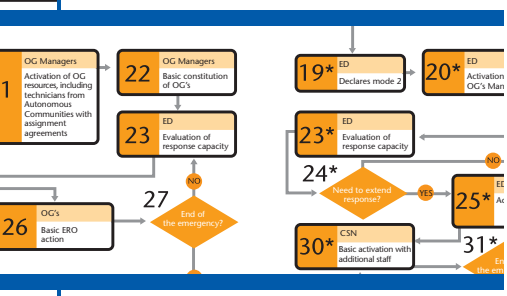
Spanish Nuclear Safety Council Emergency Response Organisation and Action Plan

CSN



Spanish Nuclear Safety Council
Emergency Response Organisation and Action Plan

Spanish Nuclear Safety Council Emergency Response Organisation and Action Plan

CSN CONSEJO DE SEGURIDAD NUCLEAR

Published and distributed by:
Spanish Nuclear Safety Council
C/ Pedro Justo Dorado Dellmans, 11. 28040 Madrid. España
www.csn.es
peticiones@csn.es

Type setting: base 12 diseño y comunicación s.l.
Printed by: ELECÉ, Industria Gráfica, S.L.
Legal deposit: M-49.671-2007

Table of Contents

1. Introduction

The management of nuclear and radioactive emergencies in Spain is regulated by the National Civil Defence System and the requirements for the use of nuclear energy and ionising radiations.

From the point of view of civil defence, the general principles of the organisation, the responsibilities and the rights and obligations of the public, the public administrations and the licensees of the practices in relation to the planning and preparation for and response to emergency situations, are established along with the emergency plans for off-site interventions when accidents at the installations have an impact on third-parties.

From the perspective of nuclear regulation the emergency plans are required for each radiological practice and specific criteria are established in relation to intervention levels and techniques and to the protection measures on which the plans are based. In addition, certain activities that are not booked at the nuclear or radiological regulations but that imply a radiological risk have action plans to address emergency situations.

Given the specific nature of nuclear and radiological emergencies, the Spanish Nuclear Safety Council undertakes a series of functions in this area that transcend its realm of competence as a nuclear regulatory authority.

In order to be able to carry out these functions with the efficiency and effectiveness, the Spanish Nuclear Safety Council (CSN) has an emergency organisation complementary to its normal working organisation. The operational structure of this organisation is headed by the President, who undertakes its management and takes the decisions, and includes the participation of the technical and logistics units, in accordance with an action plan established specifically for emergency situations, activated depending on the level of severity of the emergency.

The CSN emergency organisation operates from an Emergency Room (Salem) that is on permanent alert and has a stand-by emergency team capable of responding to an emergency situation in less than one hour. The Salem is equipped with communications systems and assessment tools, suitable for advice to be provided to the directors of the emergency plans on the level of off-site response that should be activated, on the evolution of the accident, its potential consequences and the protection measures to be implemented.

The own capacities of the CSN are complemented with external support provided by specialized public and private entities with means and resources suitable for performance of the activities required for preparation, maintenance of capabilities and intervention in the event of an accident.

The CSN Emergency Action Plan includes a training plan for its staff, included within the overall framework of the training plan for participants in the emergency plans of the facilities and the areas in which these installations are located. Likewise, the CSN Emergency Action Plan contains a programme of exercises and drills of internal, national and international scope that allows the operability of its technical capacities to be checked periodically and the appropriate improvements to be made.

2. Legal framework

The Law Creating the Spanish Nuclear Safety Council[1], modified by the Law on Fees and Public Prices for Services Rendered by the Nuclear Safety Council[2], sets out in its article 2 the functions of the CSN and, in sections f) and p), specifically establishes the functions of this Organisation in relation to emergency plans:

f) To collaborate with the competent authorities in drawing up the criteria to be fulfilled by the nuclear emergency and security plans applicable to nuclear and radioactive facilities and transport and, following the preparation of such plans, to participate in their approval.

   For all aspects relating to nuclear safety and radiation protection, to coordinate the support measures and response to emergency situations, integrating and coordinating the different organisations and private or public companies required to intervene to ensure compliance with the functions attributed to this Organisation.

   Likewise, to carry out whatever other emergency activities might be assigned to it by the applicable regulations.

p) To inspect, assess, control, report and propose to the competent authority the adoption of whatever preventive and corrective measures might be required to respond to exceptional or emergency situations potentially affecting nuclear safety and radiation protection, whenever such situations arise in installations, equipment, companies or activities not subject to the system of authorisations of the nuclear legislation.

These legal precepts have been developed through different legislative instruments[3, 4, 5, 6, 7, 8] that define in detail the functions corresponding to the Spanish Nuclear Safety Council (CSN) in relation to the regulation, preparation, implementation and activation of nuclear and radiological emergency plans. Table 1 summarises these functions.

---

[1] Law 15/1980, of April 22nd, Creating the Nuclear Safety Council.

[2] Law 14/1999, of May 4th, on Fees and Public Prices for Services Rendered by the Nuclear Safety Council.

[3] Royal Decree 1836/1999, of December 3rd, approving the Regulation on Nuclear and Radioactive Facilities.

[4] Royal Decree 783/2001, of July 6th, approving the Regulation on Protection Against Ionising Radiations.

[5] Royal Decree 387/1996, of March 1st, approving the Basic Directive on Risk in the Transport of Hazardous Goods.

[6] Royal Decree 1546/2004, of June 25th, approving the Basic Nuclear Emergency Plan.

[7] Royal Decree (pending publication) approving the Basic Directive on the planning of civil defence in the presence of radiological risk.

[8] Agreement of the Cabinet of Ministers, of October 1st 1999, relating to public information on the health protection measures applicable to and procedures to be adhered to in the event of a radiological emergency.

This basic legal framework is complemented by the international commitments on prompt notification and mutual assistance in the event of an accident, subscribed by Spain and requiring the direct participation of the CSN[9].

Table 1
CSN functions in the different phases of nuclear and radiological emergency plans

Standards Development	• Proposing to the authorities the basic standards regulating nuclear and radiological emergency plans. • Establishing the radiological criteria serving as a basis for emergency plans. • Issuing the technical standards required for the drawing up of emergency plans. • Issuing guidelines and recommendations for the drawing up, implementation and activation of emergency plans.
Planning	• Collaborating with the authorities in the drawing up and development of emergency plans of public responsibility. • Licensing and controlling the emergency plans of the licensees of nuclear or radioactive facilities or activities. • Drawing up CSN own emergency response plan.
Implementation	• Collaborating with the authorities in the definition and selection of means and resources to be made available to emergency plans of public responsibility. • Contributing to the provision and maintenance of means and resources for emergency plans of public ownership. • Cooperating with the authorities in providing preliminary information to the public about health protection measures and the behaviour in the event of an emergency, as well as in training responders. • Verifying the capacities of the emergency plans of the licensees of nuclear or radioactive facilities or activities. • Providing and ensuring the continued operability of means and resources required to guarantee the operability of the CSN emergency action plan.
Activation	• Providing advisory services to the authorities on the protection measures to be implemented in the event of an emergency. • Collaborating in the implementation of protective measures in the event of an emergency and in the management of information and protection instructions for the population actually affected.

[9] Conventions on the Early Notification of a Nuclear Accidents and Assistance in the Case of a Nuclear Accident or Radiological Emergency (Vienna, September 26th 1986). Ratification instrument published in the Official State Gazette (BOE) on 31/10/1989.

3. Scope and Field of Application

The present document describes the Emergency Response Organisation (ERO) of the CSN and the nuclear and radiological Emergency Action Plan (EAP), including a schematic description of the intervention of the members of this organisation, their relationsship and guidelines of their initial and on-going training.

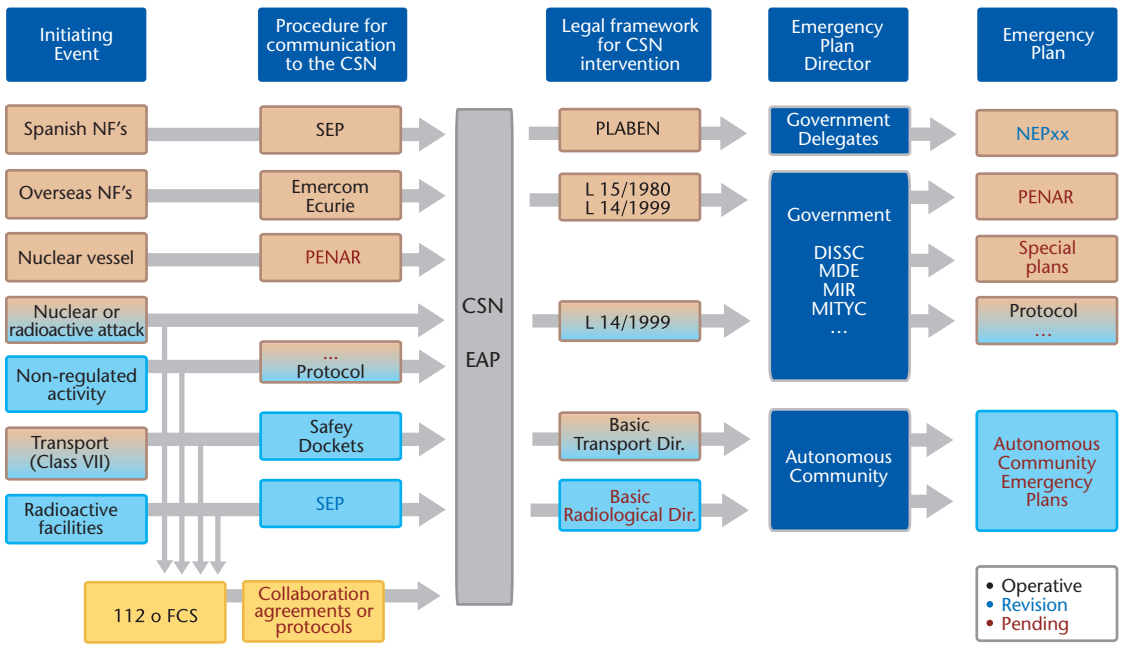
The contents of this document will be suitably developed in detail in the Organisation's internal procedures, especially in those relating to the intervention of the ERO Operating Groups.

The ERO and the EAP described in the present document shall be applicable to emergencies requiring a centralised response with support at national level, as defined in the Basic Nuclear Emergency Plan, and to those emergency situations that require a response and support within a smaller administrative and territorial framework, in accordance with the Basic Directive on risk in the transport of hazardous goods and the future Basic Directive on the planning of civil defence in the event of radiological risk.

The present EAP is applicable to emergency situations arising as a result of on-site events at Spanish nuclear and radioactive facilities, and is to be updated as the corresponding regulatory framework associated with emergencies at other installations or in other activities is developed.

Table 2 includes a list of the events in which the intervention of the CSN's ERO might be required:

Table 2. Accidents activating the EAP



4. Emergency Response Organisations

4.1 Basic functions

The Emergency Response Organisation (ERO) is the operating structure established by the CSN to undertake the corresponding functions in the event of a nuclear or radiological emergency, for which it is equipped with suitable human and technical resources and operating procedures.

The activities of the ERO during an actual emergency situation take priority over any other CSN activity. Consequently, whenever the Emergency Management considers it necessary, all and any of the Council's resources shall be made available to the ERO and any other activity being performed shall immediately be suspended.

The ERO acts independently of the regulatory and control function assigned to the CSN and shall have the following exclusive functions:

- Collaborate in taking the emergency situation to safe conditions.
- Contribute to mitigate the radiological consequences generated by the accident causing the emergency situation on people, property and the environment.
- Inform and advise the authorities in charge of directing the applicable emergency plan about the measures to protect the population.
- Inform the population about the risks associated with the emergency situation.
- Ensure compliance with the international commitments regarding prompt notification and mutual assistance as these affect the CSN.

The ERO shall provide all the information that it might acquire during its interventions to the investigations and inquiries carried out by the CSN to gain insight into the causes of an accident and clarify the responsibilities that led to the emergency situation, such investigations and inquiries being performed in all cases by the ordinary structure of the Council.

All the means and resources required for the activities of the ERO shall be provided by the CSN from its budget and assets in accordance with the applicable budgeting and financial provisions. The Secretariat General of the CSN will provide adequate and updated procedures for urgent situations ensuring extraordinary means and resources necessary for the activities of the ERO.

4.2 Organisational structure of the ERO

The hierarchical structure of the ERO rests on the principle of a single command and is complementary to the ordinary organisation of the CSN. Figure 1 shows the organisational structure of the ERO.

The ERO is structured on the following three hierarchical levels:

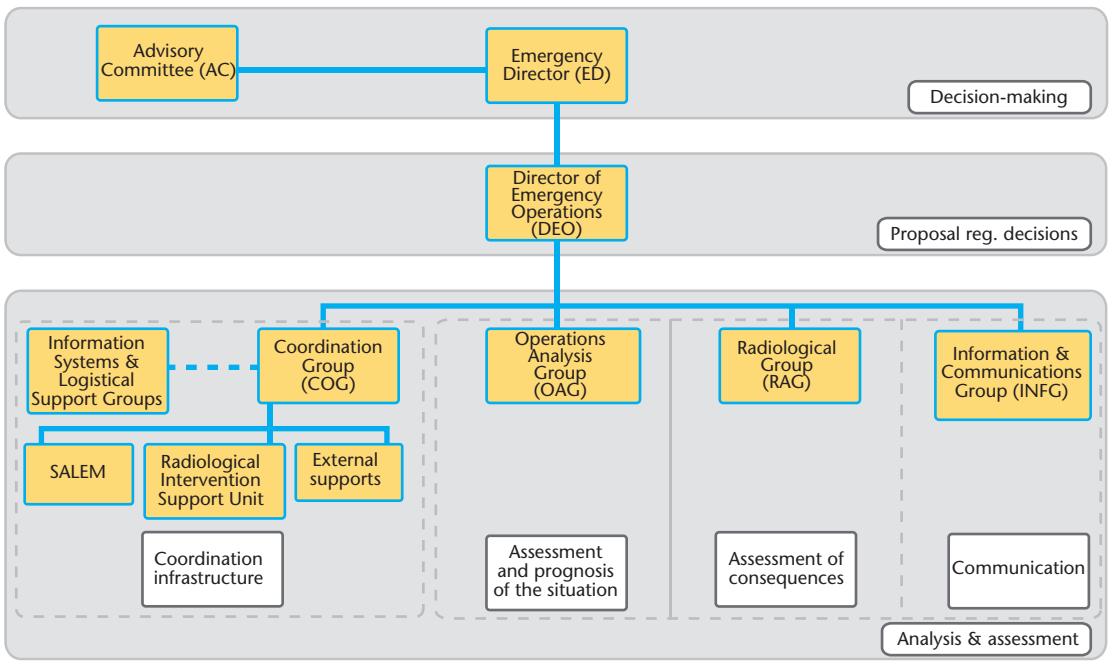
- The Emergency Director (ED), with advice from a committee made up of the Board of the CSN, is responsible for directing the ERO, taking decisions and transmitting CSN recommendations to the management of the applicable emergency plan, as well as for cooperating with the authorities in providing information to the public.

- The Director of Emergency Operations is responsible for coordinating all the activities performed and for drawing up the proposals for recommendations to be submitted by the ED to the management of the applicable emergency plan.

- The Operating Groups are responsible for carrying out the technical activities required to draw up the recommendations to be submitted by the ED to the management of the applicable emergency plan, for activating and coordinating the intervention teams and for preparing the information to be communicated externally.

The structure of the ERO may vary depending on the severity, complexity and duration of the emergency, and is adapted to different levels of response as regards the composition of the intervening personnel: permanent (Salem), reduced (stand-by teams), basic and extended.

Figure 1
Organisational structure of the ERO



The responsibilities, functions and composition of each of the operational agents of the ERO are described below:

4.2.1 Emergency Director (ED)

The mission of the ED is to direct the ERO, inform and advise the Director of the Off-Site Emergency Plan regarding the application of protection measures, inform the authorities of the situation and cooperate with them in providing information to the population potentially and actually affected by the emergency.

The function of the ED is covered by the Chairman of the CSN[10], who is replaced in the event of absence or unavailability, either scheduled or not, by the Vice-Chairman of the CSN, and the latter by the commissioners in order of seniority or, if this were to coincide, of age.

At weekends and during holiday periods, the ERO has a senior stand-by team (ED Stand-by Team) that guarantees the availability of a member of the Board to ensure the continuity of the ED's function where necessary. The operating regime of the aforementioned stand-by team is established in an internal procedure approved by the Plenary of the CSN (see annex 1).

The ED is responsible for the following:

- Ensuring the complete operability of the ERO.
- The activities of the ERO in Response Modes 2 and 3. (See the different response modes in section 5.1 of this document).
- Approval of the recommendations and information drawn up by the ERO.
- Timely and adequate transmission of approved recommendations to the authority responsible for implementation of the applicable emergency plan.

The specific functions of the ED are:

- General direction of the ERO in emergency situations, deciding on its activation, level of response and deactivation.
- Declaring Response Modes 2 and 3.
- Approving the proposals of the DEO where appropriate.
- Ordering the DEO to implement the decisions adopted.
- Informing and advising the competent authorities responsible for protection of the population.
- Calling upon the Advisory Committee (AC) on declaration of Response Mode 3 in the event of a nuclear emergency, Mode 2 with the activation of additional technical personnel in the event of a radiological emergency or whenever else he/she considers this to be necessary.

[10] The sole authority acting on behalf of the Council, in accordance with the Spanish Nuclear Safety Council Agreement reached on May 31st 2001 (BOE of June 26th), delegating the exercising of certain competences in relation to the measures to be adopted in the immediate and urgent phase of situations of radiological emergency.

4.2.2 Advisory Committee (AC)

The AC is made up of the members of the Board of the CSN who participate in monitoring of the emergency situation when not acting as ED.

The mission of the Advisory Committee is to advise the ED in decision-making in Response Mode 3 in nuclear emergencies, in Mode 2 in radiological emergencies with the activation of additional technical personnel or whenever the ED considers this to be necessary, and in general to collaborate with the ED in the performance of the functions assigned to him/her.

The AC shall support the ED in order to ensure the complete operability of the ERO.

4.2.3 Director of Emergency Operations (DEO)

The mission of the DEO is to coordinate the activities of the ERO and propose to the ED the protection measures to be recommended to the Emergency Plan Director.

The DEO is the Technical Director of Nuclear Safety or the Technical Director of Radiation Protection, taking turns throughout the emergency and beginning with:

- The manager of the Technical Division responsible for the licensing and control of the regulated facility or activity involved in the accident.
- The Technical Director of Radiation Protection if the accident involves a non-regulated facility or activity.

In the event of absence of the DEO, his functions shall be undertaken by the Manager of the Stand-by Team.

The DEO shall be responsible for the following:

- The activities of the ERO in Response Mode 1
- Submit to the ED proposals of protective actions and plans to guarantee the protection of the population and the environment.
- Directing the ERO's operational activities.

DEO specific functions are:

- Undertaking the functions of the ED in Response Mode 1, in other modes in the absence of the ED or whenever the latter explicitly delegates such functions to him.
- Declaring Response Mode 1.
- Informing the ED of the emergency, its evolution, its actual or foreseen consequences, and the progress of the operations performed in responding to it.
- Proposing to the ED the activation of the emergency response organisation, the applicable response mode and its updating in accordance with the evolution of the situation.

- Proposing to the ED recommendations regarding protection measures and any decision resulting from the analyses and evaluations of the Operating Groups.
- Proposing to the ED what information should be communicated to the authorities.
- Transmitting to the exterior the decisions adopted by the ED, whenever this function is expressly delegated in him.
- Directing the operational structure, executing the orders of the ED.

4.2.4 Operating Groups (OG's)

The Operating Groups constitute the technical structure of the ERO and select, adapt, implement and maintain their own working tools. In the event of an emergency, the DEO decides which Operating Groups will be activated depending on the nature and scope of the emergency.

During the emergency, the Operating Groups will follow the procedures described in this EAP.

The composition, responsibilities and generic functions of all the OG's are described below:

Each Operating Group includes:

- A Group Manager, who is normally required to be the Deputy-Director whose functions in the ordinary organisation are closest to the mission of the Group. The DEO will assign in each case the person to replace him when necessary, preferably from among the sub-directors, deputy sub-directors, coordinators and area managers of the sub-divisions involved.

- A Deputy Group Manager, who is normally the Area Manager whose ordinary functions are closest to the functions of the Group. If necessary, the Deputy Group Manager will be replaced preferably by another Area Manager having similar ordinary functions.

- Specialist technicians from the organisational units of the CSN whose ordinary functions are close or similar to those assigned to the Operating Group and who, in the opinion of the Manager, are required for the performance of the Group's functions.

- External supports foreseen by the CSN to cover areas of speciality or needs not covered by its ordinary resources.

The members of the Operating Groups have the following generic responsibilities:

The group managers are responsible for:

- Selection, updated and operative maintenance of the tools required for performance of the specific functions assigned to their respective groups.
- Drawing up and updated maintenance of the specific procedures of the group, which should include the applicable parts of this document.
- Planning of the operative and training requirements specific to their respective groups.

- Direction and supervision of the work of the group.
- Submittal to the DEO proposals arising from the activities of their respective groups.
- Providing information to the Emergency Management when it is required.
- Decisions regarding the human resources required for their groups, depending on the Response Mode declared.

During the emergency the group managers may propose that they be replaced, the final decision in this respect resting with the DEO.

The deputy group managers are responsible for ensuring communications between their group and the rest of the operating groups and for collaborating with the Group Manager in the performance of his tasks.

Specialist technicians of each Operating Group are responsible for the following:

- Participation in maintaining the operability of tools, development of procedures and specific training applicable to their respective Operating Groups.
- Analysis and evaluation of aspects of the situation relating to their speciality.
- Preparation of proposals to be submitted to the DEO by their respective Operating Groups.

Each Operating Group shall have the following generic functions:

- Drawing up and submittal the proposals resulting from the performance of their functions.
- Providing information to the DEO on the actions of the group and their results.
- Compliance with the orders of the DEO.
- Providing information on their activities to the other Operating Groups.
- Others functions related to their speciality.

The composition, responsibilities and specific functions of each Operating Group are described below:

4.2.4.1 Operations Analysis Group (OAG)

The mission of the Operations Analysis Group is to analyse the causes of the accident and to forecast its possible future evolution, informing the DEO about the measures that should be adopted to take the emergency situation to a safe condition, bearing in mind that the responsibility for taking decisions and applying appropriate measures to ensure this corresponds to the facility.

OAG activation will not normally be necessary in case of radiological emergencies.

The OAG is made up of the following members:

- The Manager of the OAG is the Deputy-Director of Engineering.
- The deputy manager of the OAG is the Head of the Nuclear Systems Area.
- In the Reduced Response Mode the composition of the OAG is guaranteed by the specialist technicians on stand-by assigned to the group.
- In the Basic Response Mode the OAG may include technicians specialising in:
  - Nuclear systems.
  - Auxiliary systems.
  - Electrical systems.
  - Mechanical and structural design.
  - Accident analysis.
  - PSA or human factors.
- The composition of the OAG in the Extended Response Mode includes the participation of any technician from the NSD.
- The OAG includes a Displaced Technical Team in the facility that has suffered the accident, made up of specialist technicians from the NSD considered necessary in view of the characteristics and the evolution of the accident.

OAG specific responsibilities are:

- Maintaining the rest of the ERO informed about the operational situation of the affected facility and the possible evolution of this situation.

OAG specific functions are:

- Monitoring of the operational development of the affected facility.
- Diagnosis of the causes and severity of the accident and of the availability of systems and resources required at the facility to take it to a safe condition.
- Confirmation, in accordance with the onsite emergency plan of the facility and the diagnosis performed, of the category of the event communicated by the licensee.
- Forecasting of the most probable evolution of the situation.
- Collaboration with the Radiological Group in determinating the extent and nature of actual and potential radioactive releses (source term).

4.2.4.2 Radiological Group (RAG)

The mission of the Radiological Group is to analyse the radiological situation generated by the accident, to propose to the DEO adequate protective measures to mitigate its radiological consequences for population, property and the environment and to collaborate in the implementation of such measures.

The RAG is made up of the following members:

- The Group Manager is the Deputy-Director of Environmental Radiation Protection or the Deputy-Director of Occupational Radiation Protection, depending on the nature of the emergency.

- The deputy manager of group is the Head of Radiological Impact Assessment Area or a Head of Operational Radiation Protection Area, depending on the kind of emergency.
- In the Reduced Response Mode the composition of the RAG is guaranteed by the specialized technicians belonging to the stand-by team assigned to this group.
- Depending on the nature of the emergency, in the Basic Response Mode the RAG may include the participation of technicians specialising in:
  - Meteorology.
  - Radiological consequences of accidents.
  - Environmental radiological surveillance.
  - Treatment and surveillance of effluents and wastes.
  - Operational radiation protection.
  - Dosimetry.
- In the Extended Response Mode the composition of the RAG includes the participation of any technician belonging to the RPD.

RAG specific responsibilities are:

- To propose to the DEO the adequate protective measures to protect the public, responders, property and the environment against the radiological risks arising as a result of the accident that has given rise to the emergency.

RAG specific functions are:

- To gather and analyse information about the radiological situation in the facility.
- To characterise the radiological situation when there is no organization responsible for such characterisation.
- To collaborate in characterising the radiological situation and following up its evolution when there is a responsible organization for this function.
- To assess the radiological risks of the accident and, where appropriate, propose the specific intervention levels applicable.
- To propose to the DEO the protection measures for the public and, where appropriate, for responders.
- To provide support to the Radiological Group of the applicable Nuclear Emergency Plans (deriving from the Basic Plan for Nuclear Emegencies) with the CSN resources available.
- To transmit to the Manager of the Radiological Group of the applicable Nuclear Emergency Plan whatever operating information might be of use for its intervention, and to receive from this Manager information about the measures adopted and implemented and the activities of his group.

4.2.4.3 Information and Communications Group (ICG)

The mission of the Information and Communications Group is to provide the other participants in the ERO and the organisations with which the CSN has prompt notification commitments the information about the facility or place of the accident necessary for the performance of their functions. Likewise, the ICG is in charge of preparing the information on the emergency that, in compliance with the functions assigned to the CSN, is to be provided to the media and the public.

ICG composition is as follows:

- The Group Manager is the Deputy-Director responsible for the licensing of the corresponding facility or activity.
- The ICG has two group deputy managers:
  - Person responsible for Technical Information, who shall be the Project Manager or the Manager of the Area in charge of licensing of the facility or activity affected by the accident.
  - Person responsible for Public Information, who shall be the PTO Manager.
- In the Reduced Response Mode the composition of the ICG is guaranteed by the specialized technicians belonging to the Stand-by Team assigned to the group.
- In the Basic Response Mode the ICG includes the participation of the following persons:
  - The Project Manager responsible for the licensing of the facility or activity that has given rise to the emergency or a technician appointed by the ICG Manager.
  - Two specialists in Information or Communications.
- If it were necessary to increase the composition of the ICG, the following may be incorporated:
  - Technicians of the Deputy-Directorate in charge of licensing the facility or activity that has given rise to the emergency.
  - The PTO personnel.

ICG responsibilities are as follows:

- To provide the ERO with all the available information about the facility affected by the accident.
- To prepare reliable information to be transmitted to International Organisations, other countries and the general public on the accident giving rise to the emergency.

ICG specific functions are as follows:

- To supply the rest of the ERO and the DEO with operational engineering and design information about the facility, its organisation and its environment.
- To transmit technical information about the accident, in appliance of the bilateral or international agreements in force regarding prompt notification in the event of nuclear accidents or radiological emergencies and the prompt exchange of information at international level in such situations.
- To prepare public information corresponding to the Council in accordance with the agreements in force and in collaboration with those responsible for the applicable off-site emergency plans, on the basis of the available technical information, for which purpose the quickest possible procedures shall be set up.
- To coordinate the response to requests for information from the media within the framework of competences assigned to the CSN.

4.2.4.4 Coordination Group (COG)

The mission of the Coordination Group is to keep the ERO infrastructure fully operative and to ensure the flow of information between all its agents and between these and the exterior.

The Deputy-Directorate for Emergencies, through the Emergency Operations Coordination Area (EOCA), is assigned among others the function of maintaining and operating the Salem and of managing the emergency stand-by team, as a result of which the activities and responsibilities of the COG are closely linked to the operation of the SEM.

The COG is made up of the following:

- The Manager of the COG is the Deputy-Director for Emergencies.
- The Deputy Manager of the Group is the Head of the Emergency Operations Coordination Area, who is replaced where necessary by another SEM Manager, as determined by the COG Manager.
- In the Reduced Response Mode the composition of the COG is guaranteed by the specialist technicians belonging to the Stand-by Team assigned to the group.
- In the Basic Response Mode the COG includes the participation of the following:
  - An Area Manager and the Technical Coordinator of the SEM.
  - A technician specialising in emergency plans.
- If it were necessary to extend the composition of the COG, all the technicians belonging to the SEM may be incorporated.

The specific responsibilities of the members of the COG are as follows:

- To maintain the Salem on permanent and operational alert in any response mode.
- The Manager or Deputy Manager of the COG, or the members of the COG stand-by team, depending on each individual case, shall act as managers of the Salem and undertake responsibility for the activities determined in the following section.

The specific functions of the COG are as follows:

- To maintain the ERO on permanent alert (Response Mode 0), receiving and adequately distributing the information received on possible incidents.
- To ensure the operability of the Salem infrastructure.
- To activate and facilitate the constitution of the ERO in the terms determined by the DEO.
- To implement the systems required for the Salem operation.
- To advise the DEO on the application of the on and off-site emergency plans, the capacities of the ERO and the application of its Emergency Action Plan.
- To activate and coordinate the internal support groups (Radiological Intervention Support Unit and Information Systems and Logistics Groups) and external support groups.

4.2.4.4.1 Emergency Room (Salem)

The main function of the Emergency Room is to operate as the centre of operations of the ERO in emergency situations.

The Salem will be on permanent alert 24 hours a day every day of the year, manned by at least an Assistant Salem Technician with the support of the technical staff of the COG.

The Manager or Deputy Manager of the COG, or the members of the COG stand-by team, will act as managers of the Salem and undertake responsibility for its activities.

4.2.4.4.2 Radiological Intervention Support Unit

The mission of the Radiological Intervention Support Unit is to characterise the radiological situation when there is no operating structure in situ.

In order to fulfil this mission, the unit will have specialized technicians assigned to the stand-by team and the radiation protection technicians of the Autonomous Communities that have Assignment Agreements in this respect, and will act in coordination with the Radiation Protection Technical Unit supporting local emergency management contracted for this purpose.

This unit is managed and coordinated by the COG.

4.2.4.4.3 Information Systems Support Group (INFG)

The mission of the Information Systems and Logistical Support Group is to ensure the operability of the CSN's corporate computers' system in the event of an emergency, providing feasible alternatives guaranteeing compliance with the basic functions of the ERO and providing technical support to ensure the correct operation of the information and communications equipment and systems specifically used by the different operating groups.

The INFG is made up of the following persons:

- The INFG Manager is the Sub-Director General of Planning, Information Systems and Quality.
- The Deputy Manager of the INFG is the System and Communications Area Manager.
- In the Reduced Response Mode the composition of the INFG is guaranteed by the specialists belonging to the stand-by team assigned to the group.
- In the Basic Response Mode the INFG includes the participation of an Area Manager or SIC Service Manager and, if it were necessary to extend the composition of the INFG, the SIC personnel determined by the group manager will also participate.

Responsibilities:

- To ensure the operating capacity of the corporate information systems and provide technical support ensuring the operability of the equipment and systems installed in the Salem and specifically used by the Operating Groups.

INFG specific functions are:

- To ensure the operating capacity of the corporate information systems, providing, where necessary, an alternative complementing the ordinary capacities of the Salem, and provide

technical support ensuring the operability of the equipment and systems installed in the Salem and specifically used by the Operating Groups. One aspect or another of this function will be applied, depending on each individual case and as determined in the corresponding procedure, to the following:

- Local network and communications system required to operate the systems of the Salem.
- Salem systems (hardware and software).
- Specific systems (Internet access, e-mail,...).
- Computers' system assistance to the Salem users.

4.2.4.4.4 Logistical Support Group (LOGG)

The mission of the Logistical Support Group is to ensure the availability of the logistical resources required for operation of the ERO or to provide feasible alternatives guaranteeing the fulfilment of its basic functions, as well as guaranteeing the security of the ERO.

The LOGG is made up of the following persons:

- The Manager of the LOGG is the Deputy-Director of Personnel and Administration.
- The Deputy Manager of the LOGG is the General Services Area Manager.
- In the Reduced Response Mode the composition of the LOGG is guaranteed by the specialists belonging to the stand-by team assigned to the group.
- In the Basic Response Mode the LOGG includes the participation of the following:
  - An Area or PAS Service Manager.
  - A PAS Maintenance Technician.
- If it is necessary to extend the composition of the LOGG, the group manager will decide the PAS personnel that would participate.

The specific responsibilities of the members of the LOGG consist in to ensure the operating capacity of the logistical resources of the ERO or to provide alternatives.

LOGG specific functions are:

- Economic and financial management of the response operations.
- Ensuring the operating capacity of the Salem or to providing an alternative complementing its ordinary capacities, in relation to the following:
  - Ensuring electricity supply and normal telephone services.
  - Ensuring the habitability of the Salem (air-conditioning, ventilation,...).
  - Managing transport and board for deployed technical teams.
  - Managing the upkeep of the ERO overall in the event of prolonged response actions.
  - Managing the urgent acquisition of extraordinary means and nuclear safety resources.

The LOGG will also have at its disposal personnel from the CSN Security Service, the aim is to guarantee the security of ERO activities in keeping with the CSN Security Plan (access control to the CSN building, surveillance of the Salem, security of displacement, journeys…).

4.2.4.4.5 ERO Stand-by Team

The mission of this team is to ensure that the ERO is able to respond quickly and suitably in emergency situations.

Composition:

- One member of the Board of the CSN, changed weekly (ED Stand-by).
- Six stand-by groups rotating weekly, each made up of the following:
  - One Stand-by Group Manager, who is one of the Sub-Directors General.
  - Three OAG technicians (two specialists in nuclear safety and one deployed technician).
  - Two RAG technicians (two specialists in radiation protection).
  - Three ICG technicians (one specialist in nuclear facilities, one specialist in radioactive facilities and one specialist in information and communications).
  - One COG technician (specialist in emergency plans).
  - Two technicians from the Radiological Intervention Support Unit (specialists in *in situ* radiological interventions).
  - Two maintenance technicians (Information Systems and Infrastructure).

Responsibilities:

- The members of the stand-by team must be capable of setting up the ERO in the reduced response mode in less than one hour.
- The management of the stand-by teams corresponds to the Deputy-Directorate for Emergencies.

Functions:

- To permanently ensure the constitution of the ERO in reduced response mode.
- To provide an adequate response during the initial moments of the emergency situation (Response Mode 1) and until such time as the ERO is constituted in basic or extended response mode (Response Modes 2 or 3).

4.2.4.4.6 External Supports

The mission of the external supports is to provide the ERO with the complementary capacities required for its activities and that are not part of the habitual means and resources of the CSN.

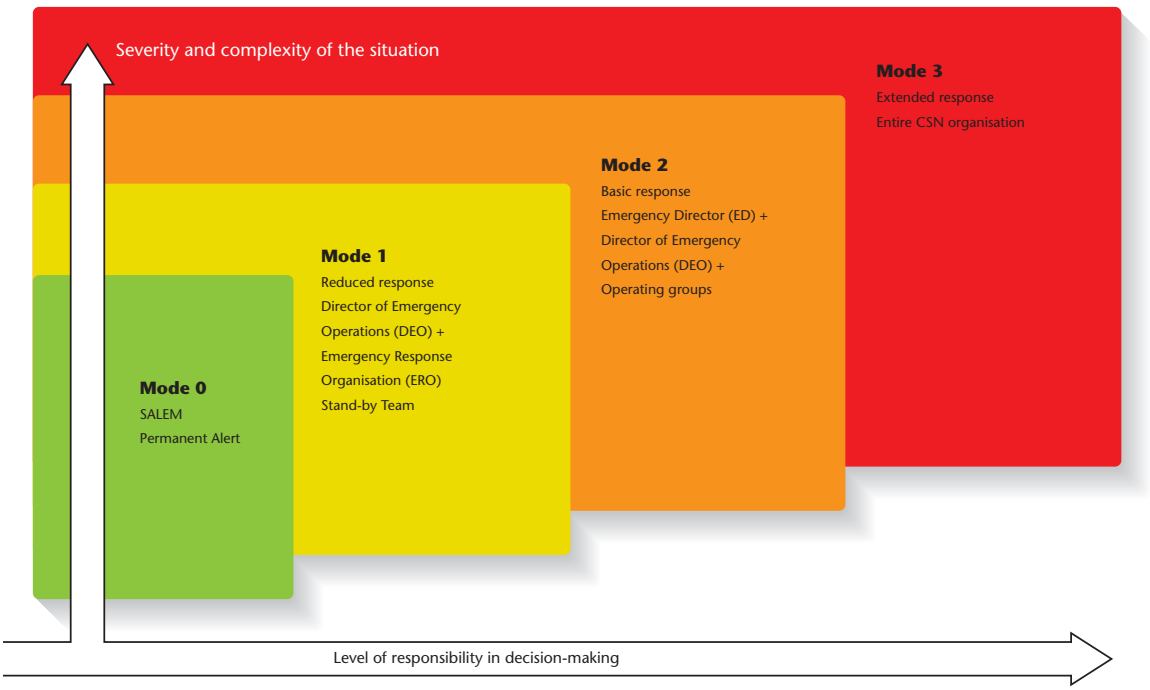
Such support is managed by the COG and may be activated in any Response Mode on decision of the DEO (Modes 0 or 1) or ED (Modes 2 or 3).

5. Emergency Action Plan (EAP)

5.1 ERO response modes and emergency declaration criteria

The ERO may act in four different Response Modes (from 0 to 3). It is permanently activated in alert status in Mode 0 through the operation of the Salem and is activated in the other three Response Modes depending on the severity, complexity or duration of the emergency. Figure 2 shows the different Response Modes of the ERO.

Figure 2



The criteria for declaration of the Response Mode in nuclear emergencies are based on the radiological consequences that might occur, the category of the accident at the facility, as established in its on Site Emergency Plan (SEP), and the emergency situation declared and established in the Off-Site Nuclear Emergency Plan. Figure 3 reflects these criteria schematically by way of guidance.

The criteria for declaration of the Response Mode in radiological emergencies are based on the radiological consequences that might occur and on the category of the sources involved, as established in the Basic Directive for the Planning of Civil Defence in the Presence of Radiological Risk (this document is currently in the draft phase). Figure 4 reflects these criteria schematically by way of guidance.

Figure 3

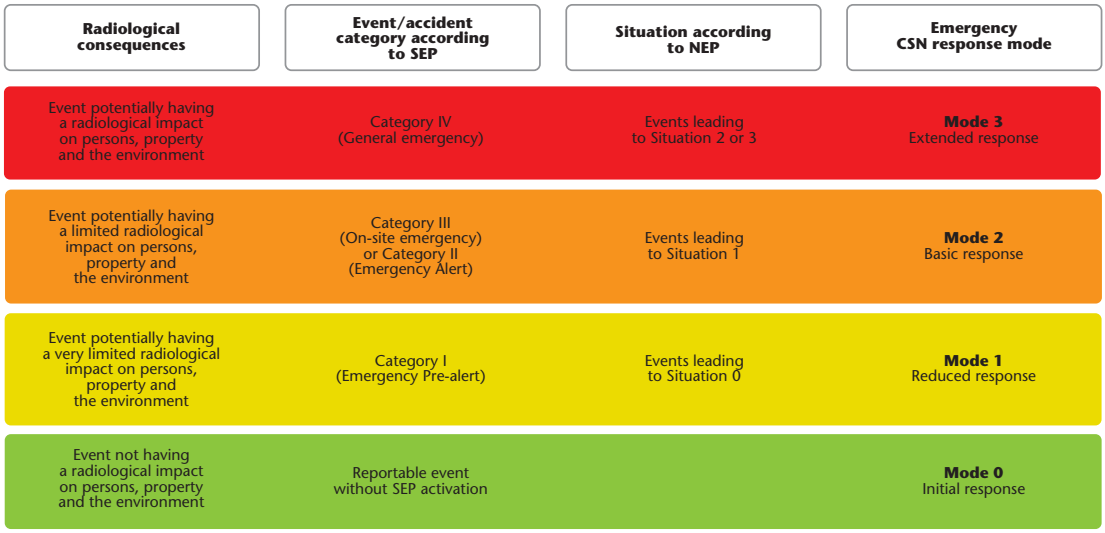
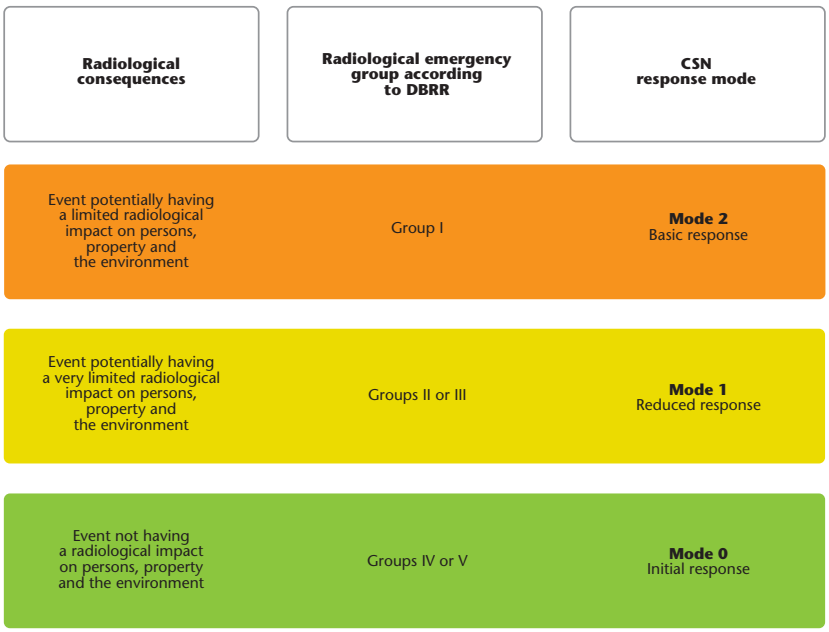


Figure 4

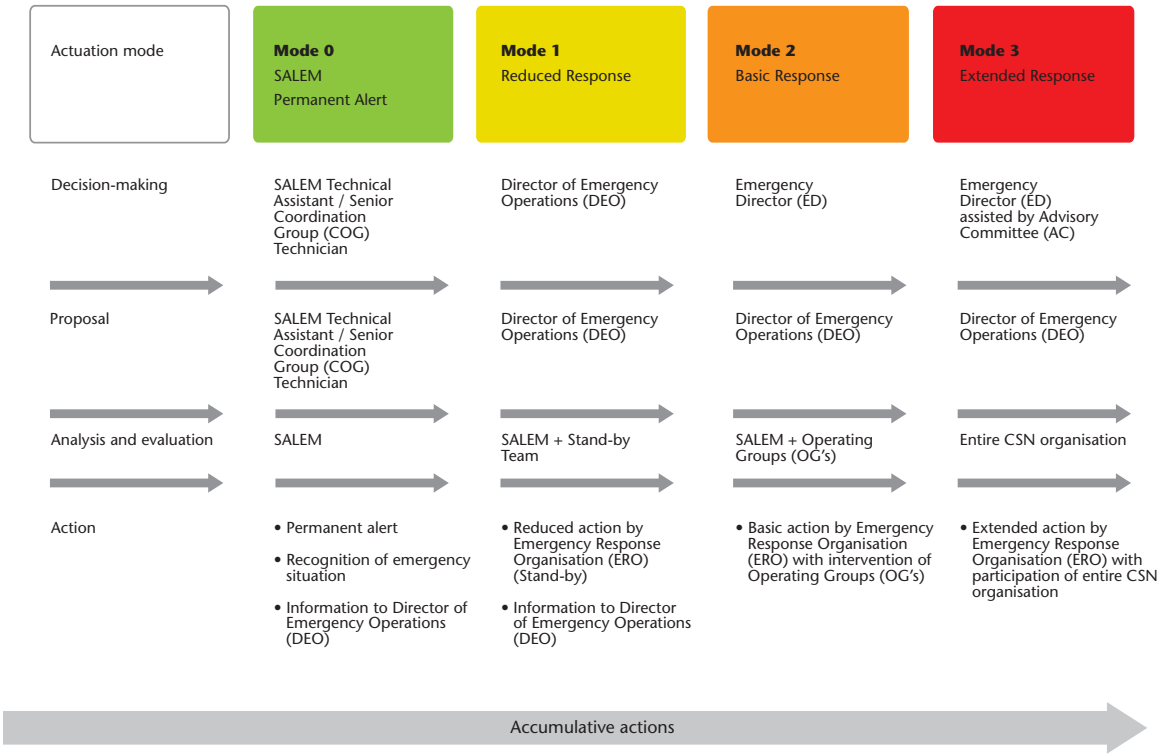


If, following the declaration of the Basic Response Mode (Mode 2), it were necessary to activate specific members of the staff additional to the technicians of the OG's, this would be carried out without declaring a different Response Mode.

5.2 Levels of responsibility and ERO activation process

The area of activity of the different members of the ERO and the levels of responsibility in each Response Mode declared are summarised in figure 5.

Figure 5



In the case of radiological emergencies in the Basic Response Mode (Mode 2) with the activation of additional technical staff, the ED will be advised by the AC.

CSN CONSEJO DE SEGURIDAD NUCLEAR

Activation of the Emergency Response Organisation (ERO)

Response mode 0

1 Communication — Notification

2 SALEM — Reception of notification

3 CSN — Reception of notification

4 SALEM Technical Assistant — Analysis of notification and possible request for additional information

5 SALEM Technical Assistant — Informs COG stand-by technician

6 Emergency situation?

NO → 8 COG stand-by technician — Informs DEO → 9 SALEM — Ordinary information procedure

YES → 7 COG stand-by technician — Activates DEO

Response mode 1

10 DEO — Declares mode 1

12 DEO — Informs ED

11 DEO — Activation of OG stand-by team

13 Stand-by team — Reduced constitution of OG's

14 DEO — Evaluation of response capacity

15 Does response need to be extended?

NO → 17 Stand-by team — Reduced ERO action

YES → 16 DEO — Activates ED

18 End of the emergency?

NO → back to 14

YES → 34 ED — Deactivation of ERO

Response mode 2 (nuclear emergencies)

19 ED — Declares mode 2

20 ED — Activation of OG's Managers

21 OG Managers — Activation of OG resources, including technicians from Autonomous Communities with assignment agreements

22 OG Managers — Basic constitution of OG's

23 ED — Evaluation of response capacity

24 Need to extend response?

YES → 25 ED — Activates AC

NO → 26 OG's — Basic ERO action

27 End of the emergency?

NO → back to 23

YES → 34 ED — Deactivation of ERO

Response mode 2* (radiological emergencies)

19* ED — Declares mode 2

20* ED — Activation of OG's Managers

21* OG's Managers — Activation of OG's resources, including technicians from Autonomous Communities with assignment agreements

22* OG's Managers — Basic constitution of OG's

23* ED — Evaluation of response capacity

24* Need to extend response?

YES → 25* ED — Activates AC

NO → 26* OG's — Basic ERO action

27* End of the emergency?

NO → back to 22*

YES → 34 ED — Deactivation of ERO

30* CSN — Basic activation with additional staff

31* End of the emergency?

NO → back to 30*

YES → 34 ED — Deactivation of ERO

28* ED — Activates AC

29* AC — Incorporation into response

Response mode 3 (nuclear emergencies)

28 ED — Declares mode 3

29 AC — Incorporation into response

30 ED — Activation of extended ERO

31 CSN — Extended ERO constitution

32 CSN — Extended ERO action

33 End of the emergency?

NO → back to 32

YES → 34 ED — Deactivation of ERO

34 ED — Deactivation of ERO

CLOSURE

Desactivation of ERO. Recovery phase begins.
Determination of management and monitoring model by CSN

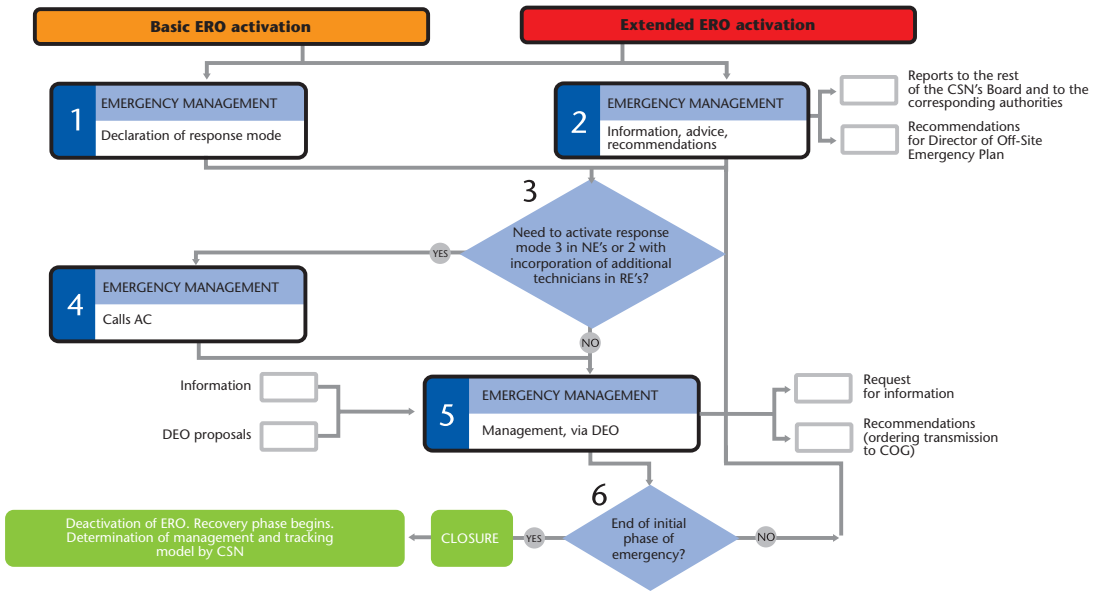
In keeping with this level of responsibilities, an ERO activation process has been established for the different emergency Response Modes.

In the case of radiological emergencies, the activation of the ERO is similar to activation for nuclear emergencies, except as from the declaration of the Basic Response Mode (Mode 2).

The process of activating the ERO reflected in the following diagrams may be inverted, with the Response Modes being declared in reverse order, if the criteria established are fulfilled.

5.3 Emergency Director (ED) Actions

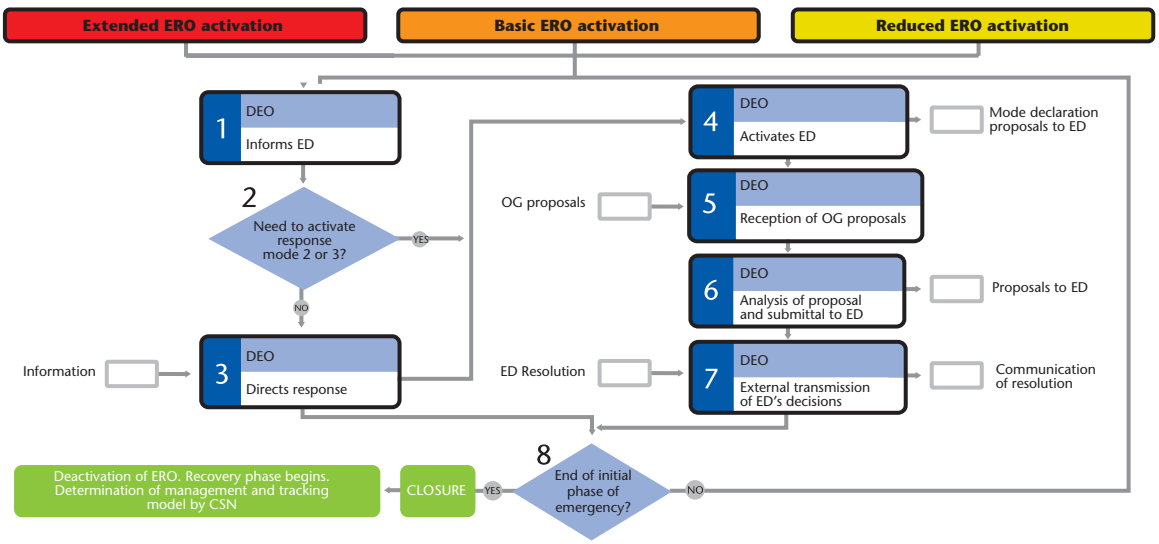
Within the operating structure of the ERO, the Emergency Director is ultimately responsible for decision making, in accordance with the following schematic representation:



The Emergency Director may decide to direct the ERO in the Reduce Response Mode (Mode 1) if he considers this to be appropriate.

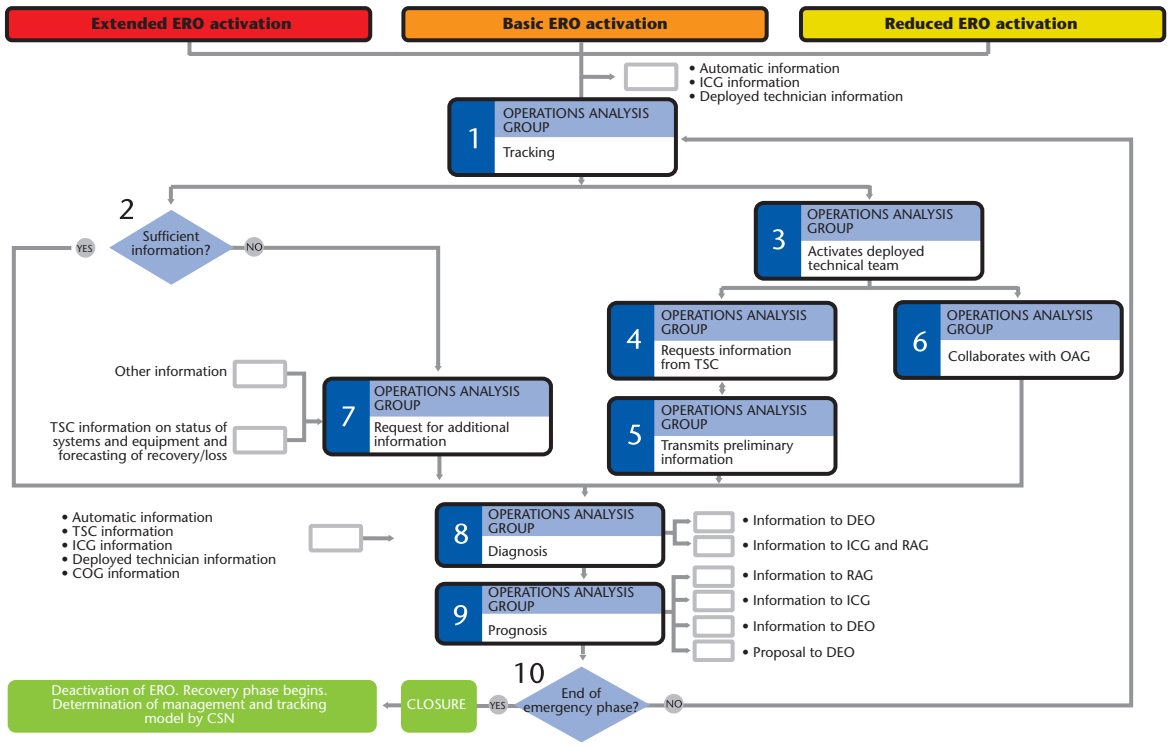
5.4 Director of Emergency Operations (DEO) Actions

Within the operating structure of the ERO, the Director of Emergency Operations is responsible for proposing decisions, in accordance with the following schematic representation:



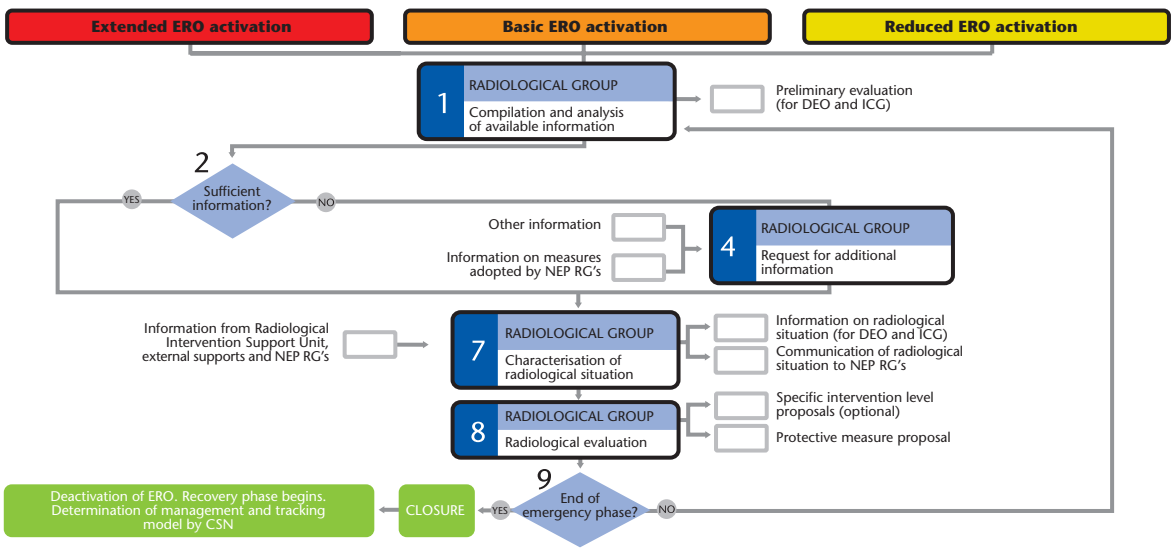
5.5 Operations Analysis Group (OAG) Actions

Within the operating structure of the ERO, the Operations Analysis Group is responsible for analysing and assessing the causes of the accident and for forecasting its possible future evolution, in accordance with the following schematic representation:



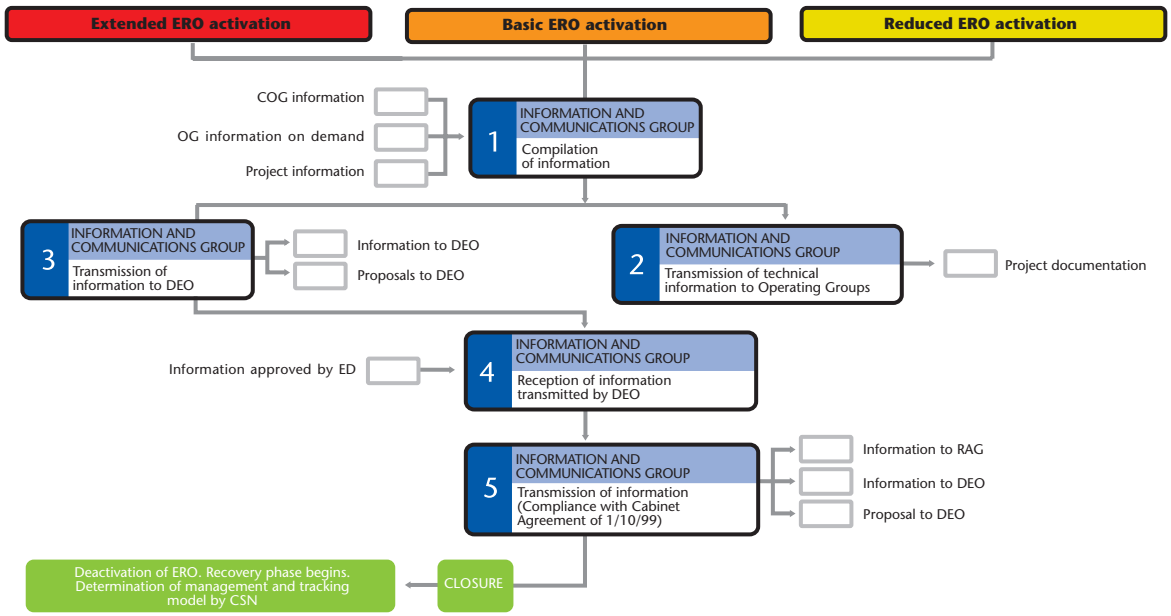
5.6 Radiological Group (RAG) Actions

Within the operating structure of the ERO, the Radiological Group is responsible for analysing the radiological situation generated by the accident and for proposing suitable protective measures to mitigate its radiological consequences, in accordance with the following schematic representation:



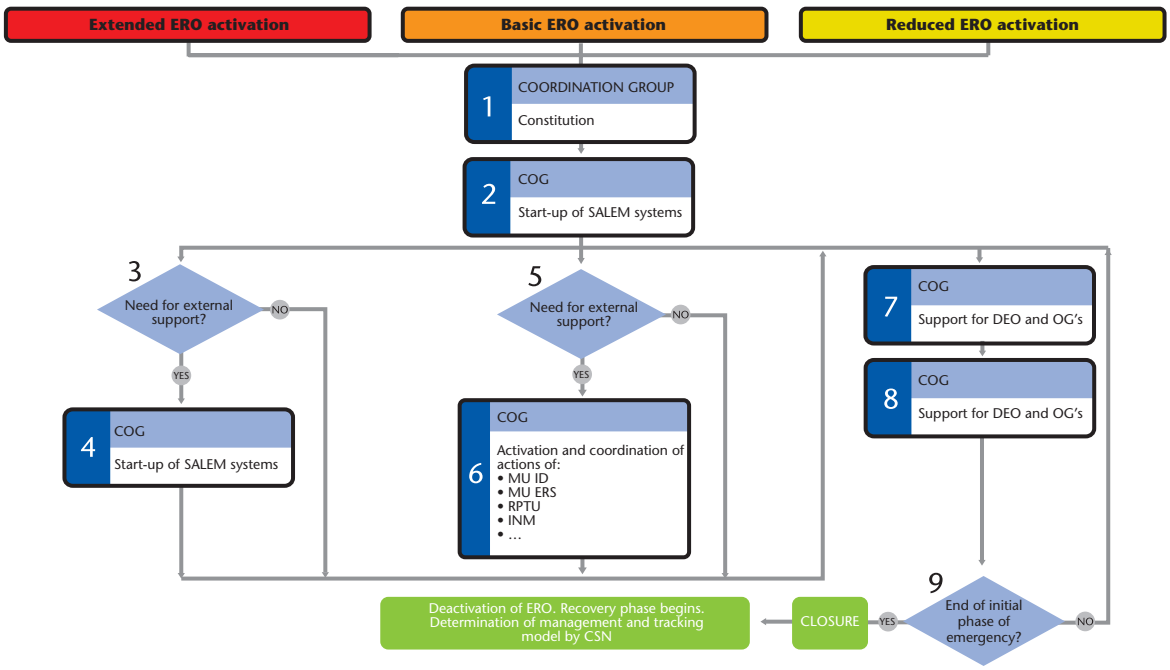
5.7 Information and Communications Group (ICG) Actions

Within the operating structure of the ERO, the Information and Communications Group is responsible for preparing information on the emergency situation, in accordance with the following schematic representation:

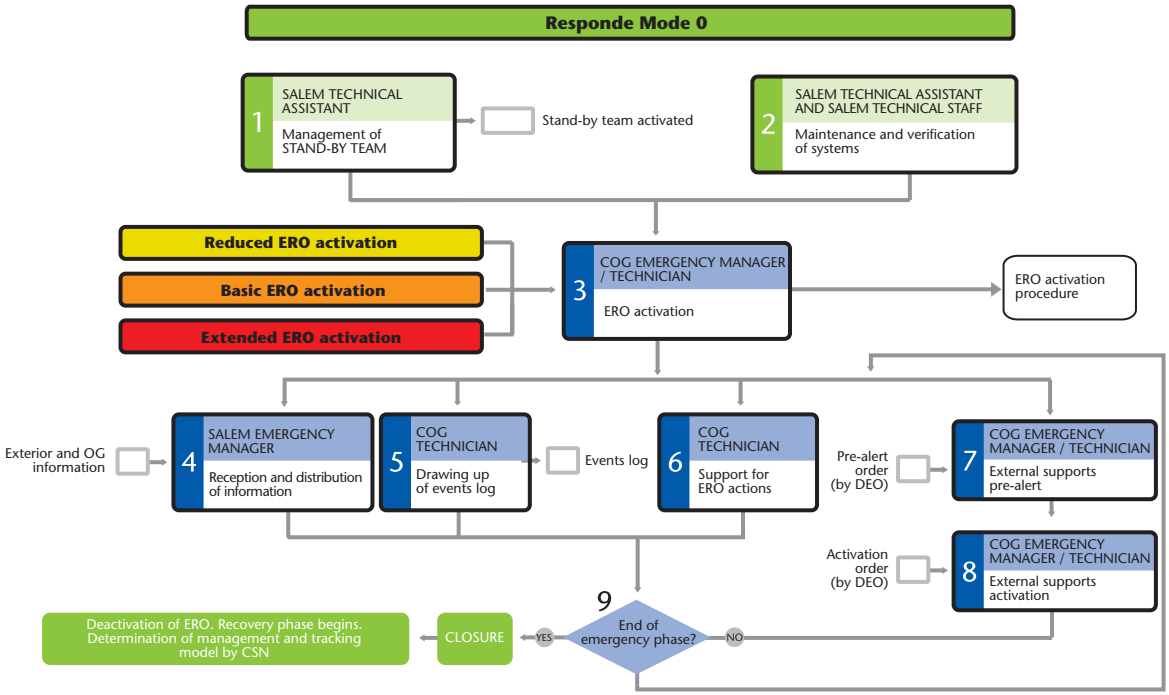


5.8 Coordination Group (COG) Actions

Within the operating structure of the ERO, the Coordination Group is responsible for maintaining the complete operability of its infrastructure and for ensuring the flow of information between all its different agents, and between these and the exterior, in accordance with the following schematic representation:



The activities and responsibilities of the COG are also closely linked to the operation of the Salem, the activities of which are carried out as shown in the following schematic representation:



5.9 Information System Group (INFG) and Logistical Support Group (LOGG) Actions

The responsibility of the INFG focuses basically on ensuring the operability of the corporate computers system of the CSN in the event of an emergency and on providing technical support to ensure the operability of certain items of equipment and systems specifically used by the ERO Operating Groups. Details regarding the interactions between this group and the rest of the OG's will be included in the corresponding specific procedure.

The fundamental responsibility of the LOGG is to ensure the availability of the logistical resources required for operation of the ERO and to guarantee the security of the latter.

The activation of these groups will be determined by an evaluation of the need for internal support by the COG, this Operating Group being in charge of the overall coordination of their activities in the event of an emergency, in accordance with the schematic representation included in the previous section of this document.

6. ERO Initial and On-Going Training

The training of the CSN personnel required to intervene in the event of an emergency is a strategic priority within the Council's overall training programme.

In this respect a Specific ERO Initial and On-Going Training Plan will be drawn up, this being coordinated with the general CSN Training Plan.

The aforementioned specific plan will be scheduled over a year and will contribute to ensure that the different ERO OG's and the Management are able to correctly perform their functions.

A fundamental element of and pre-requisite for the initial and on-going training of the CSN intervening personnel is the technical and administrative procedures developed within the present EAP, since a large part of the initial and on-going training will revolve around subjects and instructions contained therein.

The plan will contain the following significant milestones:

- Key factors for the transfer of subject knowledge to the organisation and strategy for its implementation.
- Priority subject areas in the initial and on-going training of responders.
- Systematic initial training aimed at newly incorporated members of stand-by teams (action procedures, available systems, operation of the different devices in the Salem …).
- Scheduling of theoretical-practical courses with general contents, budget, trainees, necessary resources…
- Specific training processes:
  - Participation in facility site emergency plan exercises and drills.
  - Participation in exercises and drills for off-site Nuclear Power Plants emergency plans.
  - Performance of internal exercises in the Salem, designed and undertaken by the OG's (during stand-by team shifts and practising the procedures to be used in the event of an actual emergency previously prepared by the groups and using the available tools).
  - Systematic exchange of experiences deriving from participations in actual emergencies, through the organisation of forums, working sessions…

The SEM is responsible for drawing up the general directives of the Procedures Manual and Training Plan that will develop the present EAP and for performing the corresponding functions of monitoring (following up) and activation guaranteeing performance and compliance by the different ERO OG's.

Annex 1. Senior Managers Stand-by Team

Operating Regime (Revision 1)

Plenary Sesion of the Board of CSN of November 3rd 2004

1. Introduction

The CSN Emergency Action Plan (EAP) describes the Emergency Response Organisation of the CSN and its relationships with the basic organisational structure of the Spanish Nuclear Safety Council.

The President of the CSN undertakes the function of Emergency Director of the Emergency Response Organisation, acting as the sole authority on behalf of the Spanish Nuclear Safety Council throughout the entire emergency.

The CSN Agreement of 31/05/2001 contemplates a mechanism for the delegation of emergency management to the other members of the Board in the event of absence or unavailability of the President, either scheduled or not.

At weekends and on holidays the Emergency Response Organisation has an senior managers stand-by team that guarantees the availability of a member of the Board to ensure the continuity of the function of the Emergency Director where necessary.

Likewise, a specific shift is established during holiday periods for this purpose.

2. Objective

The objective of this procedure is to define the action procedure of the Emergency Director Stand-by Team (ED Stand-by Team) to guarantee the availability of a member of the Senior Managers to undertake responsibility for directing the response of the CSN during the immediate and urgent phases of a nuclear or radiological emergency, in accordance with the replacement mechanisms foreseen in the EAP.

In general, the function of the Emergency Director is covered by the President of the CSN, who is replaced in the event of absence or unavailability by the Vice-Chairman, and the latter by a member of the Board in order of seniority or, if this were to coincide, of age (CSN Agreement published in the Official State Gazette (BOE) of 26/06/2001).

The ED Stand-by Team described in this procedure covers the Emergency Director Post only at weekends and on holidays.

3. Composition of the ED Stand-by Team

The ED Stand-by Team is made up the President, the Vice-Chairman and the other members of the Board of CSN.

4. ED Stand-by Team Shift

Each member of the ED Stand-by Team will be on shift for one week, to cover weekends and holidays and shall be replaced cyclically in accordance with a schedule approved by the Board.

For the purposes of this procedure, the weeks shall be counted from 09:00 hours of each Monday to 09:00 hours of the following Monday. When the Monday of a given week is a holiday, the shift period of the preceding week shall end at 09:00 hours on the next working day, as from which time shall commence the shift period of the corresponding week.

The member of the ED Stand-by Team on shift shall be activated as Emergency Director during the following time intervals:

- at weekends, from 14:00 hours on Fridays to 09:00 hours on Mondays,
- on holidays during the week, from 14:00 hours on the day before to 09:00 hours on the day after.

5. ED Stand-by Team operating standards

ED Stand-by Team schedule

During the month of December of each year, the Technical Direction of Radiation Protection shall draw up a schedule for the ED Stand-by Team for the following year and shall submit it to the Board for approval.

Once approved by the Board, the ED Stand-by Team schedule shall be managed by the Sub-Directorate General for Emergencies and may be consulted in electronic format by upper management, the stand-by group managers and the Salem. The ED Stand-by Team schedule may be consulted at the following address:

http://kasmail1/public/sala de emergencias/reten altos cargos

Any modification to the shift of the ED Stand-by Team with respect to the schedule approved by the Board, including those arising as a result of holiday periods, shall be agreed to by the corresponding Senior Manager and the manager replacing him. Agreements regarding modifications shall be submitted to the General Deputy-Directorate for Emergencies for notification the Salem.

Modifications to the schedule shall be included in the electronic copy managed by the SEM, where it may be consulted by senior managers, stand-by group managers and the Salem.

Operations of the ED Stand-by Team

An updated list of the points of contact of the members of the ED Stand-by Team shall be kept in the Salem, including addresses and telephone numbers, both private and mobile phones assigned by the CSN.

The members of the ED Stand-by Team shall notify the SEM any modification of their addresses or telephone numbers in order to keep updated the contact points available in the Salem.

The member of the ED Stand-by Team on shift shall keep his mobile phone permanently in operation throughout the entire shift period.

During the corresponding shift period, the members of the ED Stand-by Team shall remain at a location allowing them to arrive at the Salem as soon as possible, and in any case within approximately one hour, if the ERO was activated.

If necessary, the member of the ED Stand-by Team on shift may be activated by telephone or any other means when ordered by the ERO Director of Emergency Operations.

Beginning and end of ED Stand-by Team shifts

On the first day of the shift period, the SEM shall notify all the senior managers, stand-by group managers and Salem of the following:

- Incoming ED Stand-by Team member.
- Stand-by group on shift.
- Stand-by group manager on shift.
- Days of the week that the ED Stand-by Team member is effectively on service, indicating:
  - Date and time of beginning of stand-by service.
  - Date and time of end of stand-by service.

Likewise, the Salem will contact each of the persons initiating their stand-by shift on the first day of the corresponding period to confirm their availability.

Annex 2. Glossary of Terms

Included below are definitions of the terms that appear in the current EAP and that are not self-explanatory:

- **Accident category:** term grouping those accidents that might occur at a nuclear power plant with a certain probability of occurrence. This classification depends on the severity of the accident and the nature and quantity of radioactive material that might be released off site. Accident categories are listed from I to IV. The SEP of each nuclear power plant classifies foreseeable accidents in one of these four categories in accordance with the corresponding safety analysis.

- **Drill:** set of previously scheduled actions to respond to an assumed accident, the aim of which is to check the efficiency of the emergency plans as regards of the implementation of certain protective measures and other emergency activities.

- **Emergency situation:** term established for protective measures application to guarantee a prompt and efficient response. In nuclear emergencies, the emergency situation is classified from 0 to 3 depending on the type and scope of the protective measures to be adopted. The declaration of any of these situations implies activation of the NEP.

  In the early moments of an emergency, when there may be a high degree of uncertainty, it is possible to establish a direct relationship between accident categories and emergency situations facilitating and speeding up decision-making for the implementation of urgent protective measures.

- **Intervening personnel:** persons appointed to the EAP and exercising the functions assigned therein in the event of an emergency.

- **Intervention teams:** term encompassing all the personnel who shall intervene in the area affected by a nuclear or radiological emergency.

- **Intervention levels:** reference values for certain radiological magnitudes as from which the application of protective measures is considered to be adequate. The generic intervention levels are established in accordance with international recommendations.

- **Protective measures:** all the actions for preventing or mitigating the immediate and deferred consequences for the health of the affected population and the intervening personnel in the event of a nuclear or radiological accident. The types of protective measures are associated with the declaration of emergency situations (control of access, confinement, radiological prophylaxis, self-protection, restrictions of the consumption of foodstuffs and water, stabling of livestock, evacuation and decontamination).

- **Radiological characterisation:** process of identifying and quantifying the radionuclides present in a medium, as well as their level of activity and distribution.

- **Response modes:** different types of action by the CSN's ERO depending on the severity, complexity or duration of the emergency. There are four modes (from 0 to 3) and their declaration is based on a series of previously established criteria.

- **Safe emergency condition:** declaration of the end of an emergency situation, with the situation under control - either because the root cause has disappeared or because no further off-site emissions of radioactive material are foreseen - and all the necessary urgent protective measures have been applied.

Annex 3. Abbreviations and Acronyms

AC	Advisory Committee
BOE	Boletín Oficial del Estado (Official State Gazette)
CCAA	Autonomous Communities
COG	Coordination Group
CSN	Consejo de Seguridad Nuclear (Nuclear Safety Council)
DBRR	Basic Directive for Civil Protection Planning in Case of Radiological Risk
DEO	Director of Emergency Operations
EAP	Emergency Action Plan
ECURIE	European system for the exchange of information in the event of a radiological emergency
ED	Emergency Director
EMERCOM	IAEA system for the exchange of information in the event of a radiological emergency
EOCA	Emergency Operations Coordination Area
ICG	Information and Communications Group
INFG	Information systems support Group
ERO	Emergency Response Organisation
LOGG	Logistical support Group
MU ERS	Mobile Unit for Environmental Radiological Surveillance
NE	Nuclear Emergency
NEP	Nuclear Emergency Plan (off-site)
NF's	Nuclear Facilities
NIM	National Institute of Meteorology

NSD	Technical Direction of Nuclear Safety
OAG	Operations Analysis Group
OG's	Operating Groups
PENAR	Naval Nuclear Emergency Plan
PENCRA	Central Response and Support Level Nuclear Emergency Plan
PSA	Probabilistic Safety Assessment
PTO	Chairman's Technical Office
RAG	Radiological Group
RE	Radiological Emergency
RF's	Radioactive Facilities
RG's	Radiological Groups (Attached to the off-site NEP's)
RP	Radiation Protection
RPD	Technical Direction of Radiation Protection
RPTU	Radiation Protection Technical Unit
Salem	Sala de Emergencias (Emergency Room)
SEM	General Deputy-Directorate for Emergencies
SEP	Site Emergency Plan
SER	General Deputy-Directorate for Environmental Radiological Protection
SIQ	General Deputy-Directorate for Planning, Information and Quality
SNF	General Deputy-Directorate for Nuclear Facilities
SOR	General Deputy-Directorate for Operational Radiation Protection
SPA	General Deputy-Directorate for Personnel and Administration
TSC	Technical Support Centre (of the plant)
UMDI	Mobile Laboratory for Internal Dossimetry

Tools available in the Salem

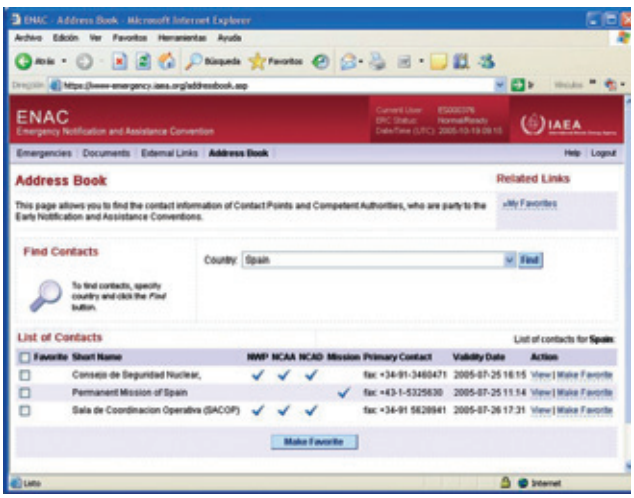


Figure 1. ECURIE/EMERCOM System.- International EU and IAEA communication system for nuclear and radiological emergencies

Figure 2. Géminis System.- System for the control of emergency plan radiometric instrumentation

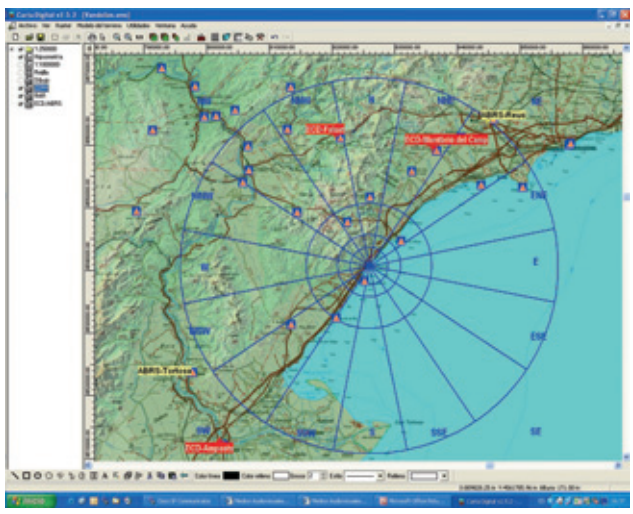


Figure 3. Electricity Grid Geographic Information System

Figure 4. SIRPE System.- On-line connection with the control centre of the Spanish Electricity Grid

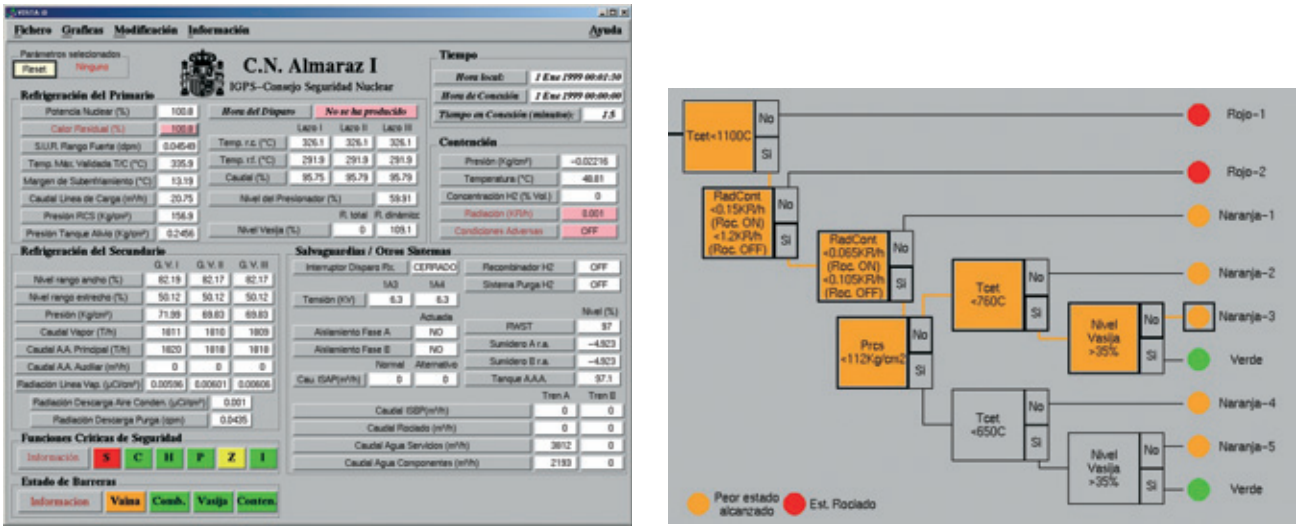


Figure 5. IGPS System.- System for analysis of the evolution of an accident in a nuclear power plant

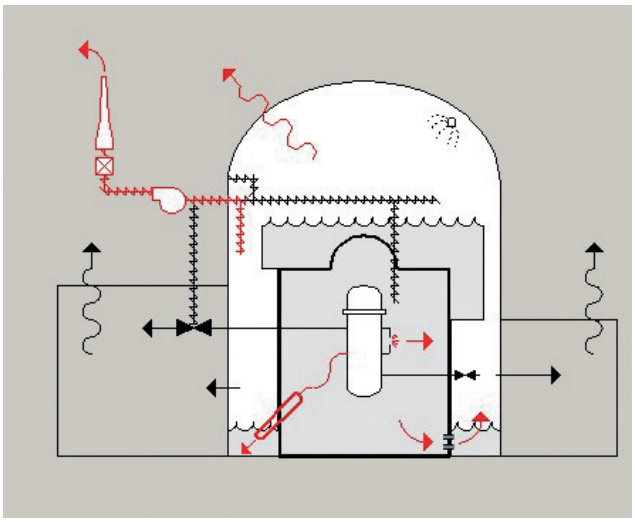


Figure 6. SOURCE TERM System.- Estimation of the emission of radioactive products in the event of an accident at a nuclear power plant

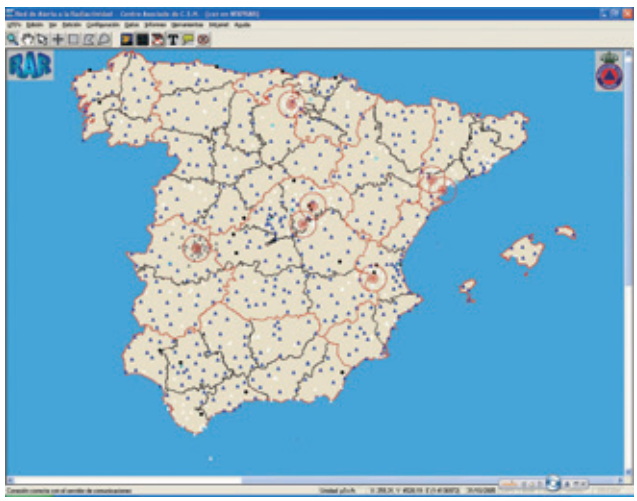


Figure 7. RAR.- Radioactivity Alert Network of the State Directorate General for Civil Defence and Emergencies

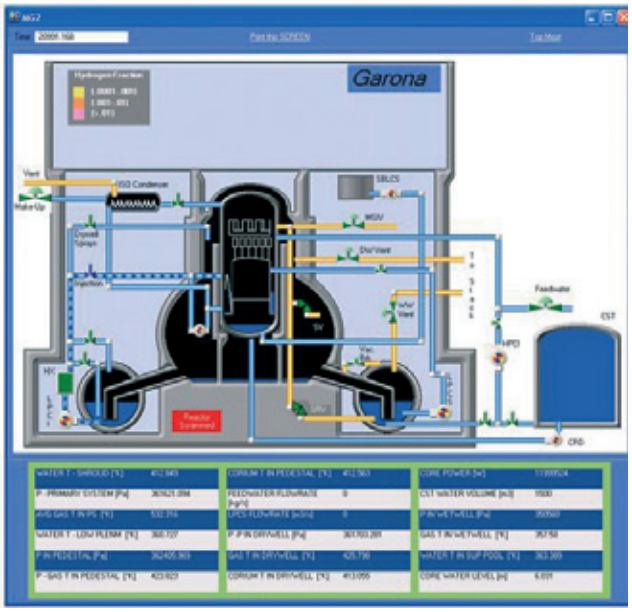


Figure 8. MARS Code.- Two-dimensional Gaussian model simulation of the evolution of an accident at a nuclear power plant

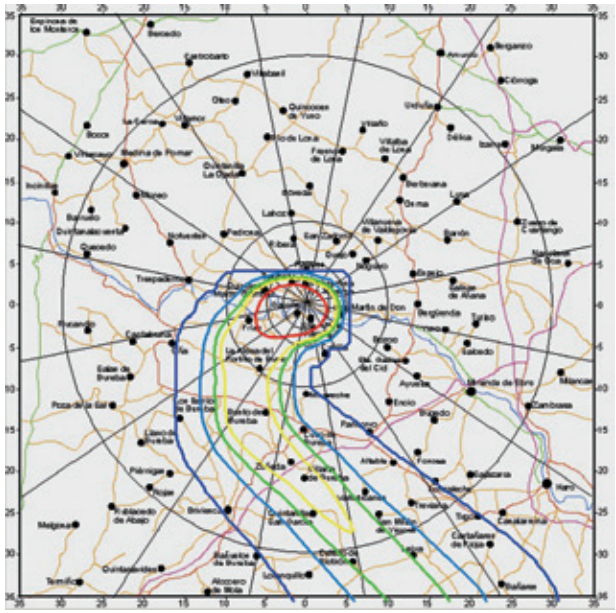


Figure 9. RASCAL Code.- Calculation of dose due to environmental dispersion

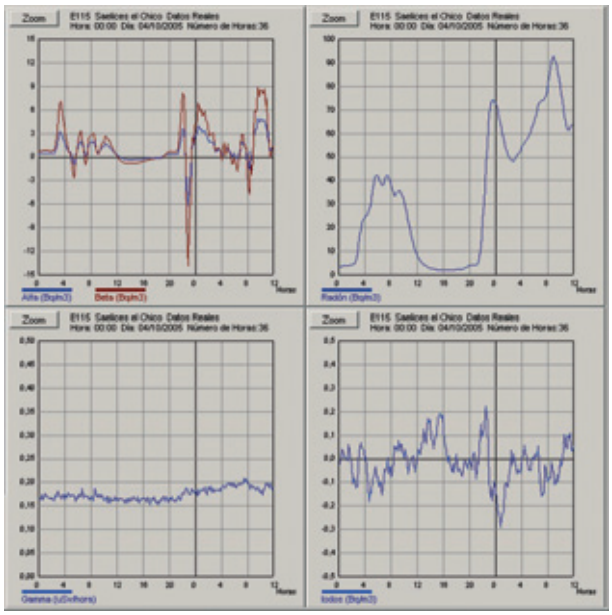


Figure 10. REVIRA/REA Network.- Automatic network of environmental radiological surveillance stations

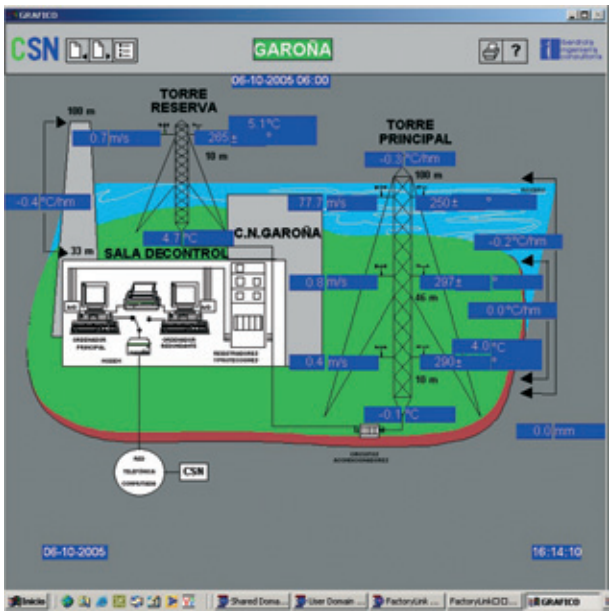


Figure 11. SIREM System.- Remote nuclear power plant meteorological tower interrogation system

Figure 12. N Network.- Private multi-service virtual network for emergency digital communications

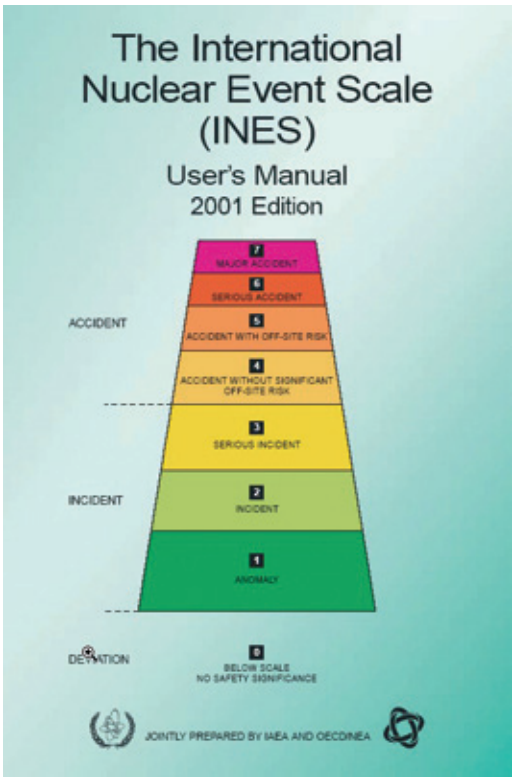


Figure 13. INES Scale.- Nuclear event severity scale for public information

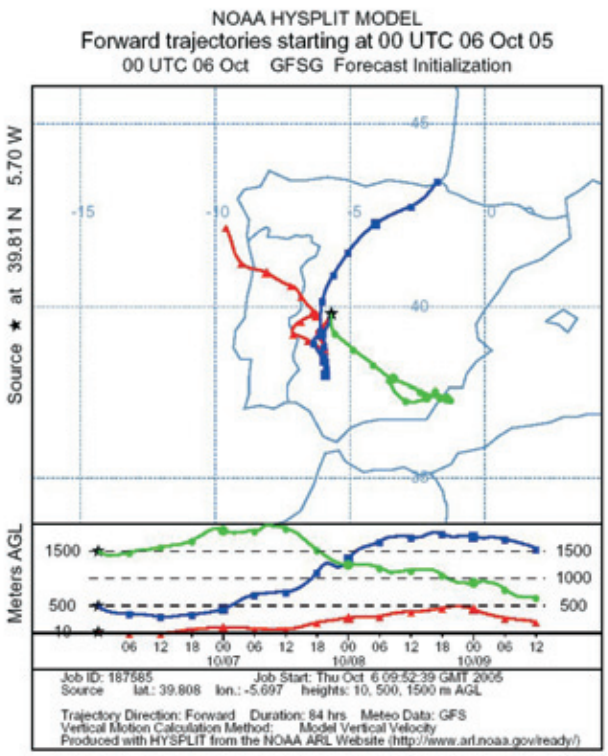


Figure 14. Trajectories System.- Calculation of long-distance dispersion of contamination

Spanish Nuclear Safety Council
Emergency Response Organisation
and Action Plan

CSN CONSEJO DE SEGURIDAD NUCLEAR