European cooperation for a better cross-border coordination of protective actions during the early phase of a nuclear accident

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Short introduction to HERCA and WENRA

General European Context

Cross Border Coordination of Decisions concerning Protective Actions
  • National EP&R Arrangements Available
  • Insufficient Information

European Level of Preparation; HERCA Working Group for Emergencies
HERCA

- Heads & Senior Officials / Experts of Radiation Protection Authorities (RPAs)
- 32 countries (incl. the 28 EU MS)
- 56 organizations (RPA + TSO)
- 310 nominations
- Observers: EC, IAEA, WHO, FDA, OECD/NEA
WENRA

- Heads & Senior Officials / Experts of Nuclear Safety Authorities
- 18 countries (the 16 EU MS with NPPs + CH,UA)
- 9 Observers
Collaboration on EP&R

- EP&R: HERCA Top priority since 2008
- 2014: High Level Task-Force
Outline

- Short introduction to HERCA and WENRA
- **General European Context**
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Five "20 km" challenges

CH-D-F

F-B-LUX

B-NL

SI-CRO

BG-RO
Example of an exercise

INEX 5 Exercise
- Sheltering & ITB preparation
- Sheltering ordered
- Sheltering & ITB ordered
- Evacuation & ITB ordered

The border between Republic of Slovenia and Republic of Croatia is not finalized and it is a subject of arbitration procedure. Content and illustration in this map do not preclude finalization and indication of border whatsoever.
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General Objective of the HERCA - WENRA Approach (2014)

- Coordination of response in the early phase of an accident between the impacted country with the aim of a coherent response across borders
HERCA-WENRA Mechanism during the Urgent Phase

The accident country should provide and update information required for understanding the situation

Neighbouring country uses the information to check consistency of the response in the accident country

Neighbouring country aim at aligning recommendations for decisions on protective actions with accident country
In case of an extreme event with insufficient Information

- Knowledge of an extreme event or situation creating a risk of core melt and large radioactive release (extreme natural hazard, terrorist attack, ...)
- Lack of sufficient information
- Necessity for the safety authorities to decide and possibly recommend immediate and consistent protective actions to the relevant national authorities

For evaluation simplistic and robust decision making process and criteria; use of Judgment Evaluation Factors ("JEFs")

<table>
<thead>
<tr>
<th>JEF</th>
<th>Description</th>
<th>Possible values of JEF</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Is there a risk of core melt?</td>
<td>Yes</td>
</tr>
<tr>
<td></td>
<td></td>
<td>No</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Unknown</td>
</tr>
<tr>
<td>2</td>
<td>Is the containment integrity maintained?</td>
<td>Yes</td>
</tr>
<tr>
<td></td>
<td></td>
<td>No</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Unknown</td>
</tr>
<tr>
<td>3</td>
<td>Is the wind direction:</td>
<td>Steady</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Variable</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Unknown</td>
</tr>
</tbody>
</table>
Protective Actions

- Protective actions considered at this stage
  - Sheltering
  - Iodine Thyroid Blocking (ITB)
  - Evacuation

An example: Potential core melt without indication of loss of containment integrity

<table>
<thead>
<tr>
<th>Protective Action</th>
<th>Distance</th>
</tr>
</thead>
<tbody>
<tr>
<td>Evacuation + ITB</td>
<td>up to 5 km</td>
</tr>
<tr>
<td>Sheltering + ITB</td>
<td>5 to 20 km</td>
</tr>
</tbody>
</table>
Harmonised Preparation of Protective Actions in Europe

- Evacuation should be prepared up to 5 km around all nuclear power plants, and sheltering and ITB up to 20 km.

- A general strategy should be defined in order to be able to extend evacuation up to 20 km and sheltering and ITB up to 100 km.

- Radiation and nuclear safety authorities should continue to promote compatible response arrangements and protection strategies in Europe.
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HERCA Working Group for Emergencies (WGE)
Past published documents

Since its establishment in 2011, HERCA-WGE has actively worked to promote consistent and compatible emergency preparedness and response (EPR) arrangements within and between European countries for nuclear emergencies occurring both within Europe and elsewhere.

- Practical proposal for further harmonization of the reactions in European countries to any distant nuclear or radiological emergency (2013)

- HERCA-WENRA Approach (HWA) to better cross-border coordination of protective actions during early phase of a nuclear accident (2014)

- Guidance for Bilateral Arrangements (2015)
Mandate, Vision & Action Plan 2018-2022 for the HERCA-WGE
Mandate

To promote consistent and compatible emergency preparedness and response arrangements in HERCA countries for nuclear and radiological emergencies, irrespective of their location or cause, taking into account EU directives, EU Council Conclusions and international requirements.
Vision

Achieve consistent protective actions through effective cross border coordination between countries affected by a nuclear or radiological emergency.

HERCA-WGE seeks improvements in:
- Sharing knowledge and understanding of EPR arrangements in other European countries.
- Commitment for cross-border cooperation
- Sustainability and robustness of communication arrangements for emergencies.

These improvements should promote the successful implementation of the HWA and become evident during large scale cross-border exercises.
Part 1: Promotion of implementation of HERCA-WENRA Approach

Includes e.g.

- Identify and clarify of those parts of HWA which are or may be interpreted differently;
- Follow up of implementation in all HERCA member countries;
- Peer review of implementation of HWA in all those regions where NPPs are situated within 20 km distance from national borders;
- Exchange of information on the HWA recommendation concerning general strategies for extendibility of protective actions.
Part 2: "A complementary document"

Includes e.g.

- Additional protective actions concerning food chain and challenges in logistics;

- Considerations of safety/security interface within cross border EPR arrangements;

- Considerations of application to all radiological emergencies in order to promote consistent EPR response;

- Analyse new features of IAEA’s USIE website and assessment and prognosis tools, seek for improved exchange of adequate and relevant information among HERCA countries during the response phase of an emergency, and continue cooperation with IAEA.
Part 3: Increase of mutual understanding and knowledge

Includes e.g.

- Keeping country fact sheets up-to-date
- Information exchange on the practical implementation of EU BSS;
- Exchange of feedback and lessons learned from international activities e.g. EPREV missions and cross border seminars and workshops
Part 4: Guidance development

Includes e.g.

- Develop and publish a pragmatic approach to the monitoring of people and commodities during nuclear or radiological emergencies
- Examine factors affecting the implementation protective actions especially in the intermediate phase
One more very recent topic….

- In autumn 2017, ruthenium-106 was detected in samples of airborne and deposited radioactivity in Europe.
- Within an informal group of experts (Ro5; Ring of Five) there was an active exchange of information.
- Many countries published their own measurement on their own web sites but did not report the results in USIE until after the request from IEC.
- Media interest was high.

**HERCA Position; June 2018**

In the light of the Ru-106 release event, HERCA members are invited to share actively future monitoring results in USIE and ECURIE when clearly abnormal observations (as described in the IAEA EPR-IECom 2012 and ECURIE Communication Instructions, 2018) are made to ensure wider information exchange among competent authorities and to ensure that all counterparts are informed.
Thank you for your attention!

more information www.herca.org