GUIDE FOR THE LECTURES FOR IMPLEMENTING THE CASE STUDIES

1. INTRODUCTION TO CASE STUDIES

The primary purpose of the Workshop is to familiarize participants with the new guidance and recommendations provided in IAEA Safety Standards Series No. GSG-11, Arrangements for the Termination of a Nuclear or Radiological Emergency, and to train them on:

- 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; and
- How to prepare for facilitating timely resumption of social and economic activity after a nuclear or radiological emergency.

To achieve this purpose, case studies are implemented so that participants can learn from experience and, through analysing past emergencies, apply in practice the knowledge gained throughout the Workshop.

The Case Studies are detailed in Annex I of IAEA Safety Standards Series No. GSG-11.

2. OBJECTIVES OF THE CASE STUDIES

The objectives of the Case Studies are:

- To present and discuss the emergency response to the representative cases of past emergencies;
- To analyze these emergencies in the context of transitioning to a planned exposure situation or an existing exposure situation.

It needs to be emphasized that the Case Studies are **not** an assessment of the emergency response to the emergencies that are covered by the Workshop. They are, rather, an opportunity for the lecturers to illustrate the applicability of the guidance provided in IAEA Safety Standards Series No. GSG-11 and for the participants to analyse them using the knowledge gained during the Workshop.

3. DESCRIPTION OF THE CASE STUDIES

There are three Case Studies that are used in the first three days of the Workshop (one Case Study per day). The specific objectives of each Case Study are discussed below.

In advance of each Case Study, participants are given a list of questions (provided in the Appendix to this Guide) and are reminded to familiarize themselves with these questions before the particular Case Study is presented. This will allow the participants to realize what kinds of answers they should look for during the presentation of the Case Study.

After 5 minutes given to participants to get familiar with the questions, they would be asked at the end of the Case Study, the emergency response in the context of the specific emergency is presented. At the end of the presentation, after an overview of the emergency response to the specific emergency has been provided, participants are given about 15 minutes to discuss the questions within their respective group and to come up with their answers. Their responses are then discussed, and the basis upon which they reached their conclusions is considered (for about 15 minutes). In case of different answers, participants are asked to justify their findings.

After the discussion, the lecturer presents the retrospective sequences and milestones derived for the specific emergency as well as the basis underpinning the judgement made.

3.1. Part 1 (Day 1: 3:00 – 4:00 PM)

In the first Case Study,the emergency responses to the nuclear incident in the Paks Nuclear Power Plant in Hungary in 2003 and to the radiological accident in Goiânia, Brazilin 1987 are presented and discussed, with the aim of analysing them in the context of transitioning to a planned exposure situation and an existing exposure situation.

The purpose of this Case Study is for participants, in the context of past experience, to differentiate between:

- Different situations of exposure;
- Transition to a planned exposure situation or transition to an existing exposure situation.

Participants are asked to discuss and answer the following questions (provided in the Appendix under *Case Study Part 1: Transition to an existing or a planned exposure situation?*), taking into account the presentations given earlier at the Workshop:

- Did these events involve a significant release of radioactive material into the environment calling for longer term management of residual contamination?
- Did these events introduce a situation of exposure that differs from the one that existed before with regard to the public exposures?
- Would such emergency exposure situations transition to a planned exposure situation or an existing exposure situation?

3.2. Part 2 (Day 2: 2:30-3:30 PM)

In the second Case Study, the emergency response to the Fukushima Daiichi Nuclear Power Plant (NPP) accident in Japan in 2011 is presented and discussed, with the aim of analysingit in the context of transitioning to an existing exposure situation.

The purpose of this Case Study is for participants, in the context of past experience:

- To analyse the emergency response to this nuclear accident against the guidance given in IAEA Safety Standards Series No. GSG-11;
- To identify different stages of response to the nuclear accident;
- To analyse when the prerequisites for transition to an existing exposure situation were fulfilled, and when the emergency could be terminated.

Participants are asked to discuss and answer the following questions (provided in the Appendix under *Case Study Part 2 and Part 3: Analysis of the Fukushima Daiichi NPP accident and the radiological incident in Hueypoxtla, Mexico*), taking into account the presentations given earlier at the Workshop:

- What urgent protective actions were implemented, and when was their implementation completed?
- What early protective actions were implemented, and when was their implementation completed?
- What activities were implemented to characterize the situation and to support resumption of normal social and economic activity, and when were the preparations for this resumption completed?
- When were conditions ensured that allowed for the emergency to be terminated?

3.3. Part 3 (Day 3: 4:00-5:00 PM)

In the third Case Study, the emergency response to the radiological incident in Mexico in 2013, is presented and discussed, with the aim of analysing it in the context of transitioning to a planned exposure situation.

The purpose of this Case Study is for participants, in the context of past experience:

- To analyse the emergency response to this radiological incident against the guidance given in IAEA Safety Standards Series No. GSG-11;
- To identify different stages of response to the radiological incident;
- To analyse when the prerequisites for transition to a planned exposure situation were fulfilled, and when the emergency could be terminated.

Participants are asked to discuss and answer the following questions (provided in the Appendix under *Case Study Part 2 and Part 3: Analysis of the Fukushima Daiichi NPP accident and the radiological incident in Hueypoxtla, Mexico*), taking into account the presentations given earlier at the Workshop:

- What urgent protective actions were implemented, and when was their implementation completed?
- What early protective actions were implemented, and when was their implementation completed?
- What activities were implemented to characterize the situation and to support resumption of normal social and economic activity, and when were preparations for this resumption completed?
- When were conditions ensured that allowed for the emergency to be terminated?

4. FEEDBACK

Brief overview of the outcomes of the analysis of each specific emergency and milestones reached is presented following the discussion with participants. Thus, the participants receive feedback on their performance during each Case Study.

5. WORKING SESSION MATERIALS

As mentioned earlier, every participant will be provided with printouts of the forms containing the questions they need to answer prior to each Case Study. These forms are provided in the Appendix.

Appendix

CASE STUDY PART 1:

TRANSITION TO AN EXISTING OR A PLANNED EXPOSURE SITUATIONS?

QUESTIONS	Radiological Accident in Goiânia, Brazil	Nuclear Incident at Paks Nuclear Power Plant
1. Did the event involve a significant release of radioactive material into the environment calling for longer-term management of residual contamination?		
2. Did the event introduce a situation of exposure that differs from the one that existed before with regard to the public exposures?		
3. Would such an emergency exposure situation transition to a planned exposure situation or an existing exposure situation?		

CASE STUDY PART 2 AND PART 3:

ANALYSIS PF THE FUKUSHIMA DAIICHI NPP ACCIDENT AND THE RADIOLOGICAL INDICENT IN HUEYPOXTLA, MEXICO

QUESTIONS	Fukushima Daiichi NPP accident	Radiological incident in Hueypoxtla, Mexico
4. What urgent protective actions were implemented, and when was their implementation completed?		
5. What early protective actions were implemented, and when was their implementation completed?		
6. What activities were implemented to characterize the situation and to support resumption of normal social and economic activity, and when were preparations for this resumption completed?		
7. When were conditions ensured that allow for the emergency to be terminated?		