

Quantifying Potential Target Attractiveness In Research Reactors And Associated Facilities

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The present paper summarizes the work conducted by the authors working on the International Atomic Energy Agency (IAEA) Coordinated Research Project (CRP) on “Nuclear Security for Research Reactors and Associated Facilities (RRAFs)-J02006” and more specifically, Task 2 activities: “Comprehensive Measurement of Security Risk for Research Reactors and Associated Facilities (RRAF)”. Task 2 aims to determine a methodology to estimate/inform on the holistic security risk posed by the suite of radiological and nuclear targets at a RRAF. This methodology will allow comparison of risks posed by buildings within a site and sites within a country.

The work focused on analysing the “likelihood” dimension of risk and more specifically, identifying the attractiveness of the nuclear and radiological material as potential theft and sabotage targets. Attractiveness addresses the ease of access and simplicity of initiation of unacceptable consequences without considering the local threat environment or security system of the RRAF. Concerning the “consequences” element of risk, the focus of the work thus far has been on the health and economic impacts of an event.

The proposed approach assesses the attractiveness and potential consequences of the nuclear and radiological materials and then proceeds to aggregate on building level and for the entire facility. Since RRAFs typically contain multiple potential targets, we propose a methodological framework to identify which materials / buildings and facilities are at higher risk, by comparing dissimilar events and types of material.

The application of the proposed methodology is applied to the IAEA Hypothetical Atomic Research Institute –HARI and is presented.

Gender

Male

State

Greece

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