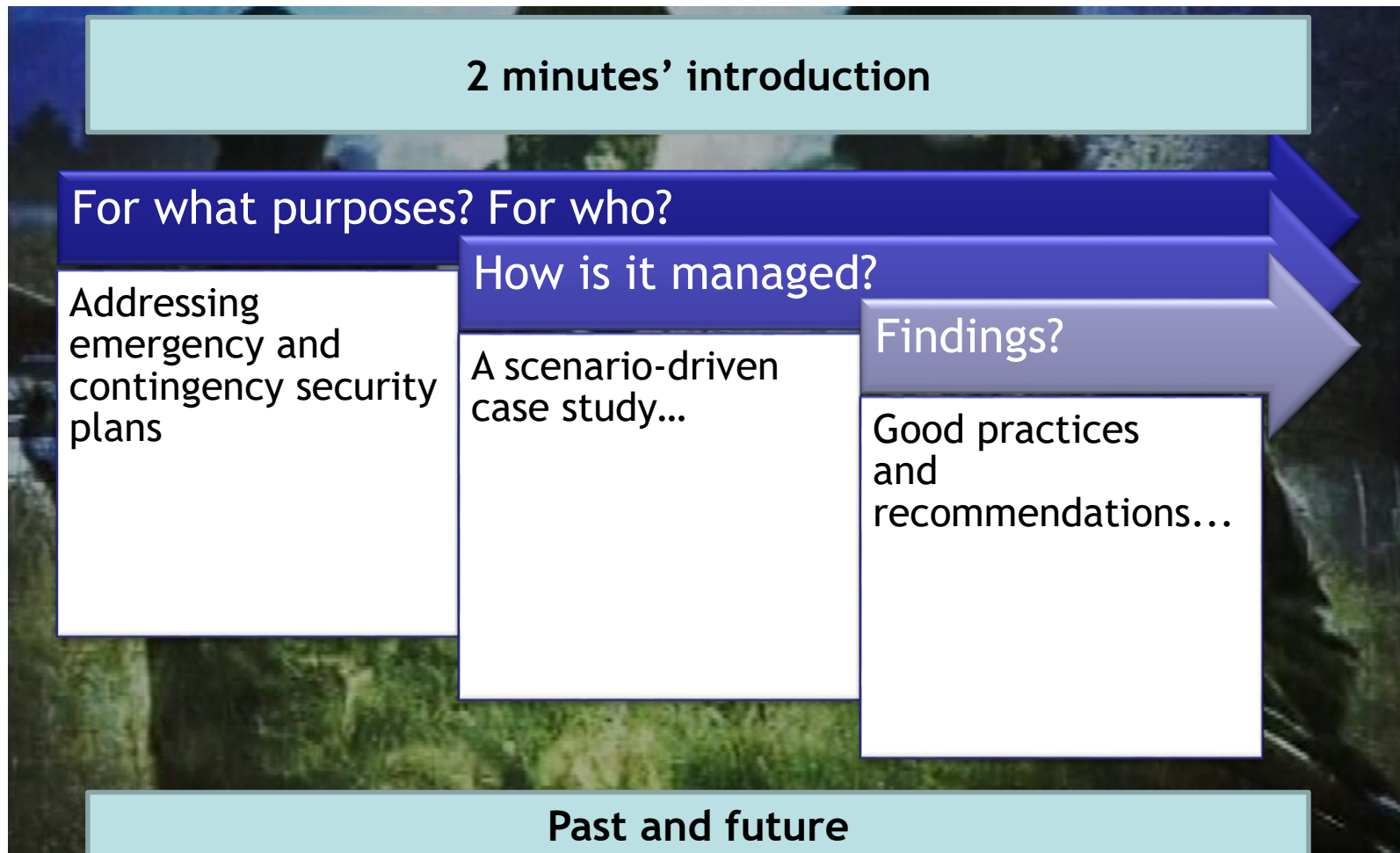
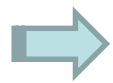


# EXTREME tabletop exercise

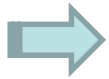
## EXternal Threat REsponse Management Exercise

Pierre Funk<sup>1</sup>, Nicolas Delaunay<sup>1</sup>, Marie-Gabrielle Badinga<sup>2</sup>  
1-IRSN, France 2-ENSTTI, France





4 a.m.: it is early morning at the NPP.



A small group of well train aggressors are ready to attack.



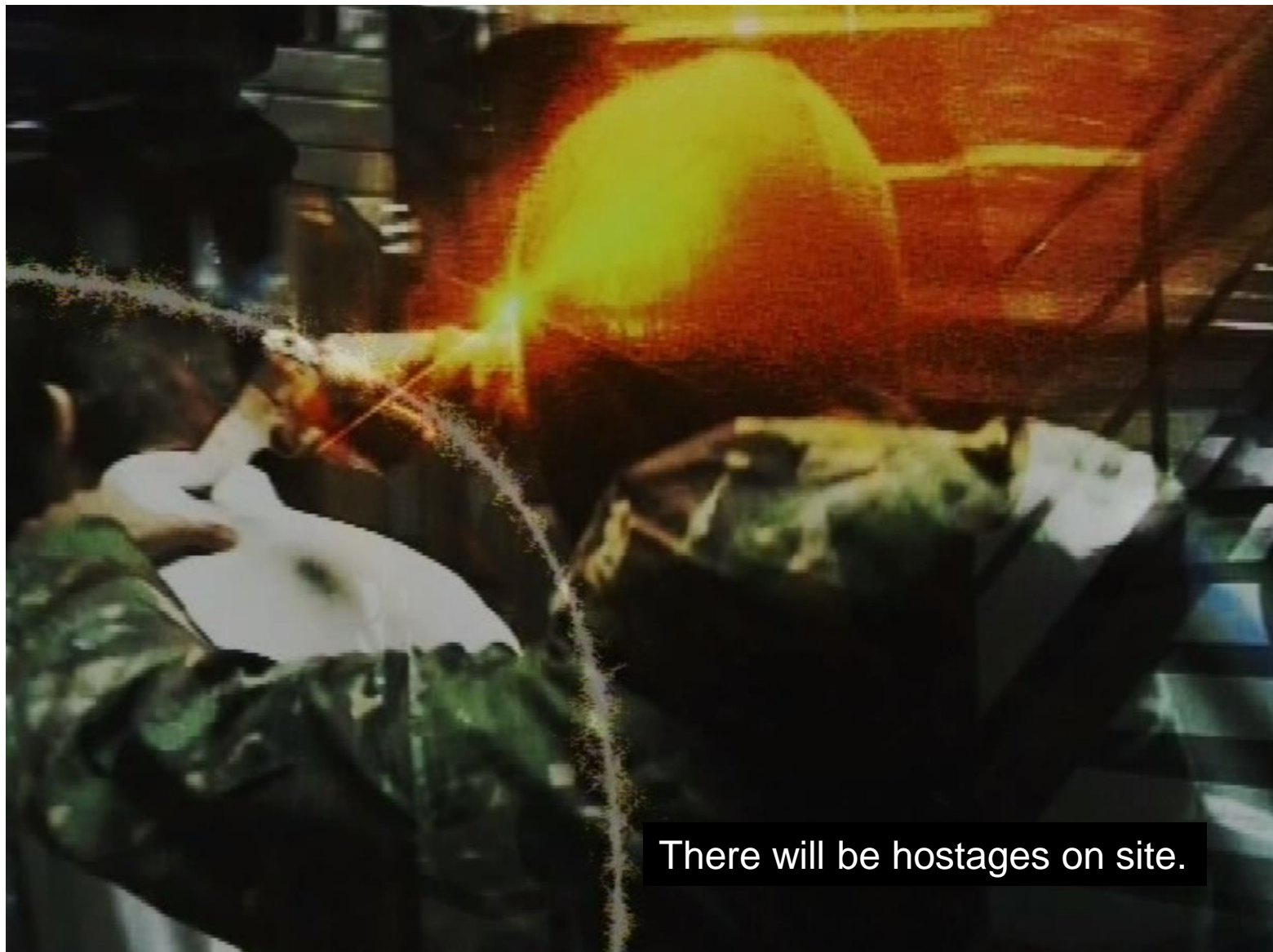
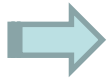
The guards have just enough time to spot on the security screen two individuals carrying assault weapons.



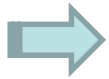


Explosives will be used.

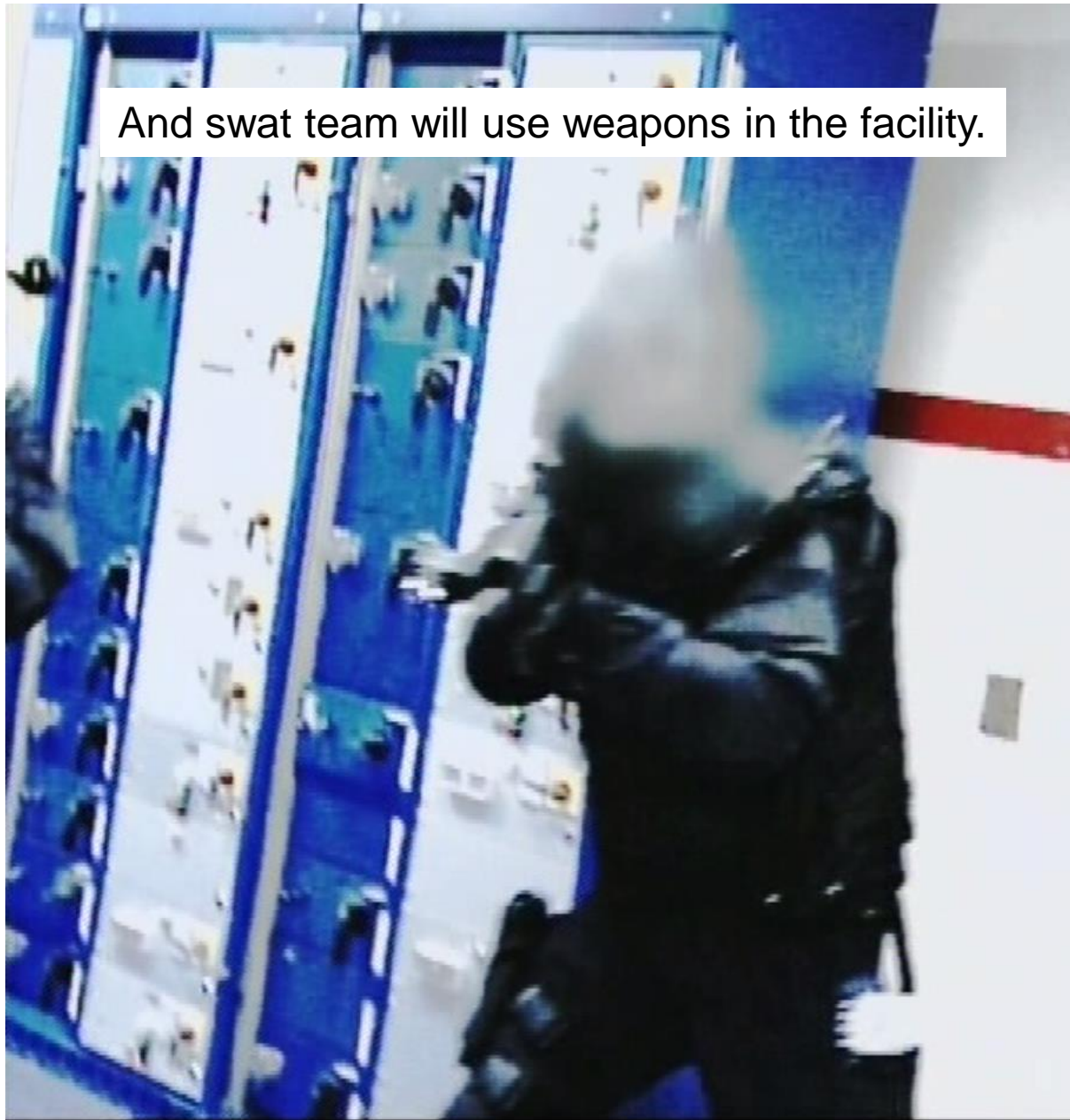


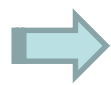


There will be hostages on site.



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



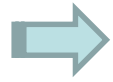
- Coordination, cooperation and complementarities between safety and security



- 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



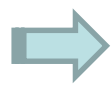
Operator



Response force

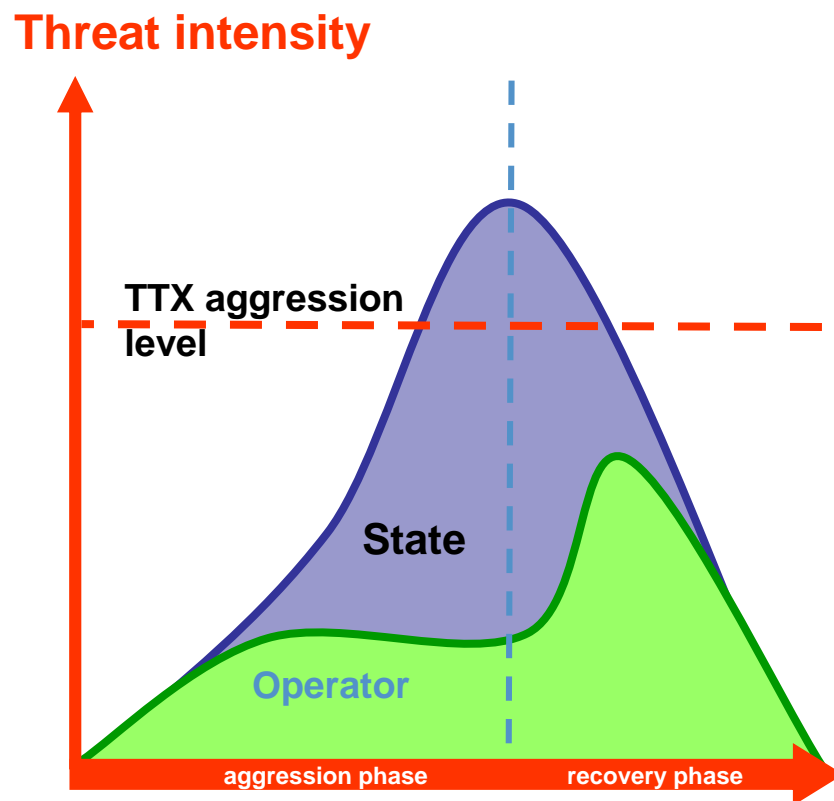


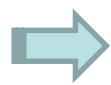
State authority



# How it is managed?

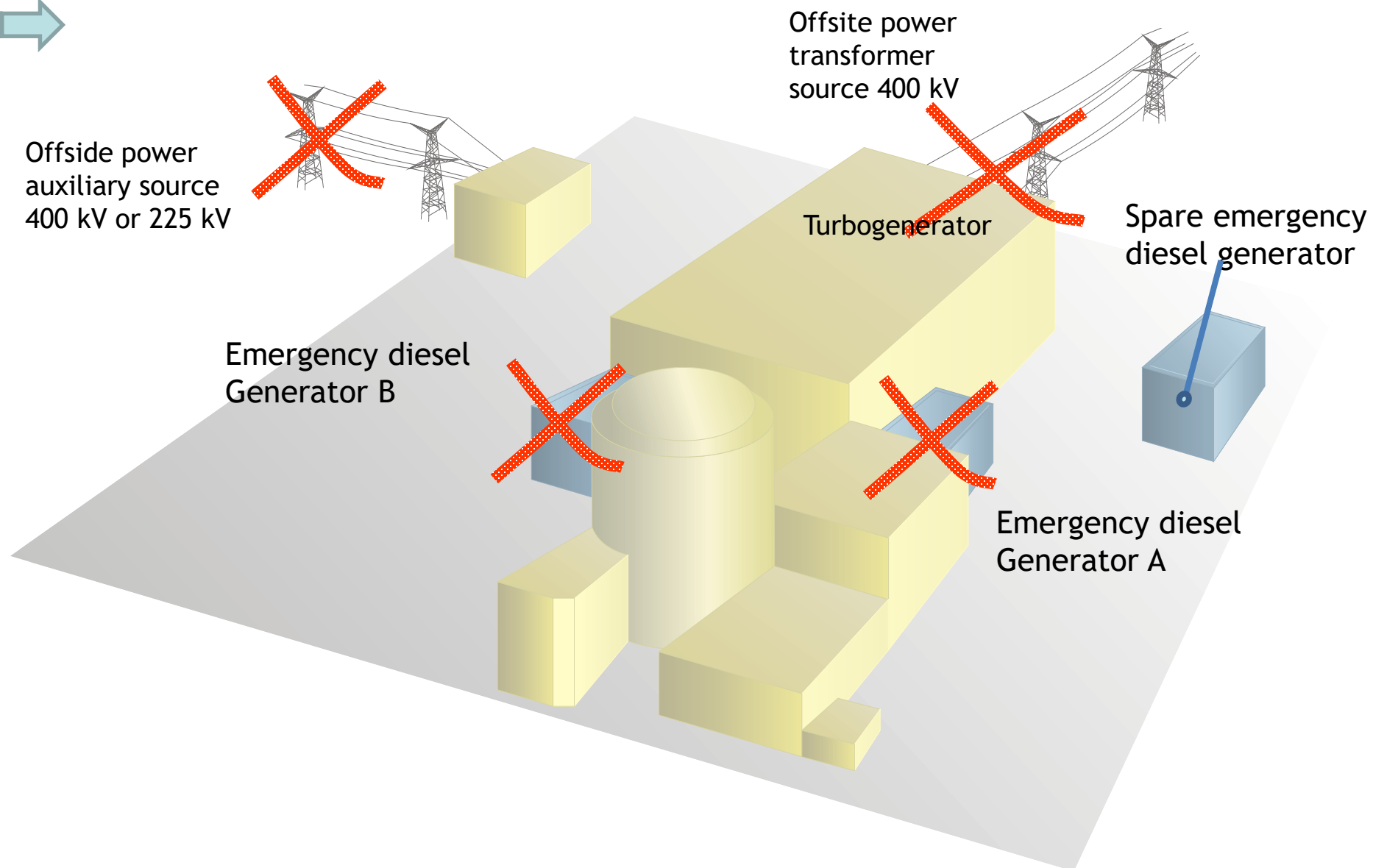
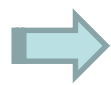
- Duration : 2.5 days
- Participants ~15, ideally from all type of actors
- A time-stepped scenario
- Addressing the four phases of the emergency:
  - Reflex
  - Reflection
  - Response
  - Recovery phase





# 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.







# How is it managed?

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



Technical expert  
of authority



Operator



Response force



Coordinator



State authority

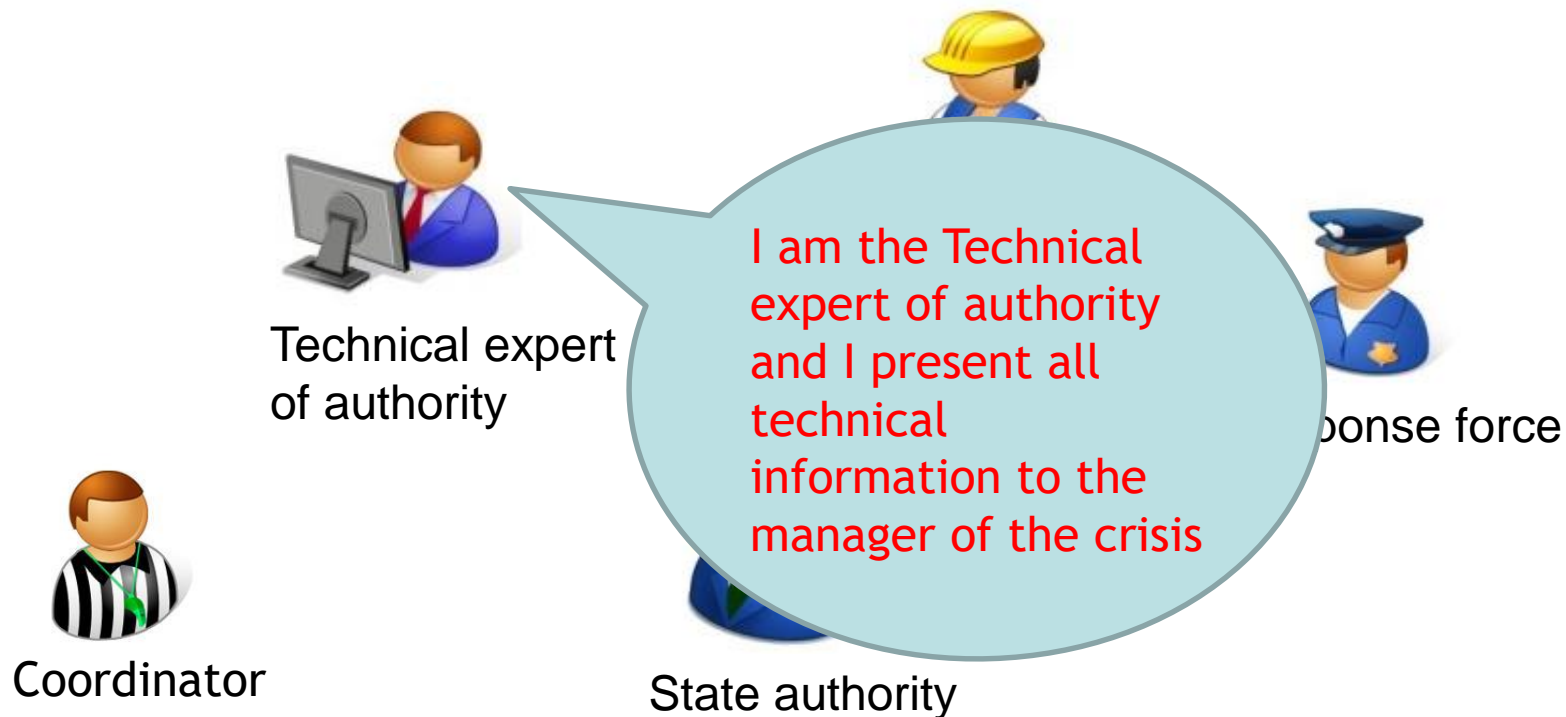
# How is it managed?

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



# How is it managed?

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



# How is it managed?

A drastic simplification of the management of the emergency is proposed:

I am the response force officer and I represent all actions undertaken by guards, regional and national response forces



Technical expert  
of authority



Response force



Coordinator



State authority



# 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



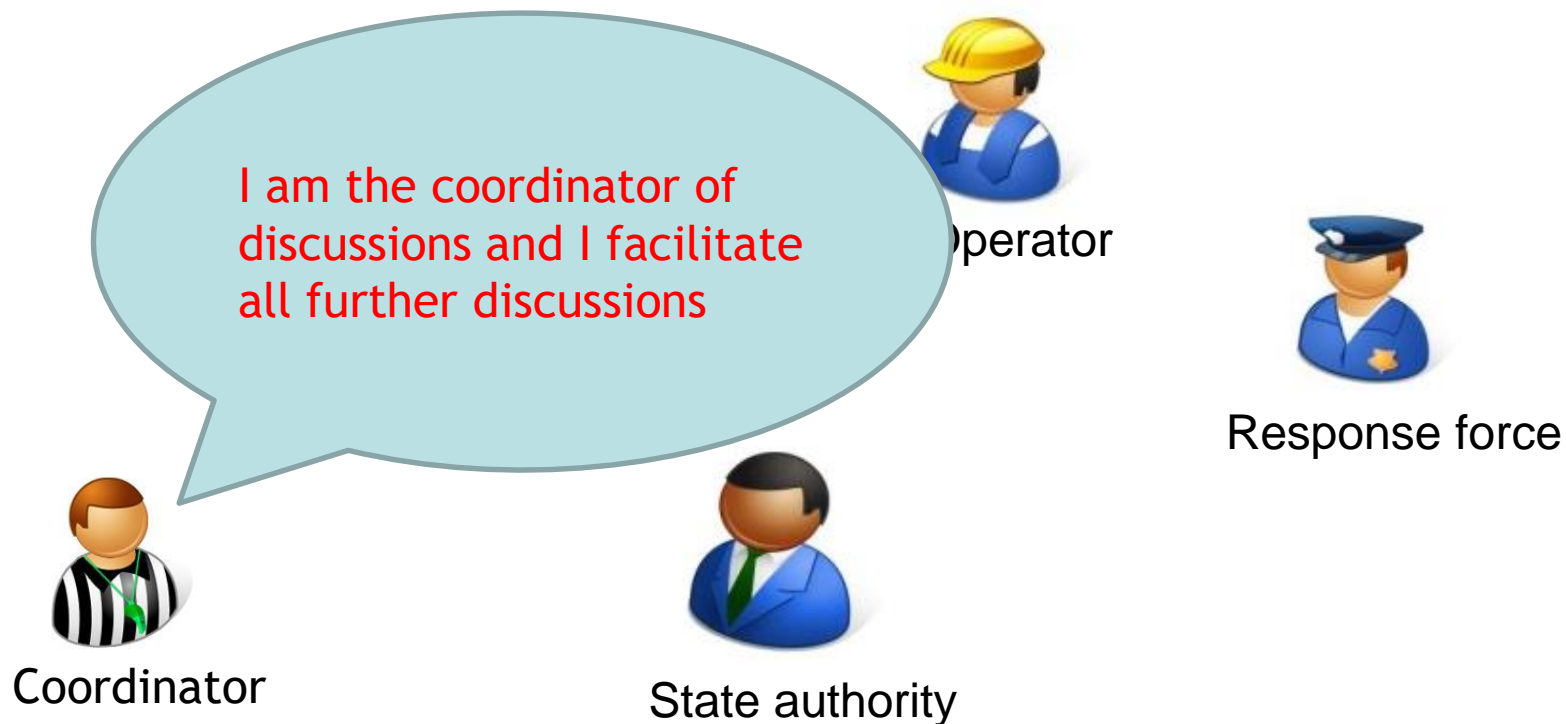
State authority

I am the manager of the  
crisis and I represent all  
state/official authorities  
involved in the decision  
process

Response force

# How is it managed?

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





## 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

②



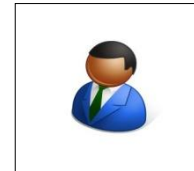
Operator



Technical expert of authority



Coordination



State authority



Response forces

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 :

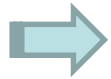


Decision making process

Coordination and interfaces

Planning, preparation and training

Time management



# some findings

(from past EXTREME exercise)

## I 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)

## I 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)

## I 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

## I 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

enstti

Experts for experts



COURSE DESCRIPTION

## EXTREME – External Threat Response Management Exercise

**Sessions:** 3-5 October 2018

**Registration deadline:** 1 August 2018

**Duration:** 3 days  
Certificates will be issued to participants who attend the full course.

**Location:** Paris, France

**Price:** No less for participants invited by IAEA  
For others participants please contact us

**Code:** 2218\_001006

REGISTER NOW

### Contact

Yves Macrellin (yves.macrellin@cea.fr)  
+33 (0)1 68 58 25 05  
33 (0)6 38 48 40 96  
[yves.macrellin@cea.fr](mailto:yves.macrellin@cea.fr)

### Online catalog

[www.enstti.org/ENSTTI/ENSTTI.html](http://www.enstti.org/ENSTTI/ENSTTI.html)

### Examination:

Knowledge testing will be performed on the full course content and successful candidates will be issued with a Knowledge Certificate.

### Teaching methods:

Lectures, discussions and practical sessions are included.  
Working group exercises and technical visits are supported by experienced TSO experts.

A USB stick containing the course material will be provided.

### OBJECTIVES

The objective is to identify and develop key issues related to the effectiveness of response to a severe attack against an NPP.

### PUBLIC

Professionals:  
• involved in nuclear safety and security,  
• from national nuclear security authorities,  
• from police forces involved in nuclear emergency planning and response.

A mix of those three categories of experts is highly desirable.

### PRE-REQUISITE

Participants should have basic knowledge in the fields of nuclear energy and nuclear security.

### PROGRAM

The course is based on generic case study to address crisis decision management. The scenario includes an attack on an NPP requesting an emergency response on national level and previous successive failures of safety functions requiring timely and appropriate measures to be taken to stop the aggressor and restore safety and security on the site. The course is a combination with time-stopped facilitated discussion.

The module consists of three days of training. The scenario is divided into four phases and nine sequences, each addressing a homogeneous stage of the emergency situation.

- Reflex phase:
  - First sequence: the attack,
- Reflection phase:
  - Second sequence: first statement/first response,
  - Third sequence: emergency management deployment,
  - Fourth sequence: failure of first actions,
  - Fifth sequence: analysis of the situation,
  - Sixth sequence: intervention strategy,
  - Seventh sequence: decision-making process for assault,
- Response phase:
  - Eighth sequence: assault by NVAI,
- Recovery phase:
  - Ninth sequence: recovery strategy,



ENSTTI Course description - 24 October 2017