a licensee to modify, correct or curtail any aspect of an installation's operation, procedures, practices or SSCs, as necessary, to ensure that the required level of safety is achieved.
Enforcement actions are designed to respond to non-compliance with specified conditions and requirements. The action shall be commensurate with the seriousness of the non-compliance. The licensee shall be required to remedy the non-compliance, to perform a thorough investigation in accordance with an agreed time-scale, and to take all necessary measures to prevent recurrence. ENRRA shall ensure that the licensee has effectively implemented any remedial actions in the agreed time.

Article (20)

Inspector's authority for enforcement

In abnormal situations (urgent situations), the inspectors shall transmit information immediately to ENRRA if they judge that the health and safety of workers or the public are at risk, or the environment is endangered. All necessary actions shall be taken in a timely manner.

In normal situations, decisions concerning enforcement actions should be approved by ENRRA in accordance with article 33 of the law 7/2010 and article (21) of this regulation

Article (21)

Enforcement levels for inspection findings

- The enforcement action will be based on the severity of inspection findings as mentioned in the following table:

Violation Degree	Enforcement level
Degree-1 • Unsatisfactory situations. • Deviations from or violations of authorization requirements such as OLCs	**Level-1: Issue Written directives** It should: • specify the nature of and the regulatory basis for each violation, deviation or unsatisfactory situation • specify a period of time for taking corrective action specify the particulars of each violation, deviation or unsatisfactory situation. • may provide guidance on the nature of the corrective action
Degree-2 • Fails to take corrective actions in response to the written directives. • Repetition of the same violations.	**Level-2: Issue Written warnings** It should : • specify the nature of and the regulatory basis for each violation, deviation or unsatisfactory situation • specify a period of time for taking corrective action specify the particulars of each violation, deviation or unsatisfactory situation. • Notify the possibility to take a higher level of enforcement, in case of continual violation.
Degree-3 • Apparent deterioration of the installation SSCs which are important to safety • Serious violations which in the judgment of ENRRA pose an imminent radiation hazard to workers, the public or the environment.	**Level-3: Issue Orders to curtail activities** This could require: • Reduction in the parameters which may cause such deterioration. • Temporary shutdown of the installation, if necessary, till implementation of corrective actions.
Degree-4 • Chronic or extremely serious non-compliance • Significant contamination of the	**Level-4: Issue Orders of modification suspension, and Revocation** This may be include: • Modification • suspension

environment due to a serious malfunction or damage to the installation	• revocation of the authorization depending on the nature and severity of the conditions at the installation
Degree-5 • Serious violations caused or may cause ✓ pose an imminent radiation hazard to workers, the public or the environment ✓ death of worker or one of public ✓ malfunction or damage of part of the installation • Repeated violations of a less serious nature • Deliberate and willful non-compliance the applicable provisions of the law 7/2010 and its executive regulation, and the requirements which approved by ENRRA • Deliberate and willful follow the enforcement action from enforcement level 1 to enforcement level 4	**Level: 5 Recommend penal action** Initiate penal action as prescribed in the Egyptian law No. 7/2010.
Details of enforcement policy, actions and procedures shall be in accordance with ENRRA regulatory enforcement and notification regulation. ENRRA may initiate penal action against the licensee with taking the necessary enforcement action.	

Article (22)

Records of enforcement

All enforcement decisions shall be confirmed to the licensee in writing. Internal records of decisions concerning enforcement actions and any supporting documentation shall be kept in such a way that they will be readily accessible and retrievable

Article (23)

Appeal against decisions

In case of disagreement on the decisions of ENRRA, the licensee may appeal against such decisions within 60 days to ENRRA chairman. The chairman shall discuss reasons of licensee's appeal. He shall present the result of investigation to ENRRA board. The board shall be responsible for taking the final decision.

Article (24)

Revision

This document shall be revised after three years from the issue date

Appendix 1

Inspection Plan

ENRRA	Nuclear & Radiological Regulatory Authority Safety of Nuclear Installation Inspection Plan	Inspection No.: Date

Organization			
Address		**Period**	
Lead Inspector			
Inspection Team			
Regulations & Documents			
Inspection Language	Arabic / English		

Inspection objective:

Date	Time	Duration	Inspector	Area / Process / Function	Key Contact
				Entrance Meeting	
				Exit meeting	

Notes:-

1- Inspectors have the right to change and/or add to the elements listed depending on the on-going result.

2- A private place is needed for the inspection team.

3- Time is approximate and should be confirmed during the entrance meeting.

Inspection Team Leader

Appendix 2
Minutes of entrance meeting

ENRRA	**Nuclear & Radiological Regulatory Authority** **Safety of Nuclear Installation** **Inspection entrance meeting**	**Inspection No.:** **Date**

Minutes of entrance meeting

Installation: Type of inspection:

Inspection team conduct an entrance meeting with installation representative at day

The meeting was attended by all of

No.	Name	Installation	Signature	No.	Name	Installation	Signature
1				7			
2				8			
3				9			
4				10			
5				11			
6				12			

Resume

Appendix 3
Minutes of exit meeting

ENRRA	**Nuclear & Radiological Regulatory Authority** **Safety of Nuclear Installation** **Inspection exit meeting**	**Inspection No.:** **Date**

Minutes of exit meeting

Installation: Type of inspection:

Inspection team conduct an exit meeting with installation representative at day

The meeting was attended by all of

No.	Name	Installation	Signature	No.	Name	Installation	Signature
1				7			
2				8			
3				9			
4				10			
5				11			
6				12			

Resume

Page 1 of 2

ENRRA	Nuclear & Radiological Regulatory Authority Safety of Nuclear Installation Inspection exit meeting	Inspection No.: Date

Resume (Cont.)

Appendix 4
Corrective Action Request

ENRRA	**Nuclear & Radiological Regulatory Authority** **Safety of Nuclear Installation** **Corrective Action Request (CAR)**	**Inspection No.:** **Date**

Organization:
Address:
CAR No.:
Area/Department/System/Activity:
Inspector:
Organization Representative:
Requirement/Document:
Issue:

Details of Nonconformance (Including Objective Evidence):
Requirement:

Finding:

Inspector Signature	Organization Representative	
	Signature:	Close out time:

Corrective action taken to prevent recurrence:

Organization Representative Signature:	Date:

Acceptance of Corrective Action/ Comment:

Inspector Signature:	Date:

Response Required:

☐ Close out ☐ Define ☐ New CAR

Inspector Name: Signature: Date:

Annex I: Examples on inspection areas and activities for Research Reactor in operation and decommissioning stages

Operation stage	
Inspection Area	***Activities / Subject***
Operation	- Operation Limits and Conditions - Main control room - Shift turnover - Installation walk down - Chemistry control - Start up and shutdown procedure and check list - Operation log book - Fuel management - Execution of Operating procedures - Industrial and chemical safety
Operating procedures	Sampling review for: - All procedures for normal operation, anticipated operational occurrences and accident conditions. - Usability and adequacy of the procedure - Updating procedure
Safety & safety-related systems	Sampling review to evaluate: - Any identified degraded equipment - Discrepancies between installed components and/or system hardware and the installation drawings - Controls for performing maintenance on equipment - The quality of performance of the operations staff in log keeping and record keeping and in routine monitoring of equipment - Risk to human
Operator license	- Active license status - Records
Management	Evaluation of: - Management effectiveness - Suitability of organizational structure - Adequate numbers of staff - Staff communicate - Safety and safety culture - Document control

	- Operational experience - Procurement - Receipt, storage, and handling of spare parts and equipment - Internal audit - Self-assessment - Safety committee activities - Preventive action process - Corrective action process
outages	Observations during outage include: - Activities in areas that are not always accessible during normal operation. - Movements of fissile and radioactive material
Radiation protection and radioactive waste management	Should include: - Radiation protection procedures - Radiological controls - Protecting clothes - Dosimetry - Radiation survey, sampling and monitoring - Instrument calibration - Personnel exposure records - Respiratory protection program - As low as reasonably achievable principle - Effluent control, monitoring and records - Environmental monitoring - Waste storage - Water radiochemistry
Maintenance and testing	- All types of maintenance performed on SSCs - Testing, including the conduct of all surveillance testing activities - Observation of licensee's inspection and periodic testing activities - Calibration - Planning and scheduling activities - Procedures, work orders, results, records, and logs - Walk down - Personnel protective equipment
Surveillance	- Surveillance procedures of SSCs - Surveillance results of SSCs

	- Health surveillance program - Records and logs
Training and retraining program	Adequacy of Training & retraining program
Engineering	Review evaluation of non-conforming or degraded conditions.
Modification	- Effective control of modification - Submissions by licensee to ENRRA - Review execution - Updating safety related documentation - Personnel qualification and training
Emergency preparedness	- Adequacy of emergency planning - Implementation effectiveness - Procedures for detection, classification, decision making, notification, communication, shift staffing, dose calculation and dose assessment - Clothes, equipment, instrumentation and supplies - Results of drills and exercises
Physical protection	- Safety and security interface - Access control - Physical protection of equipment in safety related areas - Fitness for duty program

Annex II: Examples on inspection areas and activities for Fuel Manufacturing Pilot Plant in operation and decommissioning stages

Operation stage	
Inspection Area	***Activities / Subject***
Operation	- Installation tours and observations - Criticality control & prevention - Industrial and chemical safety - Operation log book - Execution of operating procedures
Manufacturing procedures and documents	- Operation limits and conditions - Quality control procedure - Administrative controls - Procedures for normal operation, anticipated operational occurrences and accident conditions. - Specific operating procedure for equipment - Ventilation system - Usability and adequacy of the procedure - Procedure updating
Production lines	- Powder Conversion Line - Compact and Pre-Plate Manufacturing Line - Fuel Plates Manufacturing and Fuel Element Assembly Line - Structural Components Manufacturing Line
Operator license	- Active license status - Records
Management	Evaluation of: - Management system effectiveness - Suitability of organizational structure - Adequate numbers of staff - Staff communication - Safety and safety culture - Document control - Operational experience - Procurement - Receipt, storage, and handling of spare parts and equipment - Internal audit - Self-assessment - Safety committee activities

	- Preventive action process - Corrective action process
Radiation and environmental protection	- Radiation protection procedures - Radiological controls - Protective clothing - Dosimetry - Radiation surveys, sampling and monitoring - Instrument calibration - Personnel exposure records - Urine analysis records - Unusual events - Respiratory protection program - Radioactive sources - X-ray generators - Effluent discharge control, monitoring and records - Environmental monitoring - Waste management
Maintenance and testing	- All types of maintenance performed on SSCs - Observation of licensee's inspection and testing activities - Calibration - Personnel protective equipment - Procedures, work orders, results, records, and logs - Walk down
Surveillance	- Surveillance procedures of SSCs - Surveillance results of SSCs - Health surveillance program - Records and logs
Qualification and Training	- Adequacy of training program - Training & re-training program - Personnel qualification
Modification	- Effective control of modification - Submissions by licensee to ENRRA - Review execution - Updating safety related documentation - Personnel qualification and training
Emergency preparedness	- Emergency plan changes - Emergency procedures - Facilities, equipment, instrumentation and supplies - Emergency response personnel - Emergency alarms

	- Offsite support - Drills and exercises - Adequacy of emergency planning - Procedures for detection, classification, decision making, notification, communication, shift staffing, dose calculation and dose assessment
Physical protection	- Safety and security interface - Access control - Physical protection of equipment in safety related areas - Fitness for duty program