

Using a Graded Approach in the Oversight of Security at NRC-Licensed Research Reactors

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The NRC licenses and provides oversight of the civilian use of special nuclear materials (SNM) used at research reactors. Regulatory oversight seeks to protect public health and safety, promote the common defense and security, and protect the environment.

The existing SNM physical protection regulatory requirements at research reactors are graded using a material categorization approach similar to that found in “Nuclear Security Recommendations on Physical Protection of Nuclear Material and Nuclear Materials”(INFCIRC/225/Revision5). The application of a graded approach is essential given the wide diversity among the regulated community of research reactors. The NRC regulates 31 research reactors, some are located on federal government campuses, some are privately owned, but most are located at universities. While some of the university research reactors are located off campus in remote locations, many are in classroom buildings in the middle of campus.

The regulations identify requirements for physical protection of SNM, depending on its Category, using a defense in depth approach. The ease of separability of SNM from other radioactive materials and external radiation levels is also considered to a varying degree in assigning different physical protection requirements or in exempting certain materials from physical protection requirements. Finally, security requirements are applied based on power level, with research reactors of higher power level requiring additional measures to protect against sabotage.

This presentation will discuss the NRC regulatory framework as it applies to research reactors and their unique environments. It will also show how the NRC applies security requirements on a site-specific basis using a graded approach. The presentation will also discuss lessons learned and effective practices identified regarding the implementation of regulations and interagency initiatives as they apply to research reactors. Some of which were highlighted in 2013 when the NRC hosted an International Physical Protection Advisory Service Mission (IPPAS).

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