

## Use of Nuclear Forensics Capacities to Support National Enforcement of and Demonstrate Compliance with International Nuclear Counter-Terrorism Legal Instruments

The development of national nuclear forensic science, commonly referred to as nuclear forensics, capacities offers states a meaningful mechanism to contribute to enforcement of national laws related to nuclear or other radioactive material out of regulatory control in line with key international nuclear counter-terrorism legal instruments.

While no single encompassing international legal instrument mandates a state's compliance with nuclear security norms or standards, there are a series of six nuclear counter-terrorism international legal instruments that may be associated with the implementation of nuclear forensics, to include, inter alia, the International Convention on the Suppression of Acts of Nuclear Terrorism (ICSANT), the Convention on the Physical Protection of Nuclear Material (CPPNM) and its 2005 Amendment (A/CPPNM), as well as United Nations Security Council Resolutions 1540.

Nuclear forensics provides law enforcement and nuclear security investigators with a technical basis for answering key questions related to the seizure of nuclear and other radioactive material out of regulatory control. Nuclear forensics, like all forms of forensic science, supports to implementation of national laws and demonstrates compliance with international legal instruments through investigative science.

Over the past thirty years, nuclear forensics has grown from a field of research using analytical methods developed for defense, environmental analysis, and nonproliferation missions to a sophisticated analytical capability that allows states to respond to incidents involving nuclear and other radioactive materials that are smuggled, stolen, lost, or abandoned.

Nuclear forensics is unique among other technical disciplines of nuclear security. In support of measures to prevent, detect, and respond to nuclear or other radioactive material out of regulatory control, nuclear forensics provides the technical information necessary to assess questions from law enforcement and nuclear security investigators in the context of national laws and international legal instruments related to nuclear security, as well as information outputs that allow a state to better understand the efficacy of its domestic nuclear security architectures. As understanding of the scope and application of nuclear forensics has grown, it has been regularly applied by law enforcement and prosecutorial bodies to determine if laws pertaining to unauthorized or malicious acts involving nuclear and other radioactive materials have been broken, determine the origin, history, and route of interdicted materials, as well as determine the efficacy of national nuclear security architectures; all of which can be tied to specific provisions contained within international nuclear counter-terrorism legal instruments.

While nuclear security is the responsibility of the state, nuclear forensics fosters international technical coordination and cooperation, and provides a basis for states to support national enforcement of and demonstrate their compliance with international nuclear counter-terrorism legal instruments.

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