LAWRENCE
LIVERMORE
NATIONAL
LABORATORY

UCRL-PROC-227759

The Importance of International Technical Nuclear Forensics to Deter Illicit Trafficking

D. K. Smith

February 5, 2007

INMM Workshop on Nuclear Security
Santa Fe, NM, United States
March 21, 2007 through March 22, 2007

The Importance of International Technical Nuclear Forensics to Deter Illicit Trafficking

David K. Smith
Lawrence Livermore National Laboratory
Livermore, California 94550 USA

Illicit trafficking of nuclear materials is a transboundary problem that requires a cooperative approach involving international nuclear forensics to ensure all states understand the threat posed by nuclear smuggling as well as a means to best deter the movement of nuclear contraband. To achieve the objectives, all cases involving illicit trafficking of nuclear and radiological materials must be vigorously pursued and prosecuted when appropriate.

The importance of outreach and formal government-to-government relationships with partner nations affected by nuclear trafficking cannot be under-estimated. States that are situated on smuggling routes may be well motivated to counter nuclear crimes to bolster their own border and transportation security as well as strengthen their economic and political viability. National law enforcement and atomic energy agencies in these states are aggressively pursuing a comprehensive strategy to counter nuclear smuggling through increasing reliance on technical nuclear forensics. As part of these activities, it is essential that these organizations be given adequate orientation to the best practices in this emerging discipline including the categorization of interdicted nuclear material, collection of traditional and nuclear forensic evidence, data analysis using optimized analytical protocols, and how to best fuse forensics information with reliable case input to best develop a law enforcement or national security response. The purpose of formalized USG relationship is to establish an institutional framework for collaboration in international forensics, improve standards of forensics practice, conduct joint exercises, and pursue case-work that benefits international security objectives.

Just as outreach and formalized relationships are important to cultivate international nuclear forensics, linking nuclear forensics to ongoing national assistance in border and transpiration security, including port of entry of entry monitoring, nuclear safeguards, and emerging civilian nuclear power initiatives including the Global Nuclear Energy Partnership are crucial components of a successful nuclear detection and security architecture. Once illicit shipments of nuclear material are discovered at a border, the immediate next question will be the nature and the source of the material, as well as the identity of the individual(s) involved in the transfer as well as their motivations.

The Nuclear Smuggling International Technical Working Group (ITWG) is a forum for the first responder, law enforcement, policy, and diplomatic community to partner with nuclear forensics experts worldwide to identify requirements and develop technical solutions in common. The ITWG was charted in 1996 and since that time approximately 30 member states and organizations have participated in 11 annual international meetings. The ITWG also works closely with the IAEA to provide countries with support for forensic analyses. Priorities include the development of common protocols

for the collection of nuclear forensic evidence and laboratory investigations, organization of forensic round-robin analytical exercises and technical forensic assistance to requesting nations. To promote the science of nuclear forensics within the ITWG the Nuclear Forensics Laboratory Group was organized in 2004. A Model Action Plan for nuclear forensics was developed by the ITWG and published as an IAEA Nuclear security Series document to guide member states in their own forensics investigations.

Through outreach, formalized partnerships, common approaches and security architectures, and international working groups, nuclear forensics provides an important contribution to promoting nuclear security and accountability.

This work was performed under the auspices of the U.S. Department of Energy by University of California, Lawrence Livermore National Laboratory under Contract W-7405-Eng-48.