Emergency Preparedness in Austria in the light of the new European Basic Safety Directive including also the ALARA approach

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BACKGROUND

**Directive 2013/59/EURATOM** definition of the Basic Safety Standards (EU-BSS) for the protection against risks of exposure to ionizing radiation

First step of the implementation of the directive into Austrian law, regarding

- **Emergency exposure situation** and
- **Existing exposure situation**
  after an emergency and due to past activities (legacies)

**Working group** with representatives of federal and provincial/regional authorities and emergency workers since autumn 2014:

- Elaboration of the Intervention Ordinance within 2016
- Assessment/Survey of the Intervention Ordinance since the begin of 2017
- Planned enter into force of the Intervention Ordinance – 2017
General radiation protection ordinance 2006, last amended 2015

Medical radiation protection ordinance 2005, amended 2010

Radiation protection act 1969, last amended 2015

Natural radiation protection ordinance 2008

Radiation protection ordinance of flying staff/personnel 2006

Intervention ordinance 2007
DEFINITIONS

Harmonization:

Definitions of the German EU-BSS version in emergency exposure situations and existing exposure situations after an emergency are used

Radiological emergency situation (Radiologische Notstandssituation) ➔ emergency exposure situation (Notfallexpositionssituation)

Intervention staff (Interventionspersonal) ➔ Emergency workers (Notfalleinsatzkräfte)

Lasting radiation exposure (Dauerhafte Strahlenexposition) ➔ existing exposure situation (Bestehende Expositionssituation)

• Additionally, special definitions of the Intervention Ordinance: Warning phase (Vorwarnphase), Contamination phase (Kontaminierungsphase),
General requirement:

• Emergency management system is to be established and appropriate administrative arrangements to maintain these system are to be made.

Requirements EU-BSS Annex XI to emergency management system:

• Definition of responsibilities
• Preparation of emergency plans …..
  Requirements mostly already implemented in the Intervention Ordinance 2007

New legal requirements in Austria:

• Involvement of stakeholder: already in practice

• Transition from an emergency exposure situation to an existing exposure situation
EMERGENCY PLANS

Additional requirements due to the EU-BSS

• Consideration of all types of emergency exposure situations that are possible for Austria: already in practice
• By reviewing the emergency plans, experience from past emergencies and national / international exercises has to be taken into account

• Criteria for the transition of an emergency exposure situation to an existing exposure situation

• Operational trigger criteria for measures to protect the public:
  • Plant condition (HERCA-WENRA criteria)
  • Dose rate meter measurement values, air concentration (Iodine)

➔ Update of the emergency plans in Austria
Medical diagnostic and therapy
Gesamtstaatlicher Interventionsplan für radiologische Notstandssituationen
Notfallplan Medizinische Diagnostik und Therapie

Events in Austrian plants
Gesamtstaatlicher Interventionsplan für radiologische Notstandssituationen
Zwischenfälle in österreichischen Anlagen

Radiological terror
Gesamtstaatlicher Interventionsplan für radiologische Notstandssituationen
Radiologischer Terror

Satellite crash with radioactive inventory
Gesamtstaatlicher Interventionsplan für radiologische Notstandssituationen
Absturz von Satelliten mit radioaktivem Inventar

Events with dangerous sources (HASS)
Gesamtstaatlicher Interventionsplan für radiologische Notstandssituationen
Zwischenfälle mit gefährlichen Strahlenquellen

Events in nuclear power plants
Gesamtstaatlicher Interventionsplan für radiologische Notstandssituationen
Zwischenfälle in kerntechnischen Anlagen
GENERAL AND OPERATIONAL CRITERIA FOR PROTECTIVE MEASURES

Recommended intervention values ➔ General criteria for protective measures

• Sheltering,
• Iodine Thyroid Blocking
• (Evacuation)
• Temporary relocation/
  permanent resettlement

Operational criteria:

• Establish operational criteria such as
  measured variables and
  indicators of on-site condition (HERCA-WENRA)

• These criteria are to be used when deciding on protective measures, if general criteria are not applicable! (experience from Fukushima)
For the exposure of the public in an emergency exposure situation, a reference value of 100 mSv is an effective annual dose. (Residual dose)

In optimizing the protection

Exposure above the reference value is given priority and the optimization is also continued below the reference value.
A catalogue of measures is to be drawn up and, if necessary, updated in order to define protective measures, involving stakeholders.

The catalogue of protective measures has to contain optimized protection strategies for different events and the corresponding scenarios.

Differentiation of the existing catalogue of measures

- Protective measures in emergency exposure situations (warning-, contamination-, intermediate phase)
- Protection and remediation measures in existing exposure situations after emergency (late phase)
AUSTRIAN-SPECIFIC CATALOGUE OF PROTECTIVE MEASURES

• Protective measures in different phases
  Focus on large-scale contamination after a nuclear power plant accident

• Differentiation of measures
  – Plausible in Austria
  – Very unlikely (e.g. resettlement) in Austria
  – To be excluded (e.g. evacuation) in Austria

• Character of protective measures:
  Recommendation or order

• Stakeholder involvement (other areas of expertise)
  Practicality of measures (completely closing of stables)

• Strategy to avoid radioactive waste
  Waste management (radioactive/ non-radioactive waste)
OPTIMIZATION OF PROTECTIVE MEASURES IN AN EMERGENCY

In *Intervention Ordinance 2007* established:

- For protective measures that have been implemented:
  - Information of the Federal States to BMLFUW on the *status and effectiveness* of protective measures
  - **Assessment** of the effectiveness and **adaptation / cancelling** of the protective measures by the BMLFUW
INTERNATIONAL COLLABORATION

In the planning phase:
• Cooperation with other countries with regard to possible emergencies

In an emergency exposure situation:
• Exchange of the assessment of the exposure situation
• Coordination of protective measures and information to the public
• Collaboration in transition from an emergency into an existing exposure situation

Existing information and coordination systems bilaterally or internationally have to be used.

→ Very good cooperation with all neighboring countries of Austria
INFORMATION OF THE PUBLIC

Information on preparation for and in an emergency:

• Requirements already established in the Intervention ordinance 2007

Practical implementation / experiences from Fukushima and exercises

• Importance of information to the public, even if there are no radiological effects

• → Optimization of existing ways to inform the public

  Call Center
  Text templates/speaker texts for media
  Homepage
  Brochures (e.g. measures in agriculture)

  www.strahlenschutz.gv.at

→ In elaboration: crises communication plan
NEW SAFETY STANDARDS OF THE IAEA

Revision and publication
General safety requirements in the field of emergency preparedness and emergency response, General Safety Requirements, Part 7, IAEA, 2015

Major requirements for the amendment of the intervention ordinance:

• **Hazard analyzes** and **categorization** of the Austrian plants and activities according to the IAEA emergency preparedness categories. (EPC I-V)

• **Classification** of the emergency exposure situation according to the emergency classification of the IAEA (Alert, Facility Emergency, Site Area Emergency,..)

• .....
Part of the **Intervention Ordinance 2007:**

- Interventions due to a lasting exposure will be replaced by:

**Regulations of the EU-BSS on an existing exposure situation**

- **after** an **emergency** or

- **in contaminated areas** due to past activities
  (e.g. activities, which were never subject of regulatory control – radiological legacy sites)
SUMMARY OF OPTIMIZATION

Emergency plans:
• Take into account the experiences from past emergencies and exercises.
• Implementation of operational trigger criteria

Reference values:
• Exposure of the public in emergency exposure situations (100 mSv/a)
• Exposure of the public in existing exposure situations (20 mSv/a)

Prioritization above and optimization below reference values

Catalog of protective measures as optimized protection strategy:
• Differentiation of the probability that a protective measure will be applied
• Stakeholder involvement (practicality of measures)
• Ongoing optimization due to report about the status and effectiveness of measures, followed by an assessment (adaptation, cancelling, …)
Thank you for your attention!