SAND2007-3900C

Priorities for Technology Development and Policy To Reduce the Risk from Radioactive Materials

48th INMM Annual Meeting
Tucson, AZ

July 9, 2007

Ruth Duggan, Chair
Standing Committee on
International Security of Radioactive and Nuclear Materials
Nonproliferation & Arms Control Technical Division

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What to Expect

- A Brief History
- The Workshop Agenda
- Workshop Results
- Next Steps
- Sponsors & Committee

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Brief History

- **Standing Committee formed during 47th INMM Annual Meeting**
  - **Nonproliferation and Arms Control Technical Division Meeting**
  - **International Security Of Radioactive and Nuclear Materials**
- **Special Issue of Journal of Nuclear Materials Management, Spring 2007 Edition**
- **Workshop in March 2007 in Santa Fe, NM**
  - **"Reducing the Risk from Radioactive Materials"**

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Workshop Participants

- Government – DOS, DoD, DOE, DHS/DNDO
- NGOs
- Industry
- National Laboratories
- Universities
- International - *Russia*

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Workshop Agenda – Day 1

- Opening Remarks & Welcome - *Nancy Jo Nicholas,* INMM President
- *"Defining the Threat from Radioactive and Nuclear Materials", LTC Julie Bentz,* Special Assistant for Nuclear Operations and Response

- Panel I Best Practices and Challenges in Addressing Nuclear Trafficking
- Chair: Galya Balatsky, Los Alamos National Laboratory

- *"Challenges in Managing the Risks from Radioactive and Nuclear Materials", Michael Curry*, DOS, Chair of the Nuclear Trafficking Response Group

- Panel II Transportation Security of Radioactive Materials and Associated Standards
- Chair: Morris Hassler, Y-12 National Security Complex

- Panel III The Tensions and Synergies between Safety and Security
- Chair: Mark Soo Hoo, Sandia National Laboratories

- Banquet Keynote *"Views on WMD Terrorism and Challenges for Tomorrow", Andrew Grant*, DOS, Acting Director, Office of Weapons of Mass Destruction Terrorism

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Workshop Agenda – Day 2

- *"Setting the Stage for the Future"* ***Steve Mladineo*****, Chair, Nonproliferation and Arms Control Technical Division, INMM**

- **Working Group Sessions**
  - **Technology Focus**
  - **Policy Focus**
  - **Integration**
  - **Prioritization**

- **Summary and Closeout**

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Working Group Activities

Technology Focus

- What technologies are available now to help?
- Where else might technology assist?
- What Technology R&D is needed?

Policy Focus

- How does existing policy help?
- How des policy impede or hurt efforts now?
- What policy changes do you suggest?

Integration

- What does a comprehensive program look like?
- What opportunities exist with other programs?

Prioritization

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Nuclear Trafficking Working Group Key Results

Policy

- Community building
- INMM working group on nuclear smuggling
- Coordinate with IAEA efforts
- Lessons Learned

Technology

- Accelerate and facilitate progress on efforts to secure materials at the source
- Evaluate technical requirements for materials away from the source
  - Scavenging,
  - Obsolete equipment
  - Green borders
  - Legitimate commerce in radioactive materials

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Transportation Security Working Group Key Results

Policy

- **Positives**
  - Price-Anderson Amendments Act (PAAA) as related to security requirements (identification & enforcement)
- **Negatives**
  - Inconsistencies in security policy for DOE/NRC/DOT/IAEA/DHS
  - Ban on Plutonium shipments by air in US
  - Over regulation – policy cannot solve the whole problem
- **Needs**
  - Air transport policy
  - Include cost/benefit analysis into graded approach for security applications
  - Security policy for use of tracking systems
  - Need for MOU in various agencies to cover overlap in security policies
  - Revision of increased controls for incoming shipments

Technology Needs

- Need more type C packages for air transport to support security and to minimize weight
- Need Additional Type B packages with expanded contents
- *Use* existing tracking systems for commercial systems applying a graded approach
- Shipper/receiver/transporter validation technologies

Integration

- Comprehensive transportation security program elements – transportation security requirements and enforcement worldwide for SNM, byproducts, source material

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Safety/Security Integration Working Group Key Results

Policy

- Need better integration among agencies in safety and security activities
- Consistent threat definition
- Focus on material attractiveness, not just activity level to resolve categorization discrepancies
- Emphasize the importance of safety/security culture
- Industry Self-Regulation
  - Self reg vs. mandates
  - Source hardening/delay
- Disposal pathways/options

Technology R&D Needs

- Source Hardening
- Improved Detection (Personnel/Vehicle)
- Comprehensive VA tools & methodologies
- Better Technology for intrusion detection
- Technology for less frequent or continuous automatic inventory
- Improved methods for dose measurements

Integration

- Focus on Cultural commonalities – Building a safety and security culture through education, training, and awareness (All but one)
- Improve integration of common objectives (ALARA compliments security)

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Final Prioritization

- Better define threat, environment, procedures
- Interagency MOU/Agreement on security policies to achieve consistency
- Focus on developing safety/security culture
- Community building for nuclear trafficking
- Endorse global initiatives to reduce material available
- Better utilize existing tracking technologies
- Standardize threat & categorization system
- Harden sources better
- Develop lightweight, but secure Type C packaging and associated policy for air transport
- Develop/foster interagency cooperation
- Grade approach factoring cost/benefit
- Improve detection
- World-wide standard requirements and enforcement

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Elements of a Comprehensive System

- Nonproliferation policies with monitoring and verification systems
- Coordinated global detection system for tracking and interdiction
- A render secure program that includes disposition
- Response and recovery to effectively address consequences
- Mechanisms for attribution that include forensics and analysis
- Public education system to decrease panic and empower people to be a part of the system.

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Next Steps

- Second workshop in planning
  - March 2008
  - Santa Fe, NM

- Panels
  - Nuclear Trafficking
    - Detection of Radioactive Materials
    - Threat Definition
  - Secure Transportation of Radioactive Materials
    - Air Transport of Radioactive Materials
    - Tracking Technologies
  - Security of Radioactive Materials
    - Categorization of Materials
    - Modeling & Simulation Tools

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Special Thanks to the Southwest Chapter!

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Standing Committee Members

- Ruth Duggan, Chair
- Galya Balatsky
- Morris Hassler
- Dmitriy Nikonov
- Noah Pope
- Mark Soo Hoo
- William Severe
- Kyle Wright

If you have an interest in this topic, please let me know if you would like to participate in this committee or in the next workshop.

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