

ISOE EG-SAM Interim Report

Facility Configuration and Readiness

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

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Chapter Overview

- The chapter presents a discussion of nuclear facility characteristics that must be considered when planning actions in response to a severe accident including:
 - site structure layout,
 - configuration and control of physical plant systems,
 - ability to control access during emergencies,
 - availability of installed and portable equipment necessary to evaluate radiological conditions,
 - offsite facility capability to manage and perform emergency related actions,
 - availability of necessary monitoring equipment and personnel protective equipment, and
 - adequacy of programs and procedures for emergency facility activation and control.

Chapter Subsections

- Facility Design Features
 - Facility Access Control Systems
 - Facility Habitability Controls during Severe Accidents
 - Communication Systems
 - Installed Radiation Monitoring Systems
 - Radiochemical Analytical Laboratory Capabilities
- Portable Emergency Response Equipment and Supplies
 - Personnel Protection Equipment
 - Emergency Dosimetry
 - Portable Radiation Monitoring and Sampling Equipment
- Information Systems to Facilitate Emergency Response

Chapter Contributors

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Chapter Terminology

- Certain terminology for facility systems and areas vary between countries
- Specific terminology for systems, reference areas, and equipment was selected for the report including:
 - MCR: Main Control Room
 - ECC: Emergency Control Center
 - EH: Emergency Headquarter
 - Onsite EH Facilities
 - Offsite EH Facilities
 - EPD: Electronic Personnel Dosimeter

Chapter Conclusions

- Severe accidents can significantly alter the habitability and use conditions of nuclear plant areas.
 - Individuals must be knowledgeable about areas where radiological conditions may change during severe accidents
 - Access control measures must be in place to ensure worker protection in the event of severe accidents
- In order to maintain operability during severe accidents, facilities should be designed to provide a safe environment for individuals and emergency equipment necessary to carry out mitigating duties for periods of time after and event.

Chapter Conclusions

- Site Command Facilities must have reliable means of communication with other working places involved in emergency response.
- Radiation protection emergency response individuals must be trained on how to interpret and use data from installed radiation detection systems during a severe accident
 - Models may differ during severe accidents
 - Alternate methods to interpret data may be required
- Radiochemical Analytical Laboratory facilities and systems should be designed to handle the range of radioactivity expected in liquid and solid samples during a severe accident.

Chapter Conclusions

- Portable emergency response equipment and supplies must be staged and protected to ensure their availability during severe accidents
 - Personnel Protective Equipment
 - External and internal dosimetry equipment and supplies
 - Portable radiation monitoring and sampling equipment

Key Topics & Discussion Points

- Types of severe accidents and their effect on facility radiological conditions
 - Impact on facility control rooms, general access areas, and critical system areas
- Methods to train workers in understanding the facility effects of severe accidents including their knowledge of:
 - Dangerous or “off-limit” areas,
 - Assembly points,
 - Emergency command and control centres,
 - Job briefing areas,
 - Critical plant system control areas,
 - Emergency equipment storage areas,
 - Key radiological and hazardous monitoring locations,
 - Radiological and chemical decontamination areas, and
 - Other designated key response areas on-site.

Key Topics & Discussion Points

- Types of warning and access control systems to implement during severe accidents
 - Communication and alarm systems
 - Zoning methods for workers during severe accidents
 - Positive access control systems
 - Electronic interlocks
 - Manual key control methods
- Facility habitability implications during severe accidents
 - Facility shielding
 - Ventilation systems
 - Potable water
 - Decontamination facilities

Key Topics & Discussion Points

- Staging and distribution methods for critical radiation monitoring equipment
 - Central versus multiple locations
- Radiation data analysis and decision making during severe accidents
 - Types of data available
 - Logistics of sample collection
 - Limitations of monitoring equipment due to severe accident conditions and source terms
 - Methods and models to interpret data due to severe accident source terms