EXTREME tabletop exercise
EXternal Threat REsponse Management Exercise

Pierre Funk¹, Nicolas Delaunay¹, Marie-Gabrielle Badinga²
1-IRSN, France 2-ENSTTI, France

2 minutes’ introduction

For what purposes? For who?
Addressing emergency and contingency security plans

How is it managed?
A scenario-driven case study...

Findings?
Good practices and recommendations...

Past and future
4 a.m.: it is early morning at the NPP.
A small group of well train aggressors are ready to attack.
The guards have just enough time to spot on the security screen two individuals carrying assault weapons.
Explosives will be used.
There will be hostages on site.
And swat team will use weapons in the facility.
How to deal with this threat of potential significant radiological release?

The scenario addresses both nuclear safety and security.
As an operator
As a Technical expert
As a State authority
As a response force

How are you prepared for this kind of severe attacks?
For what purposes?

IRSN has been involved in preparation and realization of nuclear exercises for many years.

Testing on-site and off-site emergency plans

Safety exercises

Testing on-site and off-site contingency plans

Security exercises

EXTREME aims at addressing simultaneously both contingency and emergency plans

to have open discussions about key management points
Open discussions about issues like:

- Time managing
- Coherence/complementary of emergency and contingency plans
- Management of interfaces between on-site and off-site forces
- Coordination, cooperation and complementarities between safety and security
- Issues related to the recovery phase
- ...
Points NOT addressed with EXTREME

- Design Basis Threat
- Assessment of a State organization or of the security emergency management
- Assessment of Physical Protection System of NPP

No classified information
For who?

Any actors involve in emergency or contingency plan and most probably:

- Technical expert of authority
- Operator
- Response force
- State authority

IAEA-CN-254-90 - EXTREME table top exercise - © IRSN
How it is managed?

- Duration: 2.5 days
- Participants ~15, ideally from all types of actors
- A time-stepped scenario
- Addressing the four phases of the emergency:
  - Reflex
  - Reflection
  - Response
  - Recovery phase

Threat intensity

- TTX aggression level
- State
- Operator
- Aggression phase
- Recovery phase
Requests for the scenario

A combination of two different problematic issues:
- Safety of the nuclear facility (aggression of safety functions, accidental situation)
- Security (terrorist group on site, impossibility for the operator to manage the situation by local actions)

The threat level must be high enough to require the overpowering of adversaries before the situation becomes irreversible.

The necessity to get a progressive involvement of the State as the situation on site is worsening.
Emergency diesel Generator B

Offsite power auxiliary source 400 kV or 225 kV

Offsite power transformer source 400 kV

Turbogenerator

Spare emergency diesel generator

Emergency diesel Generator A

IAEA-CN-254-90 - EXTREME table top exercise - © IRSN
How is it managed?

A drastic simplification is done: the management of the emergency is presented through only four voices:

- Operator
- State authority
- Technical expert of authority
- Response force

Coordinator
How is it managed?

A drastic simplification is done: the management of the emergency is presented through only four voices:

- **Operator**: I am the operator of the facility and I am in charge of all actions taken to run the NPP.
- **State authority**
- **Response force**
- **Coordinator**
How is it managed?

A drastic simplification is done: the management of the emergency is presented through only four voices:

- **Technical expert of authority**: I am the Technical expert of authority and I present all technical information to the manager of the crisis.
- **State authority**
- **Response force**
- **Coordinator**
How is it managed?

A drastic simplification is done: the management of the emergency is presented through only four voices:

- I am the response force officer and I represent all actions undertaken by guards, regional and national response forces
- Technical expert of authority
- Coordinator
- State authority
- Response force
How is it managed?

A drastic simplification is done: the management of the emergency is presented through only four voices:

- Technical expert of authority
- Coordinator
- State authority
- Response force

I am the manager of the crisis and I represent all state/official authorities involved in the decision process.
How is it managed?

A drastic simplification is done: the management of the emergency is presented through only four voices:

I am the coordinator of discussions and I facilitate all further discussions.

Coordinator

Operator

State authority

Response force
EXTREME is a succession of 9 sequences:

1. Screening of a short video telling a part of the story

4 voices to outline point of view and actions of involved entities:

- Operator
- Technical expert of authority
- State authority
- Response forces

2. Coordination

3. Participants comments, questions and debates
   Chaired by the coordinator

4. Replay of the video

Media pressure is not addressed
Findings?

It is the result of the group discussion, looking at:

- Decision making process
- Coordination and interfaces
- Planning, preparation and training
- Time management
some findings
(from past EXTREME exercise)

Decision making process
- Find a balance between nuclear safety and security requirements
- Need for allocation of responsibilities between several entities (State authorities, law enforcement agencies, operator, Legal authorities...)
- Need to prioritize the main risks to make a decision (core melt prevention is a priority)

Coordination and interfaces
- Need for information and coordination between local and national involved entities
- Need for coordination and complementarities between several response forces (local, regional and national)
- Think about the better position of the command posts on site or off site (balance between advantages and drawbacks)
some findings

(from past EXTREME exercise)

Planning, preparation and training

- Need to be prepared to such a crisis through development, implementation and testing of emergency and contingency plans
- Develop combined safety and security training to cope with this type of event
- Need for a mutual understanding through sharing a nuclear safety and a nuclear security culture

Time management

- The time scale is not the same between nuclear safety specialists and security specialists.
- Need to assess the deadline for recovery of a safe situation which set up priorities.
- The crisis is not over after the assault.
EXTREME started in 2011
~ once a year
last session in 2017 with attendees from
- Czech Republic, Mexico, Romania, Slovak Republic, Slovenia, South Africa, Ukraine
- Very good feedback (global score of 18/20)
Next one is foreseen 3-5 October 2018