

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



Natural radiation protection ordinance
2008



Medical radiation protection ordinance
2005, amended 2010



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),

.....



EMERGENCY MANAGEMENT SYSTEM

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)

REFERENCE VALUES EMERGENCY



- 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**.

OPTIMIZED PROTECTION STRATEGIES CATALOG OF PROTECTIVE MEASURES



- 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



MINISTERIUM
FÜR EIN
LEBENSWERTES
ÖSTERREICH

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



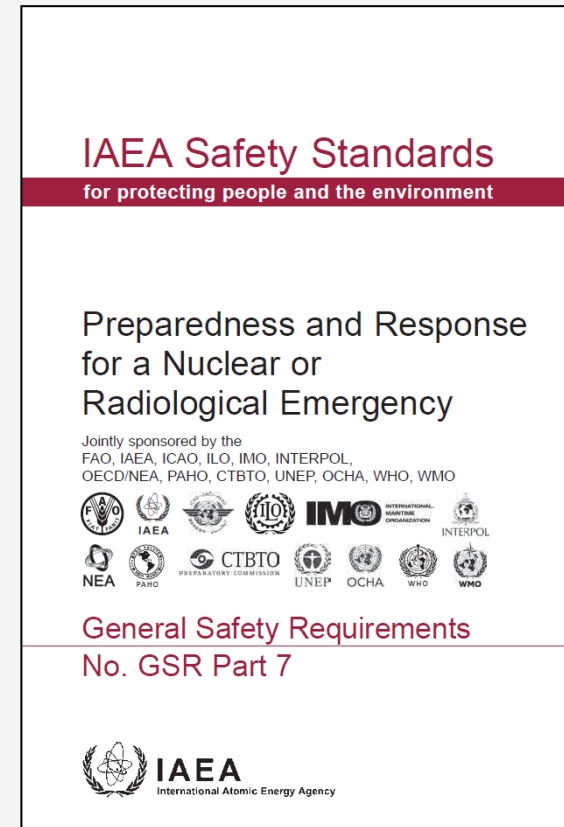
Revision and publication

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,..)
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EXISTING EXPOSURE SITUATION



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!