



United Arab Emirates



Issues in Occupational Radiation Protection in Industrial Radiography: Regulator view

Industrial Radiography Practice Status in UAE

The International Conference on Occupational Radiation Protection
Enhancing the Protection of Workers - Gaps, Challenges and Developments
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FANR Establishment

Article (2) of the Nuclear Law established the Federal Authority for Nuclear Regulation (“FANR”) as the regulatory body of the UAE Nuclear Sector with independent legal personality, full legal capacity and financial & administrative independence and replace pre-existing sector regulatory bodies.

FANR independence:

- The sole issuer of Licences and regulations to conduct Regulated Activities (Art. 6)
- Board Members are prohibited from engaging directly or indirectly in a Regulated Activity (Art.10)

FANR Aims (Art. 2) to:

- Control & supervise UAE Nuclear Sector and achieve Nuclear Safety & Security, Radiation Protection & Safeguards.
- Fulfil obligations under international treaties, conventions & agreements entered into by UAE.
- Prevent use of Nuclear Facilities & Regulated Materials for non-peaceful purposes.

FANR is also a ‘new’ organization for the control of the use of radiation sources, replacing the former authorities (Federal Environmental Agency and health authorities).





Regulatory Framework

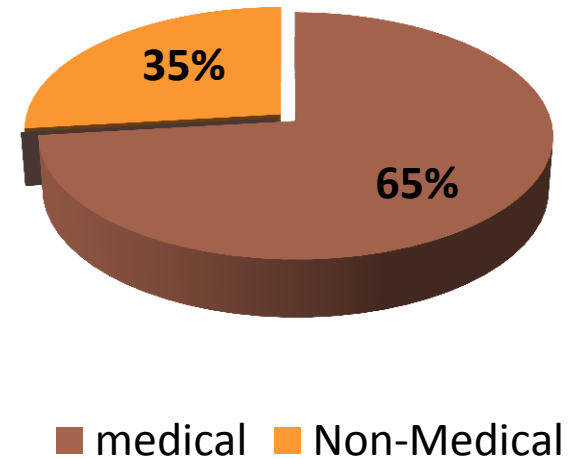
- ⊗ FANR-REG-24 “Basic Safety Standards for Facilities and Activities involving Ionizing Radiation other than in Nuclear Facilities” based on IAEA BSS.
- ⊗ FANR-REG-13 “Safe Transport of Radioactive Materials” as defined in TS-R-1
- ⊗ FANR-RG-07 “Safety Guide” describing the methods and/or criteria acceptable to the Authority for meeting and implementing specific requirements in the Authority regulation
- ⊗ FANR-RG-019 on Radiation Safety in Industrial Radiography (based upon the IAEA’s Specific Safety Guide SSG-11)





Industrial Radiography Practices in the UAE

- ⊗ There are around **80 companies** (out of a total of 750 Licences) authorized for Industrial Radiography
- ⊗ Using **Ir-192, Se-75, Co-60** and **X-ray units**. Currently FANR is assessing the first application to use a **linear accelerator** for this purpose and to replace the use of a Co-60 source
- ⊗ Around **2000** exposed workers





Development of ORP infrastructure

- ☉ UAE Secondary Standard Dosimetry Laboratory (SSDL) expected that service providers in 2015
- ☉ FANR is developing criteria to be fulfilled by dosimetry service providers to improve monitoring and recording of occupational exposures in planned exposure situations





Development of ORP infrastructure

FANR is working on developing the training infrastructure in the UAE in cooperation with local stakeholders and through the National Radiation Protection Committee, (a guide on training requirements for each practice are published on FANR website)

Training in Radiation Protection

Introduction:

Training for workers in protection and safety should be a well-established part of the training should be tailored to the particular radiation application and the type of work so that the worker develops the necessary skills to work safely.

The training programme should ensure that all workers receive adequate and up-to-date training associated with their occupational exposure whether routine exposure, potential exposure or emergency. The significance of actions to be taken for protection and safety [for more details see Annex 1].

The training should also include local rules, safety and warning systems, and emergency procedures to the appropriate depth for the specific radiation application and the potential hazards.

All training, time and extent of the given education, shall be documented for each worker at regular intervals.

Scope:

This training plan applies to all radiation workers as well as for the training service providers who have been established in line with the International Atomic Energy Agency (IAEA) standards.

Training Duration:

The duration of the training shall be determined by the Licensee based on the requirements of the IAEA and FANR's Regulation 24 Basic Safety Standards for Facilities and Activities Involving Ionizing Radiation other than in the Field.

FANR's Regulation 24 Basic Safety Standards for Facilities and Activities Involving Ionizing Radiation other than in the Field

Training Service Providers in the UAE:

It is the Licensee's responsibility to confirm FANR that the facilities detailed in the list offer training in radiation safety in accordance with FANR's requirements. FANR does not certify, accredit, approve or recommend any training programmes. For a list of training programmes, please click here.

Worker Classification	Training
<ul style="list-style-type: none"> • Qualified Expert • Radiation protection officers • Qualified operators • Workers occupationally exposed 	<ul style="list-style-type: none"> • Training Modules for Radiotherapy • Training Modules for Nuclear Medicine • Training Modules for Diagnostic Radiology • Training Modules for Tracer Techniques • Training Modules for Gauging Techniques • Training Modules for Irradiators and Accelerators • Training Modules for Mining and Milling • Training Modules for Industrial Radiography • Training Modules for Dental (Intra Oral) • Training Modules for Security Screening • Training Modules for Well Logging



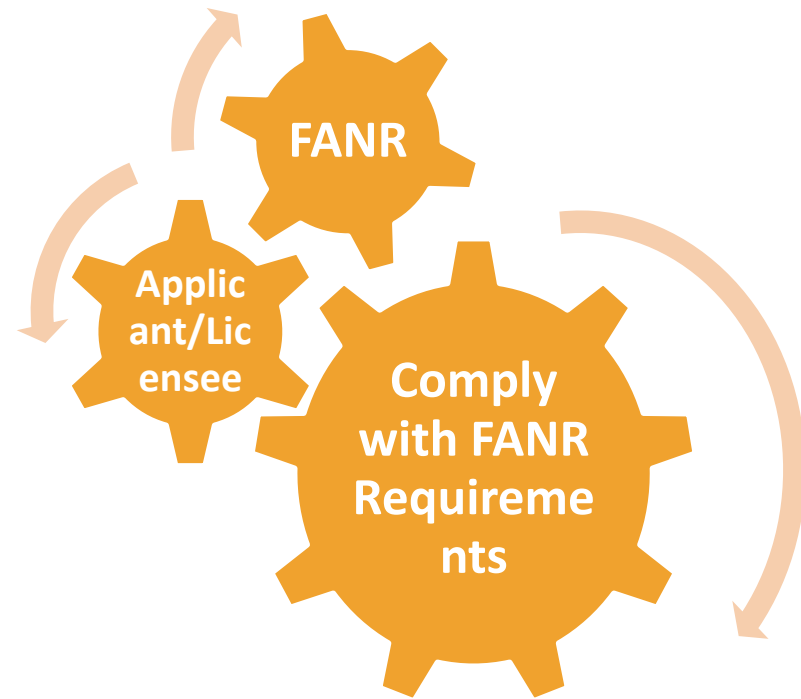
Development of ORP infrastructure

⊗ FANR has regularly conducted a workshop, named “Meet Your Regulator”, to familiarize the licensees and the applicants with its regulatory requirements and to respond to their questions in relation licensing conditions, inspection, licencing process and training

⊗ (IRPA 2014 Rabat proceedings)

⊗ **Meet Your Regulator** Workshop is a direct communication tool used to communicate with FANR licensees and applicants

⊗ Transparency Approach (Nuclear Law)



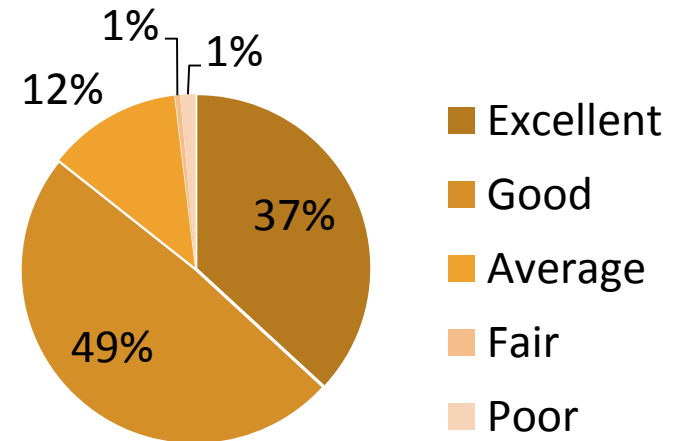


Development of ORP Infrastructure

Examples of discussed topics with Industrial Radiography Licences during Meet Your Regulator workshop:

- FANR regulations and guides
- Inspection Findings
- Emergency events & the lesson learned
- Explain to Licensees and applicants how to comply with FANR Regulations and Regulatory Guides
- Enhance the awareness of licensees and new applicants about FANR procedures such as Licensing, Inspection, Incident Reporting
- Encourage the licensees and the applicants to participate in reviewing process of FANR Regulations and Guides (Public Comments Phase)
- The workshop conducted by presentations and poster sessions

Are the licence conditions, regulations and regulatory guides easy to understand?





Challenges Facing Regulatory Authority

⊗ Direct Reading Dosimeters (Personal Alarm Monitors)

- In frequent basis the doses of the workers in industrial radiography exceeded the limits
- Rely only Passive dosimeter (late receiving Dose Report from the service provider)
- Failed to correct situation of high dose received by the workers

⊗ Responsibility of workers

- Always the workers put the responsibility of their fails to comply Radiation Safety requirement on their employer
- Avoid blaming culture and foster Safety culture

⊗ Proper assessment of high dose readings

- Inadvertently leaving the passive dosimeter near a radiation source is the most frequently stated cause of high recorded doses
- Efforts are required from both Licensees and the Regulatory Authority to identify and assess explanation for these incidents
- Strengthen the systems to prevent such events (by Licensee)





Challenges Facing Regulatory Authority

Training on Radiation Safety

- FANR-RG-19 “Radiation Safety in Industrial Radiography” which explains the requirements on Radiation Safety Training for Assistant Radiographers, Radiographers and Radiation Protection Officers
- Workers in industrial radiography practice find difficulty in understanding the Radiation Safety requirements
- The training requirements for Industrial Radiography is published on FANR website (for different job categories e.g. RPO, qualified expert, qualified operator)
- UAE Training infrastructure on Radiation Safety



General Issue in Industrial Radiography Practice

Safety Culture:

- Still not mature in Industrial Radiography practice and needs to be fostered and maintained as a part of licensee's Management System
- Lack of common understanding
- Not trust environment

Communication:

- Workers in Industrial Radiography neither Arabic nor English speakers
- Radiation Safety instructions and procedures are translated for different language in the workplace
- Difficult for the Regulatory Body to communicate with workers



Regulatory Body Approaches

⊗ Regulation and Guide

- ⊗ Comprehensive regulatory regulation;
- ⊗ Regulatory Guide in easy language and meet licensees needs;
- ⊗ Radiation Protection Advice

⊗ Licensing




- ⊗ Application Form and Guide how to fill in the application
- ⊗ Check lists (covers FANR requirements) are created to facilitate the licensing process
- ⊗ Working on automating regulatory control actions (E-Licensing System)





Regulatory Authority Approaches

Inspection

-  Should be performed at least twice during the first year after issuing the licence and at least annually after that for all industrial radiography licensees
-  Announced and unannounced inspection;
-  Site inspection

Others

-  Broachers
-  Involve the industrial Radiography licensees in FANR activities (lesson learned, participate in incident drill, ORPAS mission)
-  Cooperate with other governmental entities
-  Establish the National Dose Record (expected Mid 2015)
-  Establish Radiation Safety Association



شكراً
Thank you



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