Arrangements for the Termination of a Nuclear or Radiological Emergency



Lecture: 01. Objectives and expectations

Purpose of the Presentation:

- Recap the purpose and objectives of the workshop, the learning activities to be implemented and the expectations
- Inform participants of the newly published IAEA Safety Standards Series No. GSG-11 on Arrangements for the Termination of a Nuclear or Radiological Emergency and how this training supports its implementation

Learning Objectives:

- Become aware of the workshop purpose, objectives and expectations
- Improve the knowledge of the coverage of IAEA Safety Standards Series No. GSG-11 and its place in the IAEA Safety Standards Series on emergency preparedness and response

Duration: 15 minutes

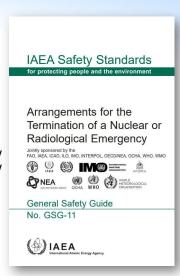
References:

- International Atomic Energy Agency, Preparedness and Response for a Nuclear or Radiological Emergency, IAEA Safety Standards Series No. GSR Part 7, IAEA, Vienna (2015).
- 2. International Atomic Energy Agency, Arrangements for the Termination of a Nuclear or Radiological Emergency, IAEA Safety Standards Series No. GSG-11, IAEA, Vienna (2018).
- 3. International Atomic Energy Agency, Radiation Protection and Safety of Radiation Sources: International Basic Safety Standards, IAEA Safety Standards Series No. GSR Part 3, IAEA, Vienna (2014).

Purpose of the Workshop



- Familiarize participants with the guidance and recommendations of the IAEA Safety Standards Series No. GSG-11 on Arrangements for the Termination of a Nuclear or Radiological Emergency.
- Train participants on:
 - How to prepare for facilitating the timely resumption of social and economic activity after an emergency;
 - What needs to be ensured so that the emergency can be declared formally ended and the transition to an existing exposure situation or a planned exposure situation can take place.



Background General Safety Requirements No. GSR Part 7 (2015) Requirement 18: Terminating a IAEA Safety Standards nuclear or radiological emergency "The government shall ensure that Preparedness and Response arrangements are in place and are for a Nuclear or Radiological Emergency implemented for the termination of a Jointly sponsored by the FAO, IAEA, ICAO, ILO, IMO, INTERPOL, CTODAIEA PAHO CTBTO, UNEP, OCHA, WHO, WMO nuclear or radiological emergency, with O S CIBIO O O O account taken of the need for the General Safety Requirements resumption of social and economic No. GSR Part 7 activity." (A) IAEA

Lecture notes:

Reference:

 International Atomic Energy Agency, Preparedness and Response for a Nuclear or Radiological Emergency, IAEA Safety Standards Series No. GSR Part 7, IAEA, Vienna (2015).

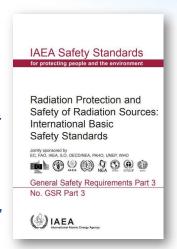
Background (cont'd.)



General Safety Requirements No. GSR Part 3 (2014)

Requirement 46: Transition from an emergency exposure situation to an existing exposure situation

"The government shall ensure that arrangements are in place and are implemented as appropriate for the transition from an emergency exposure situation to an existing exposure situation."



Lecture notes:

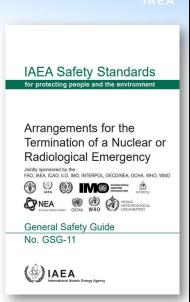
Reference:

 International Atomic Energy Agency, Radiation Protection and Safety of Radiation Sources: International Basic Safety Standards, IAEA Safety Standards Series No. GSR Part 3, IAEA, Vienna (2014).

Background (cont'd.)



- Justifications for developing GSG-11:
 - Absence of detailed guidance for Member States on how to meet the requirements of GSR Part 3 and GSR Part 7;
 - Lessons identified from past emergencies;
 - Requests by Member States.



Lecture notes:

It is obvious that, at some point, there is a need to declare the end of an emergency situation and to allow the return to a more or less "normal" life. This implies a number of changes, for example, in the management authority and in the radiation protection approach for both the public and the emergency workers. In order to be able to implement these changes, preparation is required. However, up to now, no specific detailed guidance has been available on how to deal with this transition and to allow the implementation of GSR Part 3 and GSR Part 7 in a harmonized manner. The need for this guidance has been identified in the response to past emergencies and has been repeatedly emphasized by Member States.

IAEA Safety Standards Series No. GSG-11

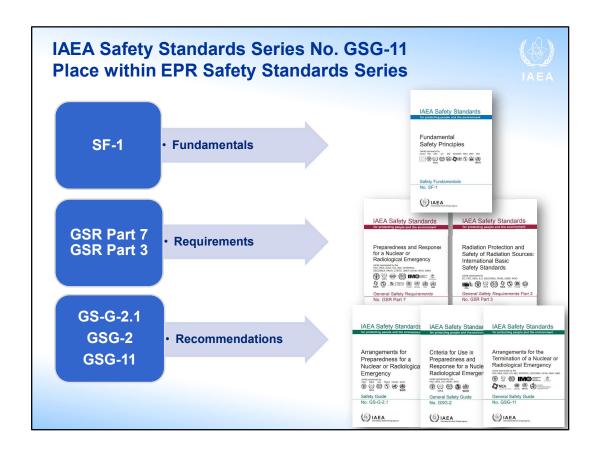


- Provides guidance and recommendations on:
 - Developing arrangements, as part of overall emergency preparedness efforts, for transition to either an existing exposure situation or a planned exposure situation, as appropriate, and for the termination of the emergency;
 - The primary objective and prerequisites for enabling the emergency to be terminated.
- Applies to any nuclear or radiological emergency irrespective of its cause;
- Published in March 2018;
- Joint sponsorship by: FAO, IAEA, ICAO, IMO, ILO, INTERPOL, OECD/NEA, UN OCHA, WHO, WMO.



Lecture notes:

The publication was conceived with the goal of providing recommendations on the development of arrangements, at the preparedness stage, to respond to a nuclear or radiological emergency with regard to the transition to either an existing exposure situation or a planned exposure situation, and the termination of the emergency. It specifically includes the primary objective of, and the prerequisites for, the termination of an emergency and provides detailed guidance on adapting or lifting protective actions and other response actions.



Lecture notes:

GSG-11 belongs to the group of General Safety Guides (that are applicable to any facility or activity) in Emergency Preparation and Response (EPR). These guides support the implementation of specific safety requirements set forth in GSR Part 3 (Section 4) and GSR Part 7. These safety requirements address Principle 9 of the Safety Fundamentals, which deal with EPR.

As such, GSG-11 should always be used in combination with other EPR Safety Standards to ensure that the national EPR framework addresses various aspect of EPR and different phases of a nuclear or radiological emergency.

IAEA Safety Standards Series No. GSG-11 Structure



- 1. Introduction
 - Background
 - Objective
 - Scope
 - Structure
- 2. Phases of a nuclear or radiological emergency
 - General
 - Emergency response phase
 - Transition phase
- 3. Primary objective and prerequisites
 - General
 - Primary objective
 - General prerequisites
 - Specific prerequisites
 - Timeframes for the termination

Lecture notes:

The Safety Guide contains four main sections, an appendix and annexes.

The introductory section is followed by a section that describes various phases of a nuclear or radiological emergency. It aims to explain various concepts that exist in EPR Safety Standards; it also seeks to define the concept of 'transition phase' in order to enhance the understanding of 'termination' and to clarify the scope of the Safety Guide.

The third section provides the primary objective of, and the prerequisites for, the termination of the emergency. These are intended to constitute the main drivers for authorities in identifying what needs to be achieved under particular circumstances so that an emergency can be formally declared ended, and the transition to other exposure situations can take place. As such, they will be useful in developing the protection strategy for the transition phase; identifying the adequate arrangements for the transition phase; and determining specific criteria that need to be met in order to be able to take the formal decision to end the emergency. It also provides guidance on the appropriate timeframes in which a specific emergencies can be ended.

IAEA Safety Standards Series No. GSG-11 Structure (cont'd)



- 4. Arrangements for the transition phase
 - General
 - Authority, responsibilities and management
 - Hazard assessment
 - Protection of the public
 - · Protection strategy
 - · Adapting and lifting the protective actions
 - Characterization of the exposure situation
 - Medical follow-up and counselling
 - Protection of emergency workers and helpers
 - Radioactive waste management
 - Consultation with the public and other interested parties
 - Compensation for victims of damage
 - Infrastructure

Lecture notes:

Section 4 provides detailed guidance on various aspects to be considered at the preparedness stage when arrangements for the transition phase of a nuclear or radiological emergency are being established. The implementation of this guidance is intended to provide support in meeting the prerequisites for terminating an emergency, specified in Section 3.

IAEA Safety Standards Series No. GSG-11 Structure (cont'd)



- Appendix: considerations for lifting protective actions and other response actions
- References
- · Annex I: case studies

The Fukushima Daiichi accident in japan

The radiological accident in Goiânia, Brazil

The severe nuclear incident at Paks NPP, Hungary

The radiological incident in Mexico

 Annex II: factors for consideration in the justification and optimization of the protection strategy

Lecture notes:

The Appendix provides further considerations including criteria for adapting or lifting protective actions.

The Annex 1 contains case studies that consider the guidance and recommendations provided in this Safety Guide in the context of the emergency response to the Fukushima Daiichi accident in Japan (2011), the radiological accident in Goiânia, Brazil (1987), the Paks fuel damage incident in Hungary (2003) and the incident involving a stolen radioactive source in Hueypoxtla, Mexico (2013). The four case studies were selected to present representative examples for transition to either a planned exposure situation (the Paks fuel damage incident and the stolen radioactive source in Hueypoxtla) or an existing exposure situation (the Fukushima Daiichi accident and the radiological accident in Goiânia). The examples have also been chosen to cover emergencies associated with the nuclear industry as well as with the use of radioactive sources in other applications, and to cover a range of initiating circumstances.

Lecture notes:

The case studies in this annex are not intended to give an extended description of the incidents or accidents and the respective emergency response, nor are they intended to provide an evaluation of the manner in which these events were managed. Each case study is used to draw conclusions from a comparison with the prerequisites described in Section 3 of this Safety Guide, with the aim of facilitating understanding of this guidance.

The Annex 2 provides list of factors to be considered when justifying and optimizing the protection strategy for the transition phase (although not exclusive to the transition phase).

All these aspects addressed in the Safety Guide are covered in this workshop.

Topics covered at the workshop



- · Basic concepts
- Primary objective of and prerequisites for the termination of the emergency
- Protection strategy for the transition phase
- Adapting and lifting protective actions
- · Characterization of exposure situation
- Medical response during the transition phase
- Radioactive waste management
- Protection of emergency workers and helpers
- · Consultation with relevant interested parties
- Management organization and infrastructure for the transition phase



Workshop Objectives



- Identify and apply the prerequisites for declaring an emergency ended for postulated emergency scenarios;
- Identify activities to be carried out during the transition phase;
- Recognize important elements of the protection strategy for the transition phase;
- Recognize the preparedness infrastructure and other arrangements necessary for the transition phase;
- Analyse past emergencies in the context of the guidance for transition to different exposure situations.

Learning activities



- Lectures
- Case studies
 - Past emergencies
- Working session
 - Based on postulated emergency scenarios

Active participation is essential!

Expectations



- Better understanding of the guidance contained in IAEA Safety Standards Series No. GSG-11;
- Harmonized application of IAEA Safety Standards Series No. GSG-11 in national contexts.



Lecture notes:

Thank you!