

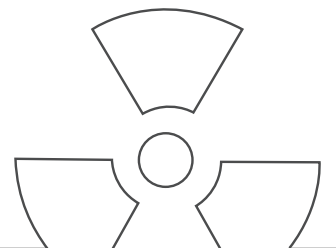


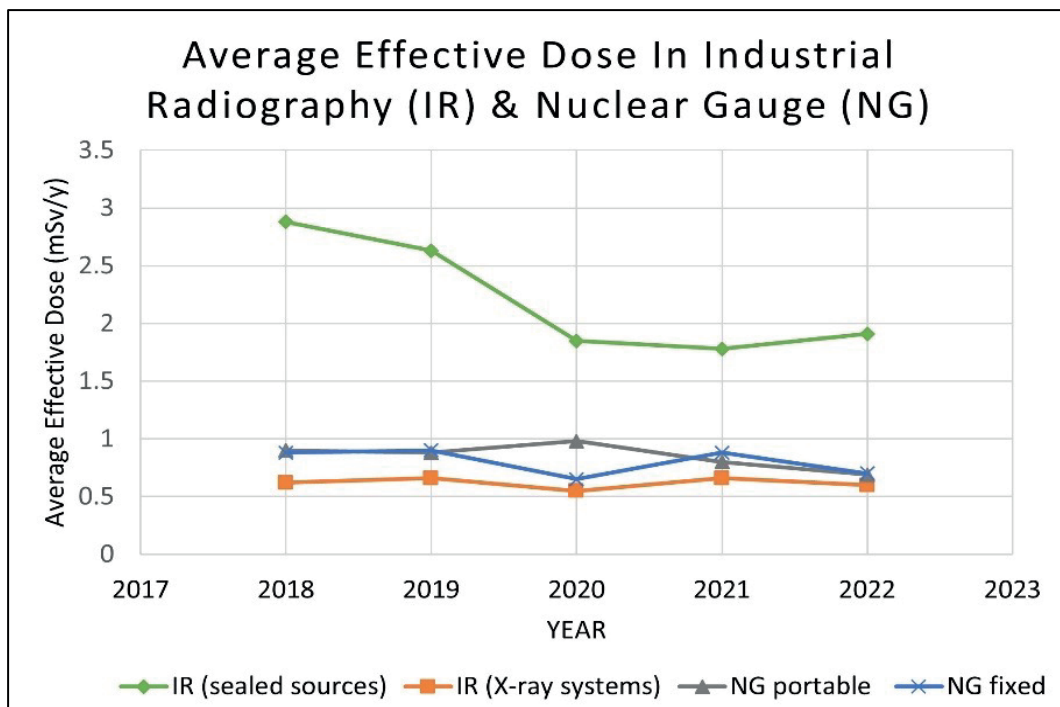
هيئة الرقابة النووية والإشعاعية
Nuclear and Radiological Regulatory Commission

Saudi Information System on Occupational Exposure in Industrial Practices

The nuclear and Radiological Regulatory Commission (NRRC) has established a national information system for occupational radiation exposure. An occupational exposure database was developed for all monitored workers. Initial analysis for the last five years (2018 to 2022) was conducted and it includes occupational radiation doses for 2166 industrial radiation workers, involving 50 Industrial Radiography (IR) and 47 Nuclear Gauge (NG) facilities.

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The results show that the annual average effective dose for radiation workers in IR using High Activity Sealed Sources was about 72% higher compared to IR using X-ray systems. In contrast, there is no significant difference in the annual average effective dose in NG (portable radiation sources) compared to NG (fixed radiation sources). The annual average effective dose for the five-year period was (2.21 mSv, 0.62 mSv, 0.85 mSv, and 0.8 mSv) for IR using High Activity Sealed Sources, IR using X-ray systems, NG (portable radiation sources), and NG (fixed radiation sources) respectively. The annual average effective dose in IR using High Activity Sealed Sources decreased by 33.7% from 2018 to 2022. The distribution of radiation workers per dose range was established for IR and NG practices resulting in the estimation of dose constraints.

The data collection will continue to include other industrial practices; Use of Radiation Sources in Geophysical Exploration, Transport of Radioactive Materials, Product Irradiation/Sterilization Using Radiation Sources, Radioisotope Production in a Cyclotron, Ionizing Radiation in Research and Education, X-ray System for Cargo/Container Screening of Objects, Trade/Distribution of Radioactive Material, Radiation Calibration and other practices.

This information system is regarded as the foundational starting point for broader and more extensive monitoring of occupational exposure, as well as for long-term investigation of subsequent records to minimize the radiation dose received by occupational radiation workers.