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A Path Toward Leveraging the Benefits of Safety, Security, and (International) Safeguards (3S) for Advanced & Small Modular Reactors(A/SMRs): Summary of the Institute of Nuclear Materials Management's Workshop on Advanced Reactor 3S

Efforts to improve knowledge and application of interfaces between safety, security, and (international) safeguards—the so-called 3S—are important for advanced and small modular reactors (A/SMR). Having been addressed across technical meetings and professional conferences, the nuclear materials management professional community is seeking to leverage the anticipated benefits of 3S.

To continue this discussion, in February 2024 the Institute for Nuclear Materials Management (INMM) convened the Advanced Reactor 3S workshop in Albuquerque, New Mexico. The workshop welcomed over 70 safety, security, and safeguards professionals from government, academia, and industry. Participants heard from over 20 expert speakers, as well as discussed potential 3S engineered solutions and “by-design” concepts to address interfaces.

The two-day workshop brought together the experience of the INMM community to describe the current state-of-the-art—and investigate potential future solution—of 3S for A/SMRs. Workshop participants also provided insights into how effectively the INMM supports current 3S efforts, where 3S gaps, challenges, and needs exist, and recommendations on what INMM should do to support future 3S efforts.

This paper synthesizes the 3S-related thoughts, concerns, key needs, and opportunities identified by the INMM community—and offers potential pathways for A/SMRs to leverage the benefits of 3S interfaces.

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