

ISOE EG-SAM Interim Report

Radiation Protection Training and Exercises Related to Severe Accident Management

**Report on behalf of the Sub expert
Group**

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CHAPTER 3- RADIATION PROTECTION TRAINING AND EXERCISES RELATED TO SEVERE ACCIDENT MANAGEMENT

Introduction

- Establishes the goal of radiation protection (RP) training and exercises related to Severe Accident Management (SAM)
- Represents group consensus (EG-SAM) on the international best practices in the subject area

Chapter Content

- Emergency preparedness program activities
- Development of training instructions
- Types of training
- Training and qualification requirements
- Radiation protection aspects related to SAM
- Managing administrative aspects of the training

Contributors for the chapter

- Sub-committee Chair: Salah DJEFFAL (CNSC, CANADA)
- Sub-committee members:
 - Ellen ANDERSON (NEI, USA)
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Chapter Conclusions

- SAM program should include a systematic identification of training needs
- Emergency workers/responders should be clearly identified, trained and qualified to undertake SAM tasks and responsibilities
- Training program for emergency workers/responders should:
 - address emergency actions within elevated radiation hazards
 - consist of an appropriate mix of classroom training, self-study, field demonstrations and emergency exercises/drills to enhance individual capabilities
- Drills and exercises should be sufficiently challenging and based on scenarios that realistically simulate postulated conditions present during an emergency
- Simulation tools with capability to simulate severe accident conditions should be used in the development of training scenarios, as available
- Training should take into account non-routine tasks under stressful situations and address actions within elevated radiation hazards
- For the emergency phase, ad-hoc or just-in-time training must be as practical as possible
- Results from emergency exercises and drills should be reviewed, analyzed and incorporated into the training program

Key topics & Discussion points (1)

- What can be done differently to improve emergency workers/responders training?
 - How RP training for SAM is different from what is done so far for design basis accident?
 - What training aspects should be considered and built into SAM planning?
 - What would be the minimum requirement for a comprehensive training and qualification program?
- How to fill RP training gap between well trained and supported NPP's on-site staff compared to off-site (fire fighters, paramedics, law enforcement officers, etc.)?
- Role and responsibility of NPPs, Federal and Provincial agencies in designing/developing and implementing RP training for SAM?
 - *A key here is the quote from chapter III "RP training program should be designed, supported by the NPPs in close collaboration with stakeholders and conducted either on-site or off-site."*
- How do NPPs licensees interface with off-site emergency agencies to ensure all emergency responders (fire fighters, paramedics, law enforcement officers, etc.) have adequate RP training?
 - *A key here is the quote from chapter III "RP training should be provided to on-site and off-site personnel assigned to emergency teams and positions, including identified alternates."*

Key topics & Discussion points (2)

- **IAEA Draft Safety Guide DS453: Occupational Radiation Protection**
 - Para 3.140 (BSS 3.110) detailed guidance on provision of information, instruction and training (Employers, in cooperation with registrants and licensees shall provide workers who could be involved in or affected by the response to an emergency with ...)
 - Para 4.19 specifies additional guidance for emergency workers in category 1 and category 2 (designated, prepared and trained in occupational radiation protection)
- **ICRP recommendations for the Protection of Emergency Workers**
 - ICRP 109 para 4 (12): All workers identified in an emergency plan should have appropriate training...
 - ICRP Committee 4: Protection of Responders in Nuclear Accidents and Radiological Events
- **CNSC REGDOC-2.10.1 Nuclear Emergency Preparedness and Response**
(expected to be published soon)
 - Incorporates international recommendations (IAEA, ICRP) for nuclear emergency training
- **Proposed Amendments to the CNSC Radiation Protection Regulations (RPRs)**
 - Under Section 7: **Provision of Information**; proposing addition of requirement for the provision of information/training related to emergencies

Sharing Practices and Experiences

- **Canadian Licensees are required to implement a Severe Accident Management (SAM) Program as a License Condition**
- **SAM program incorporated into emergency plans**
 - Systematic approach to training completed at all Canadian NPPs
- **Details of the program are described in CNSC Regulatory Guide REGDOC 2.3.2 *Accident Management: Severe Accident Management Programs for Nuclear Reactors***
 - Identification of information and training requirements for the operating staff and emergency teams
 - establish qualification, training, deployment and staffing numbers for the various organizational groups involved in the managements of severe accidents
- **SAM Program includes all aspects of managing emergency situations such as:**
 - Training & Exercises, Emergency Dose Projections, Equipment, Instrumentation, Monitoring & Contamination Controls, Facilities, Emergency Plant Recovery Operations, Communications, etc.
- **SAM Program regularly is regularly inspected and tested by the regulator (CNSC) to evaluate the effectiveness of the program**
- **Multiple drills and annual corporate Exercise are performed for training and preparedness purposes**
- **Post drill debriefings capture improvements to be included into the program as needed**



Thank you