On-Site/Off-Site interface for an effective emergency management

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Overall objectives for an Emergency Response

There must be a clear distinction between the responsibilities of the operator and off-site organizations (public authorities).

**Main Objectives**

- To regain control of the situation at the nuclear installation
- To prevent and/or mitigate consequences on site
- To render first aid (to operator personnel)
- To prevent the occurrence of deterministic health effects in worker and for the public
- To prevent to the extend practical the occurrence of stochastic health effects in the population
- To protect to the extend practical the environement
- Inform the public
Overall objectives for an Emergency Response

**On site**
- Threat phase
- Release
- Clean-up of the nuclear installation

**Off site**
- Protection actions of the public
- Lift of the protection measures taken to protect the public

EUP

Emergency

Transition

Long term

Action against the deposited contamination
Both the operator and the off-site organizations (local/national) shall have some planning in place

**Main Objectives (On-Site)**

- Identify/Take action/Alert & inform
- Get a written concept of operation which will serve as a new organisation system for the operator
- Identify in advance possible scenarios with typical radiological consequences
- Have a shared and understood warning system for notification
- Have a system in place to inform the public
Both the operator and the off-site organizations (local/national) shall have some planning in place

Main Objectives (Off-site)

- Public Health/Environment quality/Economic and social continuity/International relations
- Get a written concept of operation which will serve as a new organization system for the responder agencies
- Identify in advance possible situations and appropriate response
- Get areas around the installation where prompt actions (protection) can be taken if needed (justification)
- Get a effective system to coordinate and inform at the international level
- Have a system in place to inform the public
Overall objectives for planning

Threat phase  Release phase  Post-accidental phase

On site emergency plan

Off site emergency plan  Guide for the exit of the emergency phase  Long term guidelines

ON SITE

OFF SITE
The response to an nuclear/radiological emergency is an operation which must be done as partners (operator/public organization)

The operator on-site may have an incorrect view of the situation and its possible development. There is a need for technical relations between the operator and a public technical asset

There is a need to coordinate actions between on-site and off-site: extra resources to be sent on site, evacuation of the site, protection of the public, measurements in the environment...

The communication towards the public must also be coordinated between on-site and off-site (public trust)
Planning is important but as a start during any response

The situation to face is highly uncertain and many evolutions may occur. It is impossible to plan for everything and this is one of the major limitations of the planning to be prepared during the preparedness phase.

The situation to face will be different than the ones to which the response system is prepared for. There is a strong need to have a response which is highly adaptive in all dimensions

Some decisions should have been planned in advance in regards to identified conditions (on-site but also with meteorological conditions)

There is a strong need for a reactive and efficient expertise made conjointly by the operator and public entities
The response to a nuclear/radiological emergency is an operation which must be done as partners (operator/public organization).

An effective emergency response requires sharing all information between stakeholders of the response. The information to be shared shall be defined during the preparedness phase with the operator and resilient exchange systems put in place.

Technical data from the accident installation shall be transmitted by the operator to public assets in order to cross check vision of the actual state of the installation but also share vision on possible developments.

Stay humble. Many mistakes or misunderstanding can occur. Sharing vision on the accident is an important process of an effective response.
Example of simple data exchange between the operator and IRSN Technical Emergency Centre

- Need to establish at the preparedness phase the data to be exchanged
- Automatic data transmission is preferable
  - Allow to run expertise in parallel
  - Does not require extra resources from the operator
Technical data shall be exchanged but with common objectives in term of technical assessments (share emergency response objectives)

Common objectives for the expertise assessments (driver of the expertise)

Put in place a common expertise methodology to conduct the assessments between the operator and public assets

The common methodology shall separate the analysis of the current state of the accident installation (Diagnosis) and the possible development of the situation (Prognosis)

In the expertise process, room shall be available to compare expertise results and visions to fulfill the response objectives
General assessment methodology to be shared

**Comparisons with operator**
- Sharing output of 3D3P method
- Harmonisation of Cons. (if possible)
- Harmonisation of overall message

**Diagnosis of the situation**
- Gathering info on the accident
- Assessment of the plant status
- Consequence evaluation (env. & pop.)

**Prognosis of the situation**
- Considering envisaged/planned actions
- Assessment of Radiological consequences
- Further failure prognosis (if necessary)
Make it simple

- Have some objectives to drive your evaluation
  - Protection of the public
  - Compare evaluations with measurements (containment)
- Have a methodology in place
  - France (IRSN & EdF) is using a comprehensive methodology to assess the D/P of the plant
- Software shall use a simple set of parameters
- Focus on the main phenomena
- …And be able to evaluate a source term and consequences in minutes!
- Evaluations shall be comparable with what is observed in the environment