PURPOSE AND CONTEXT

● A synergy in the field of sabotage

➢ Safety: “The achievement of proper operating conditions, prevention of accidents or mitigation of accident consequences, resulting in protection of workers, the public and the environment from undue radiation hazards”

➢ Security: “The prevention and detection of, and response to, theft, sabotage, unauthorized access, illegal transfer or other malicious acts involving nuclear material, other radioactive substances or their associated facilities”

ày Safety and security have a common field to protect against sabotage and are mutually complementary in this area

● A common aim: the protection of man and environment

ày The acceptable risk must be the same whether the initiating event of a given radiological release is following a natural event, equipment failure or a malicious act
PURPOSE AND CONTEXT

• Equipment or human failures / intelligent actions
  - Safety is concerned with failures resulting from natural events, equipment failures, installation internal type events or human failures
  - Security is concerned with malicious events based on « intelligent » or liable to adaptation actions carried out with the intent to cause damage

• Transparency / confidentiality
  - The need to share know how and experience exists in both cases
  - But safety promotes to share experience feedback
  - And security requires to protect information
ORGANIZATIONAL PRINCIPLES

• A legislative and regulatory framework for safety as well as for security to:
  ➢ Designate a competent authority
  ➢ Implement an authorization system
  ➢ Assess provisions implemented by the operators
  ➢ Implement an inspection system
  ➢ Observe international commitments

† These provisions may depend upon the same legal vector but more frequently be subject of different regulations respectively for safety and for security
ORGANIZATIONAL PRINCIPLES

- A competent authority for safety as well as for security
  - Responsible for implementation of the regulation
  - Accredited with the adequate authority, competence and resources
  - Independent from entities promoting nuclear energy
  - In charge of:
    - definition of goals to attain,
    - control and assessment of operator’s activities.

- One or two competent authorities

  † A consultation and coordination mechanism is required if there are two different authorities for safety and security
ORGANIZATIONAL PRINCIPLES

• Prime responsibility of operators in safety as well as in security to:
  ➢ Design, implement and maintain measures to satisfy regulatory requirements
  ➢ Ensure first level control
  ➢ Ensure skill and appropriate training of personnel
  ➢ Inform the authority of events likely to affect safety or security
  ➢ Implement a quality system

† This responsibility cannot be delegated in both cases
ORGANIZATIONAL PRINCIPLES

• A different involvement of the State
  - The State is directly involved in the assessment of malicious action risk
  - The State defines the design basis threats
  - The State plays a role in prevention and response to malicious acts (law enforcement agencies)
  - More State bodies concerned in the management crisis of a malicious action than in a safety crisis
  - The State defines rules for confidentiality and information protection

† A larger and more direct involvement of the State in security than in safety
ORGANIZATIONAL PRINCIPLES

- Safety and security cultures
  - Based on very similar principles
  - Involved in 3 main fields (State, organizations and individuals)
  - Notions of deterrence and confidentiality for security
  - Notions of transparency and open dialogue for safety

† The 2 cultures must co-exist and back each other up
† Synergy between them must be developed and encouraged
† But they could not be melted into a single one
APPLICATION PRINCIPLES

• A similarity in design provisions
  - The graded approach
    - Define measures appropriate and proportional to the estimated risk and its potential consequences
    - Initiating events and Design Basis Accident (DBA) for safety and Design Basis Threat (DBT) for security
  - The defence in depth
    - Set up consecutive barriers whether physical or organizational
    - Physical safety defence lines directly linked to the process / security apply to the entire site

† A first line of defence for security consisting of deterrence provisions
• A synergy in design provisions

- Safety and security requirements must be taken into account at an early stage of the design

- Safety is more structuring for the design and layout of systems / security may affect general layout of buildings

- Safety design principles reinforce security (single failure criterion, redundancy, diversification, physical and geographical separations, …)

- Reduction of the sensitivity of targets and more difficulties (time and means) to perpetrate sabotage
APPLICATION PRINCIPLES

• A similarity in operating provisions

  - A same need to provide a continuous and careful check of the availability and efficiency of safety and security equipment
  - A same need to treat the experience feedback
    ✓ Events concerning equipment failures, identified anomalies, human errors and sabotage must be recorded and processed
  - A same need to update the basis rules
    ✓ Necessity to re-examine periodically the status of installations and update devices and rules
APPLICATION PRINCIPLES

• A necessary adaptation in operating provisions
  
  ➢ An exchange of good practice more constrained in security
    
    ✪ For safety, encouraging the share of information / For security, limiting exchanges
  
  ➢ A need for managing conflicts
    
    ✓ Taking into account the safety and security requirements in operating rules and procedures
    
    ✪ Access for intervention of emergency teams / permanent control of access of sensitive areas
APPLICATION PRINCIPLES

• A similarity in emergency management
  - Elaboration of emergency and contingency plans
    - Both operators and public authorities are concerned
    - Plans must be complementary and coherent
  - Contingency plan constitutes a specific line of defence for security, upstream emergency plan
  - Performance of exercises
    - Similar aim: validation of plans and training
    - Similar types: local or national exercises
  - Necessity to carry out global exercises in order to confirm the coordination of safety and security organizations
APPLICATION PRINCIPLES

• Activities managed by quality system

  ➢ Quality system does not differ from the standpoint of principles and takes safety and security into account at the same level
  ➢ Certain activities address more especially one or the other of these fields
  ➢ Necessity to set result indicators depending purely on safety or security
CONCLUSION

• Nuclear safety and nuclear security present large similarities in their aim as in their methods

♫ Mutually complementary to protect against sabotage

• They show specific attributes in some areas which leads to differences in their implementation.

• The diversity of nuclear facilities needs to adapt safety and security provisions to fit with the characteristics and the risks of each one.

• A well shared safety culture and security culture is the guarantee of a safe and secure operation.