Nuclear Security Incident Analysis

Towards an Integrated and Comprehensive Approach

Presented by Robert Wesley

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IAEA Information Systems for Nuclear Security Incidents

- Illicit Trafficking Database (ITDB)
 - Established in 1995
 - Official reporting and collection of open source information
 - Scope covers situations where any type of nuclear or other radioactive material is outside legitimate control



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IAEA Information Systems for Nuclear Security Incidents

- Malicious Acts Database (MAD)
 - Established in 2008
 - Based on open source information
 - Scope includes data on threats, attempts, plots and fully or partially executed activities, and activities related to the intentional defeat or violation of security procedures or other technical or physical security systems at related facilities.



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Evolution of Programme

- Scope of ITDB has broadened and its objectives expanded
- Increasingly vigorous outreach programme for ITDB to enhance the comprehensiveness and quality and to recruit new State participants
- The ITDB-MAD system will provide for better trending, assessing the effectiveness of Agency recommendations, and the identification and evaluation of potential vulnerabilities, threats, and other risks.



Examples of Incident Analysis: Size of the Problem

- From 1993-2008, ITDB recorded 1562 incidents reported by States, while a further 1200 (approx) collected from open sources but yet to be confirmed by the States involved
- MAD currently contains reports on approx 200 incidents since the 1960s
- Number of incidents recorded understates the real problem



Examples of Incident Analysis: Threat of Nuclear Terrorism

- Terrorists have shown interest in and/or attempts to acquire nuclear and radioactive materials
- Missing, unrecovered materials are cause for concern
- Involvement of buyers, criminal groups, and 'repeat offenders'
- Various groups and individuals of disparate backgrounds and motivations involved in malicious acts
- Need for frameworks for understanding drivers and inhibitors



Examples of Incident Analysis: Assessing Vulnerabilities

Materials:

- Category 4 and 5 radioactive sources are also a problem
- Facilities:
 - Pre-conversion, conversion, and facilities fabricating and/or handling low enriched uranium fuels have been vulnerable to theft
 - Power reactor complexes have been the targets of majority of the acts involving facilities recorded in MAD



Examples of Incident Analysis: Assessing Vulnerabilities

• Detection Architecture:

- Detection equipment is effective in detecting inadvertent movement of radioactive materials across borders, e.g. point sources inside metal scrap or contaminated materials
- However, the smuggling of materials has posed difficulties for such systems



Examples of Incident Analysis: Insider Threat

- Thefts of materials committed by insiders, including two thefts of HEU in 1994 and 1995
- Correlation between insider collusion and attempted malicious use (primarily attempted sabotage) of facilities
- Need to collect specific details related to insider acts



Further Applications of Analysis

- Inform the Agency's capacity building and other assistance programmes (e.g. International Nuclear Security Advisory Service missions)
- Cases studies and analytical findings applied to training activities and the development of guidance and recommendations documents



Further Applications of Analysis

- Inform threat assessments and designing advanced methodologies
- Input to planning facility-specific evaluation and assistance missions



IAEA Nuclear Security Plan 2010-2013

- Investing in the future of incident analysis
- Focus on improving the quality and comprehensiveness of data reported to the ITDB-MAD
- Integration of Incident analysis throughout programme of activities

