Contribution ID: **410** Type: **Paper**

Developing Security-by-Design Enhancements for a High-Activity Radioactive Source Stereotactic Radiosurgery Device

Radioisotopes such as Cs-137 and Co-60 are used in various medical, industrial, and research applications. This radiological material can be a theft or sabotage target that requires a certain level of security for adequate protection. The presented work provides an overview of the United States Department of Energy/National Nuclear Security Administration Office of Radiological Security's In-Device Delay project with Xcision Medical Systems, LLC, on the design of access delay and intrusion detection security enhancements for their GammaPod device. The GammaPod is an innovative stereotactic radiosurgery device used to treat breast cancer. These devices contain high-activity cobalt-60 sources that need to be reloaded periodically, providing challenges when designing robust, sustainable protection elements into a device where those elements may affect the reloading process. This paper will discuss these unique challenges and how the team addressed them.

The paper will also discuss the process and challenges associated with performing a pilot installation of security enhancements at a medical facility and integration of the detection system to the facilities existing alarm system. As part of the installation of security elements, the device must be partially disassembled and is inoperable during the installation phase. In addition, the security stature of the device and sources during the installation process must be addressed. This paper will discuss the coordination effort between various entities including, but not limited to, Xcision Medical Systems, Sandia National Laboratories, the medical facility, and on-site response elements to ensure a successful pilot installation, better protected radiological material, and the continued treatment of patients.

Sandia National Laboratories is a multimission laboratory managed and operated by National Technology & Engineering Solutions of Sandia, LLC, a wholly owned subsidiary of Honeywell International Inc., for the U.S. Department of Energy's National Nuclear Security Administration under contract DE-NA0003525.

State

United States

Gender

Primary author: Mr KUCA, Michal (Sandia National Laboratories)

Co-author: Ms POTTER, Michelle (Sandia National Laboratories)

Presenter: Mr KUCA, Michal (Sandia National Laboratories)

Track Classification: PP: Security by design, including in newcomer countries