

National Dose Registry for Occupational Exposure in Saudi Arabia

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1.Introduction

In light of the rapidly increasing development of nuclear and radiation applications used in vital areas such as medicine, industry, research, and education, the Kingdom of Saudi Arabia (the Kingdom) approved the Law of Nuclear and Radiological Control (the Law) that established the Nuclear and Radiological Regulatory Commission (NRRC) as the new regulatory body with the goal to strengthen regulatory capacity and capability in the Kingdom. The Law provides a clear direction on the responsibility of the NRRC to protect the workers, the public and the environment for any potential harmful effect of radiation based on the international best practices.

2.NRRC Regulatory Core Process related to Occupational Exposure

2.1. Bases of Control on Occupational Exposure:

Currently, the NRRC is approved their 20 regulations derived from their legal obligation under the Law to ensure safety, security, and safeguard of nuclear and radiation applications in the Kingdom. Among which, the Radiation Safety Regulation (NRRC-R-01), which aims to set out the general safety requirements in ensuring protection of people, including radiation workers and the environment against the harmful effects of ionizing radiation and for the safety of radiation sources. Additionally, it harmonizes the requirements applicable in the Kingdom with the international best practices in order to achieve the highest standards of safety in activities and facilities that give rise to radiation risks.

The NRRC is responsible for reviewing and assessing the safety and security of each authorized facility or activity in accordance with the stage in the regulatory process. The depth and scope of the review and assessment of the facility or activity by the NRRC shall be commensurate with the radiation risks associated with the facility or activity, in accordance with a graded approach.

The overall goal of the regulatory review is to verify that the facility or activity will not cause an unacceptable adverse impact on human health, safety, security, or on the environment, both now and in the future. NRRC has established two (2) procedures, including their technical guidance for review and assessment as follows:

I.Review and Assessment.

II.Review and Assessment to Support Oversight.

During the review and assessment processes, one of the main aspects of information to be presented for review and assessment by the applicant to the NRRC is the proposed control measures against occupational exposure. The submission shall include responsibilities of employers, authorized person, and workers in ensuring the requirement for occupational exposures can be met by the authorized person.

2.2. National Dose Registry

The NRRC-R-01 introduced the national dose limits for the annual exposure, for the average dose over five (5) years, and for pregnant women and defined the internal dose as an additive component to the total dose. All these items require a national dose registration of occupational exposure.

The purpose of National Dose Registry is to provide NRRC the occupational exposure with the capability to:

- Follow and monitor the accumulated radiation doses for individual workers performing tasks within radiation facilities
- ·Control the radiation facilities to perform quantity measurements on workers in various job positions in radiation facilities.
- ·Act on alarms/warnings triggered by the system when receiving and reviewing dosimetry data from the radiation facilities.
- ·Enable NRRC to ensure and review the radiation safety of workers and fulfil other legal requirements.
- ·Provide relevant data upon request from interested parties such as medical doctors, researchers, international organizations.

Potentially, the National Dose Registry should be able to host information of **650**  facilities with valid possession of authorization from the NRRC, consisting occupational exposure information of **1000**  Radiation Safety Officer (RSO) and more than **30,000**  radiation workers within the Kingdom.

3.Conclusion

The National Dose Registry is a valuable tool, as it allows the NRRC to monitor the activities taken place inside facilities by monitoring the occupational exposure levels. Additionally, it gives an indication of the safety culture of the activity and the facility.