



International Atomic Energy Agency

**The Safety and Security Interface
at Nuclear Power Plants:**

An International Perspective

Dr. K. Mrabit
Director, Office of Nuclear Security
Department of Nuclear Safety and Security

1

Outline

- Background
- Safety and Security Interface
- IAEA Activities
- Conclusion

2

International Atomic Energy Agency

Background

3

International Atomic Energy Agency

Safety and Security Interface

7

Design Principles Applied to Safety and Security Approaches

Graded approach

- Appropriate and proportional measures for prevention and mitigation purposes: risks to people, society and the environment are analyzed in terms of potential consequences

Defence in-depth

- Slightly different methods: in safety, systems, components...etc. are integrated in the plant itself, while security measures apply to the entire site, or beyond

Synergy: Design safety principles improve protection against malicious acts (e.g. single failure criterion makes it difficult for an attacker to cause an accidental situation)

8

Operational Principles Applied to Safety and Security Approaches

Constant monitoring

- Checking safety and security systems regularly & performing preventive maintenance

Feedback

- Applying lessons learned from incidents and events at a facility or other similar facilities

Sharing best practices

- Sharing information as widely as possible while not violating confidentiality rules

9

Operational Principles Applied to Safety and Security Approaches (cont.)

Potentially contradictory requirements

- Access and operations by emergency teams: must be facilitated for safety reasons, but access to certain areas must permanently be controlled for security purposes
- Nuclear material monitoring: safety rules require maintaining a conservative margin, whereas a security approach is for precise actual quantity to guard against the risk of diversion

Operating procedures should take into account safety and security requirements

10

International Atomic Energy Agency 

Emergency & Response Principles Applied to Safety and Security Approaches

- Emergency and contingency plans must cover equipment failure, human errors as well as malicious acts
- Protection plans are a line of defense to prevent malicious acts and are implemented prior to safety emergency protection plans to initiate mitigation operations
- It is essential to carry out general exercises combining safety and security so that coordination can be tested

11

International Atomic Energy Agency 

Organizational Principles Applied to Safety and Security Approaches

- A legislative and regulatory framework is needed for both safety and security. States establish bodies that must have authority, competence, human and financial resources
- Authorities responsible for safety and security may report to different governmental or legislative bodies. Consultation and coordination between authorities is essential to avoid conflicts between requirements that might be contradictory

12

International Atomic Energy Agency 

Principles for Operators and States applied to Safety and Security Approaches

- Primary responsibility rests with operators. They are best placed to identify risks associated with activities and detect any deviation in safety & security requirements and take appropriate corrective actions.
- Protection against malicious acts, however, requires a different approach as well as broader and more direct involvement of States in security measures as compared to safety.
- Operators alone cannot protect sites or facilities against malicious acts. States play a decisive role in security matters.

Management Principles applied to Safety and Security Approaches



Integrated Management System:

- A single and coherent system in which all parts of the plant are integrated to achieve intended objectives
- The system should bring safety and security to the same level

IAEA Activities

AdSec and CSS Joint Task Force (JTF)

The Advisory Group on Nuclear Security (AdSec) and the Commission on Safety Standards (CSS) established a JTF in 2009 explores:

- Practical improvement of the process for review and approval of draft Nuclear Security Series of publications; and
- Long term feasibility of developing an integrated series of safety and security

16

Outcomes of AdSec and CSS JTF

JTF Report was approved in November, 2011.
It agreed on the following four principles:

- Safety & Security are equally important and the process for review/approval should reflect this
- Safety & Security interfaces in document preparation profiles should be identified
- Safety and Security publications that have an interface should be developed in consultation
- Review and approval to ensure effective Safety and Security coordination

17

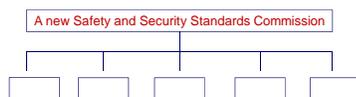
Recommendations of AdSec and CSS JTF

- As an intermediate committee structure:



- As a long term vision:

Various committees with technical expertise in safety and security



18

IAEA Draft Action Plan on Synergy

Proposed elements of the plan for 2012-2013:

- Development of Safety and Security Synergy Guidance Document (Implementing Guide)
- Finalization and use of a Technical Guide and Training Manual on protection of nuclear facilities against sabotage
- Assistance to Member States in use and application of synergetic approach to safety and security at design, construction, operation, shutdown and decommissioning of the facilities, storage and transport

19 International Atomic Energy Agency 

Conclusion

20 International Atomic Energy Agency 

Conclusion

- Nuclear safety and nuclear security are equally important for assuring protection of the people, society and the environment at Nuclear Power Plants
- Safety and security measures must be designed and implemented in an integrated manner
- Effective implementation of the interface requires robust planning, communication and coordination at all organizational levels and programmes



21 International Atomic Energy Agency 

Conclusion (Cont'd)

- IAEA Draft Action Plan on Safety and Security Interface and Synergy is being established that would include guidance and standards development, peer reviews and advisory services, education and training and human resources development



22

International Atomic Energy Agency 