

Occupational Radiation Protection during High Exposure Operations

Roles and Responsibilities on
Occupational Radiation Protection with High Exposure

Contents

1. Government
2.
 1. Registrants and licensees
 2. Operating organizations
3. Workers
4. Summary

1. Government

GSR Part 7 provides all the requirements to be complied with by the Government concerning emergency preparedness and emergency response within the country and with the surrounding countries if appropriate.

1. Government through the regulatory authority

The government through the Regulatory Authority shall ensure that arrangements are in place to assess emergency conditions and to take urgent protective actions and other response actions effectively in a nuclear or radiological emergency.

Emergency action levels (EAL) are defined as specific and predetermined criteria for observable conditions used to detect, recognize and determine the emergency class. Use of such levels is a very useful tool in such emergency conditions.

2.1. Registrants and licensees

The registrant or licensee shall be responsible for the implementation of their emergency plans and shall be prepared to take any necessary action for effective response.

The registrant and licensee shall:

- a) Develop, maintain and implement procedures to provide the means for preventing loss of control over the source and for regaining control over the source as necessary.
- b) Make available equipment, instrumentation and diagnostic aids that may be needed.
- c) Train and periodically retrain personnel in the procedures to be followed and exercise the procedures.

2.1. Registrants and licensees

The registrant or licensee shall prepare an emergency plan for the protection of people and the environment, if the safety assessment indicates that there is a reasonable likelihood of an emergency affecting either workers or members of the public.

The emergency plan shall include:

- a) Arrangements for the prompt identification of an emergency, and for determining the appropriate level of the emergency response.
- b) Provision for individual and area monitoring and arrangements for medical treatment.
- c) Arrangements for assessing and mitigating any consequences of an emergency.

2.2. Operating organizations

Establishing emergency management and operations

The operating organisation¹ should be responsible, as appropriate, for:

- Identifying and/or detecting an emergency or hazard
- Taking immediate action to mitigate the consequences of the emergency
- Protecting individuals on the site and within the area controlled by the operator
- Declaring the class of the emergency
- Notifying off-site officials and possibly providing them with recommendations on protective actions and technical assistance
- Establishing ongoing communication with off-site officials
- Assisting the off-site officials in keeping the public informed and countering incorrect information and inappropriate public reactions
- Providing initial radiological monitoring and technical advice

¹ **operating organization** is defined as any organization or person (the “operator”) applying for authorization or authorized to operate an authorized facility or to conduct an authorized activity and responsible for its safety

2.2. Operating organizations

Identifying, notifying and activating

On the basis of the hazard assessment, the operating organization of a facility or activity shall:

- make arrangements for promptly classifying, a nuclear or radiological emergency warranting protective actions and other response actions to protect workers, emergency workers
- upon classification, to promptly declare the emergency class and to initiate a coordinated and pre-planned on-site response
- to notify the appropriate contact points and to provide sufficient information for an effective off-site response.

2.2. Operating organizations

Taking mitigating action

The hazards assessments shall be used:

- a) as a basis for emergency classification;
- b) for deciding on protective actions and other response actions to be taken on the site, including those for the protection of workers;
- c) for deciding on mitigation actions to be taken by the operating personnel;
- d) where appropriate, to identify those who could potentially have been exposed on the site at levels requiring appropriate medical attention
- e) for deciding on protective actions and other response actions to be taken off the site;

2.2. Operating organizations

Taking mitigating action (cont'd)

The *operating organization** shall make arrangements to promptly make an assessment on:

- abnormal conditions at the facility;
- exposures and radioactive releases and releases of other hazardous material;
- radiological conditions on the site and, as appropriate, off the site; and
- any exposures or potential exposures of workers and emergency workers, the public and, as relevant, patients and helpers in an emergency.

Action items that nuclear operator should implement in advance

1. Establishment of safety and health management system

The nuclear operator should guide or assist contractors and sub-contractors so that the management for safety and health in the entire nuclear facility is appropriately performed:

- Appointment of supervisor in nuclear installation
- Appointment of the person in charge of the contractors concerned
- Establishment of council including all contractors concerned in radiation work
- Adjustment between the nuclear operator and contractors, contractors and sub-contractors
- Execution of workplace monitoring relating to doses (internal and external) of radiation and concentration of radioactive substance releases (air and water).

Action items that nuclear operator should implement in advance (cont'd)

1. Establishment of safety and health management system

- Improvement of working environment and instructions in the work based on the result
- Execution of the education including the radiation work to the new visitor
- Making or improvement of the work rule and the work plan including dose management and dose reduction of the workers
- Standardization of safety signage and warning alarms on site
- Prevention of heat stroke
- Measure on refuge and victim's transportation when accident or industrial accident occurs

Action items that nuclear operator should implement in advance (cont'd)

2. Strengthening of access control to nuclear installation of worker engaged in radiation work

The essential information on a utility and contractors worker's should be submitted and kept for dose management and entry management:

- Company name
- Name
- Date of birth
- Address and telephone number
- The latest result on health check for ionizing radiation
- Dose history

Action items that nuclear operator should implement in advance (cont'd)

3. Guidance or help to safety and health education

The routine safety and health education at the preparedness stage plays a major role to the correspondence in the effectiveness of implementing emergency response plans:

- Execution of education for the use of actual protective equipment and the protection clothes and the radiation survey meters
- Guidance on emergency reference levels for various tasks that are likely in the event of an emergency
- Execution of education for emergency measures and evacuation in accident
- Installation of safety and health education facility equipped with audio-visual materials

Action items that nuclear operator should implement in advance (cont'd)

4. Workplace monitoring

The nuclear operator should execute the workplace monitoring relating to doses of radiation and concentration of radioactive substance in air and water as part of the management of the nuclear installation. The result should be transmitted to all involved concerned so they are aware of the levels their employees might be exposed to.

5. Health check for ionizing radiation

The occupational medical service of the nuclear operator should give necessary guidance to the workers based on the result of a health check.

Action items that nuclear operator should implement in advance (cont'd)

6. Countermeasures when a radiation accident occurs

Measures on communication, evacuation, sheltering, victim transportation and the emergency system (including contractors concerned) when a radiation accident occurs, should be established and joint on-the-job (OJT) training with contractors concerned should be implemented.

Preparedness for urgent work

The operating organisations should make preparations for the case that urgent work become necessary in the nuclear installation. Preparations should include :

- 1) Radiation management
- 2) Health care and medical care system
- 3) Individual Protective equipment and protection clothes
- 4) Work report and understanding of the communication system

Preparedness for urgent/emergency work

1) Radiation management

- Construction of dose management system
- Distribution of personal dosimeter
- Dosimeter circulating management
- Dose records reporting
- Execution of internal and external exposure measurement
- Workplace monitoring
- Information and consent on risks involved in HEO

Preparedness for urgent/emergency work (cont'd)



2) Health care and medical care system

- Make available a system of transport of patients from the nuclear installation
- Maintenance of medical care system in the nuclear installation during emergency operations
- Execution of temporary health check up during emergency operations
- Measures to prevent heat stroke during emergency operations
- Execution of appropriate long-term health care

Preparedness for urgent/emergency work (cont'd)

3) Personal protective equipment and protection clothes

- Protection of internal exposure from radioactive substances in the air
- Thoroughness in appropriate installation (and removal) of mask
- Prevention of intake of internal contamination due to surface contamination or contaminated liquids
- Execution of appropriate worker's training

4. Workers

Workers shall fulfil their obligations and carry out their duties for protection and safety. (GSR Part 3 Requirement 22)

The obligations of workers relate to: following of rules and procedures, the use of monitoring equipment and personal protective equipment, cooperation in health surveillance and dose assessment programmes, and acceptance of instruction and training.

The role of the emergency worker should be confirmed beforehand. All workers confirmed in the plan in the emergency should accept appropriate training to execute their role in emergency.