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Challenges of Occupational Exposure to Radiation During Initial Radiological Characterization Activity of the Destroyed IRT-5000 Pool Reactor at Al-Tuwaitha Nuclear Center, Baghdad-IRAQ

Abstract:
The main objective of this paper is to identify both the importance of and the major factors relevant to, radiation protection procedures during radiological characterization of reactor pool IRT-5000 in order to support the decommissioning planning effort. There are many difficulties and challenges that faced technical Iraqi workers in carrying out this task for several reasons:
The nuclear reactor was not closed with a normal shutdown but was bombed during the second Gulf War in 1991, there is no historical information about the operation period and the accidents during that period, as well as the Elemental compositions of reactor materials, is unknown because all records were lost during the events in Iraq in 2003, in addition, the initial measurement indicates that there is a high radiation dose rate inside the reactor pool and this is dangerous for workers during the sampling process. The International Atomic Energy Agency greatly contributed to supporting Iraq for the decommissioning of its destroyed nuclear facilities, including the IRT-5000 reactor Several technical meetings were held at the headquarters of the International Atomic Energy Agency, and the recommendations and technical notes of these meetings were followed, in addition to supporting Iraq with the training of worker in different countries have the experience in this field and supplying necessary technical equipment to achieve the task.
There are many measures of radiation protection that have been followed and will be mentioned in this paper for the purpose of completing the initial radiological characterization activity and maintaining the received dose rate for workers within the limits of occupational exposure, despite the dose inside the reactor pool was high (2 Sievert), where the dose rate inside the pool was measured and determined its location and quantities of radioactivity were estimated.

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