

Good practice scenario for remediation of contaminated industrial gamma irradiator as a result of a leakage from cobalt 60 source

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The Egyptian Atomic Energy Authority “EAEA” has a number of unique scientific and technology facilities that are effectively utilized by the national universities and research institutions through joint research activities and contractual services like the Gamma Irradiation Facility "Cobalt-60". The Mega Gamma Irradiation unit is The only facility in Egypt that can sterilize agricultural and medical products as well as conduct industrial irradiation research and applications.

In this work assuming a scenario of a crack in one of the radioactive cobalt pens was occurred , which resulted in storage pool water contamination and led to the shutdown of operation . All protective actions were efficiently taken to control the situation and to restart operating the unit in a safe way. A significant actions aspect of Phase 1 involved careful planning of the source transfer from the pool to the shipping shield, taking in consideration keeping radiation exposures ALARA . Loading the sources into the liners and closure of the liners was to be accomplished while the sources were in the pool,

Because of the potential occupational exposures, The liner transfer plan involved many steps and included maximum use of shielding and minimal exposure times. Tasks were distributed among all the unit workers to isolate the rod, put it in the suitable protective shield, safe transport to the radioactive waste lab. to be buried. the contaminated storage water was checked if it was to be remediate or disposed;

lesson learning includes crucial to abide to all the safety parameters, regulatory body requirements and IAEA standards in all stages of operating, environmental protection, emergency and also in Decommissioning. So it's highly needed to have a well-defined decommissioning plan to be accurately implemented in case of the need to.