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Development of National Dose Registry: Malaysia Experience

Regulation 5 of Atomic Energy Licensing (Basic Safety Radiation Protection) Regulations 2010 enforced by the Atomic Energy Licensing Board (AELB), require the licensee to ensure that any work involving occupational exposure is adequately supervised and all reasonable steps have been taken to ensure that the radiation protection program, safety procedures, protective measures and safety provisions are observed. In this regard, the licensee is responsible to arrange the assessment of the occupational exposure of workers on the basis of personnel monitoring, where appropriate, using the dosimetry services as approved by AELB. Currently, in Malaysia, there are three occupational dose assessment service providers/ dosimetry service providers i.e. Malaysia Nuclear Agency, Sinaran Utama, and Alypz Sdn. Bhd..

Additionally, Regulation 22(4) of Atomic Energy Licensing (Basic Safety Radiation Protection) Regulations 2010 require the licensee to measure the personnel monitoring for external exposure by using one or more approved personnel monitoring devices, carried continuously on the person, which is either Thermoluminescent Dosemeter (TLD), Radiophotoluminescence (RPL) Dosimetry, or Optical Stimulated Luminescence Dosimeter (OSL). When a worker occupationally receives an exposure exceeding 100 mSv, the licensee as employer shall ensure that such worker undergoes a medical examination and investigation by an approved registered medical practitioner.

In May 2017, the International Atomic Energy Agency (IAEA) Occupational Radiation Protection Appraisal Service (ORPAS) Mission to Malaysia was conducted. The ORPAS team consists of nine international experts in occupational radiation protection, including a Team Leader and an IAEA Coordinator. The purpose of the mission was to appraise the regulatory and practical implementation of the occupational radiation protection arrangements in Malaysia. The review compared Malaysia's arrangements for occupational radiation protection against the IAEA Safety Standards, as the international benchmark for protection and safety. The mission was also used to exchange information and experience between the team members and Malaysian counterparts.

One of the elements included in the review is the establishment and operation of a National Dose Registry. The mission has made a recommendation for the national regulatory authority to consider the establishment and operation of a National Dose Registry as a central point for the collection, maintenance, and assessment of dose records for occupationally exposed workers. Therefore, in 2020, AELB as a national regulatory authority in Malaysia has developed an electronic system for National Dose Registry called eDose to collect, maintain, and assess the dose records for occupationally exposed workers.

The development of eDose involved the participation of the Ministry of Science, Technology, and Innovation (MOSTI), Ministry of Health (MoH) and three occupational dose assessment service providers/ dosimetry service providers. This paper will discuss the process of the development of eDose, the consideration that has been taken during the process, the challenges that need to be faced, the implementation limitation, and the sustainability aspect.

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