IRSN ACTIVITIES IN THE FIELD OF NUCLEAR SECURITY

Nuclear Defence Expertise Division
Summary

Organization of nuclear activities
Evaluation and expertise
National accountancy
Transport
Inspections
exercises
International activities
R&D support activities
FRENCH NATIONAL CONTROL SYSTEM

A set of regulations: laws and related application texts
✓ to prevent loss, theft or diversion of nuclear materials
✓ to protect installations against malevolent action (sabotage)
✓ in compliance with rules set up by the IAEA

A set of complementary measures:
✓ physical protection measures
✓ follow up and accounting measures
✓ control measures (inspections)

The involvement of competent authorities and operators:
✓ performance based approach
✓ first responsibility of the operators
✓ control by competent authorities
FRENCH NATIONAL CONTROL SYSTEM

Two main actors at the regulatory level:

- **the Competent authority:**
  - Ministry of energy
  - High civil servant for defence and security

- **Its technical support:**
  - Institute for radiation protection and nuclear safety

...
High civil servant for defence and security
Ministry of Energy

COMPETENT AUTHORITY

OPERATOR
DESIGNER CONSTRUCTOR

TECHNICAL SUPPORT
RESEARCH EVALUATION EXPERTISE

Authorizations
Inspections
Reports

Requests
Advices
Technical meetings

IRS[N]
RESPONSIBILITIES

Competent authority

- Defines general objectives
- Reviews means for achieving the objectives
- Supervises the implementation of these provisions

Propose means for achieving the objectives

Implement approved means

operators
Role of IRSN in the field of nuclear security to support the competent authority

- Carry out evaluations and expertises on
  - physical protection of NM and facilities
  - accounting for, control and inventories of NM
  - physical protection of transports
- Carry out inspections
- Monitoring of nuclear material transports
- Centralisation of nuclear material accountancy
- Research & Development
- Take part in emergency response organization
- Drafting and updating regulation
Nuclear security: two areas

- Unauthorized removal (theft and diversion) of nuclear material in use and storage and during transport:
  => Improvised nuclear device

- Sabotage involving nuclear material or against nuclear facility:
  => Radiological hazard
Protection of Nuclear Material against theft:

Documents, files, data submitted by operators to the Competent Authority, relative to the nuclear material protection and control regulations (authorisation files, security studies, inventory reports,...)

Protection against sabotage:

Evaluation of the sensitivity of facilities and of their vulnerability to internal and external threats
Regulatory process for security studies

- The study should show that the objectives fixed by the CA have been achieved.
- The conclusions should identify and quantify any possible weaknesses.
- The study is performed by the operator.
- The study is assessed by IRSN which gives advices to the CA.
- The CA notify its position to the operator with possible requirements for improvement.
OPERATIVE MISSIONS

Centralised accountancy:
- Centralisation of accountancy declarations received from the operators, elaboration and transmission of reports to national and international safeguards organisations

Transport monitoring and intervention:
- Real time monitoring of sensitive nuclear material transports (tracking and communication)
- Assessment of transport plans, routes and procedures
- Preparation and follow-up of regulatory documentation
Transport Control Center

**Operators**
- Consignors
- Carriers
- Subcontractors *(approved)*

**Authority**
- High civil servant for defence and security
- Ministry of Energy

**Consignees**

**EOT**
- Customs
- Police
- Gendarmerie
- Army
- Civil security
- Ports
Notification and authorization of transports

Cat. III
- Shipment notification
- Shipment confirmation
- Special authorization

Cat. II Irr.
- Shipment notification
- Shipment confirmation
- Special authorization
- Authorization

Cat. I, II
- Transport plan Cat. I
- Transport plan Cat. II
- Shipment notification
- Shipment confirmation
- Special authorization
- Authorization

except: U nat., U dep., Th

Delivery notice

D-90
D-30
D-15
D-4
D-3
D
D+1
INSPECTIONS

Inspections:

✓ Field inspections
✓ Scheduled or unannounced
✓ Standard or worksite inspections
✓ Compliance with the reference framework by the nuclear licensees
✓ Performed with the help of IRSN on behalf of the CA
Inspection with measuring operations

physical protection
Inspection with measuring operations

Nuclear material
Inspections during transport

- Regulation documents
- Respect of instructions and routes
- Physical protection and surveillance
- Access to facilities and resting places
- ...
- Always unattended
- At any time, any place
- At any step of the transport (departure, arrival, on the road, at the border, in ports, airports, stations...)
EXERCISES IN THE FIELD OF SECURITY

3 types of exercises:

- Exercises at a local level
  - Involve the operator alone or the operator and local law enforcement agencies

- Exercises at a national level

- Exercises of NM inventories in case of emergency
EXERCISES AT NATIONAL LEVEL

- Frequency: 1 every two years for all sites
- Involved entities
  - The operator
  - Local and special law enforcement agencies
  - Local and national authorities
- Scope
  - Management of interfaces and coordination of means between authorities and the operator
  - Verification of the implementation of intervention and emergency plans
- Planning (about 1 year of preparation)
- Working groups
  - Scenario
  - Logistics
  - Experience data
EXERCISES AT NATIONAL LEVEL

Scope:

"the Ministry of Energy can order a physical inventory of nuclear materials and compare it with audited records under all circumstances".

Frequency:
1 per year for all sites
INTERNATIONAL ACTIVITIES

- Drafting of documents
  - Nuclear security fundamentals
  - Nuclear security recommendations
    - INFCIRC/225
    - Radioactive materials
  - Technical guides (Security culture, Vital areas, Transport, DBT ...)

- IPPAS missions
  - IPPAS (Bulgarie, Roumanie, Hongrie, Pologne, Tchèquie, Bélarus, Congo, Ukraine, Chili, Mexico, Iran ...)

- Training PPA&C
  - Albuquerque, Santa Fé, St Petersbourg, Beijing, Algeria, Morroco
  - Workshops DBT, VAI, Insider
R&D PROGRAMMES

- Development and adaptation of NDA instruments and techniques to support inspection activities
- Review and development of remote monitoring systems for sensitive transports
- Performance evaluation of equipment and instruments
- Development of assessment methodologies and tools
- Generic studies to evaluate the consequences of actions of sabotage on installations and structures
- Specific studies to evaluate the consequences of actions of sabotage on transport equipment
Thank you for your attention

More information on www.irsn.org
SOME FIGURES FOR THE YEAR 2009

- 382 analysis
  - 117 in physical protection of facilities
  - 123 in accounting for and control
  - 91 about physical inventories
  - 51 about physical protection of transports

- 264 inspections
  - 55 in physical protection of facilities
  - 63 in accounting for and control
  - 60 during transports
  - 71 for transport equipment
  - 15 related to the declaration regime
SOME FIGURES FOR THE YEAR 2009

- **259 facilities holding nuclear materials**
  - 54 in category I
  - 73 in category II
  - 132 in category III

- **1,777 transports of nuclear materials**
  - 1,200 by road
  - 366 by rail
  - 183 by sea
  - 28 by air