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Security Considerations for Floating Nuclear Power Plants when Stationary

The nuclear industry is currently anticipating the start of a transition within this decade from a technologically narrow set of gigawatt-scale reactors to a much more diverse array of technologies, including many evolutionary and innovative reactor designs. Both the security lessons of the past and today's latest international guidance are being applied to this suite of novel technologies with some success. One particularly unique group of innovative nuclear technologies are floating nuclear power plants –floating platforms which may be moved on water and operated as nuclear power plants to supply energy to consumers. The unique context within which these technologies will exist, operate, and be maintained and refuelled creates the potential for a range of emerging security challenges, in part created by the likely requirement to comply with established maritime law. These include new threat actor groups, intentions, and attack vectors, designed to exploit the unique vulnerabilities of these technologies. The paper details the range of unique physical protection, cyber and insider threat challenges faced by floating nuclear power plants and operators, focusing on those encountered when the plant is stationary during its various lifecycle, as opposed to in transport, when a somewhat different set of considerations would apply. In doing so, it takes a non-technology-specific approach, looking across the range of floating nuclear power plant subtypes. It is recommended that developers consider security as a key design driver from the earliest stages of the design process to address these issues effectively.

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Confirm that the work is original and has not been published anywhere else

YES

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