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**NUCLEAR ENERGY AGENCY
COMMITTEE ON NUCLEAR REGULATORY ACTIVITIES**

**Working Group on Inspection Practices [WGIP]
INSPECTION OF EMERGENCY ARRANGEMENTS**

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The mission of the NEA is:

- to assist its member countries in maintaining and further developing, through international co-operation, the scientific, technological and legal bases required for a safe, environmentally friendly and economical use of nuclear energy for peaceful purposes, as well as
- to provide authoritative assessments and to forge common understandings on key issues, as input to government decisions on nuclear energy policy and to broader OECD policy analyses in areas such as energy and sustainable development.

Specific areas of competence of the NEA include the safety and regulation of nuclear activities, radioactive waste management, radiological protection, nuclear science, economic and technical analyses of the nuclear fuel cycle, nuclear law and liability, and public information.

The NEA Data Bank provides nuclear data and computer program services for participating countries. In these and related tasks, the NEA works in close collaboration with the International Atomic Energy Agency in Vienna, with which it has a Co-operation Agreement, as well as with other international organisations in the nuclear field.

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COMMITTEE ON NUCLEAR REGULATORY ACTIVITIES

The Committee on Nuclear Regulatory Activities (CNRA) of the OECD Nuclear Energy Agency (NEA) is an international committee made up primarily of senior nuclear regulators. It was set up in 1989 as a forum for the exchange of information and experience among regulatory organisations.

The committee is responsible for the programme of the NEA, concerning the regulation, licensing and inspection of nuclear installations with regard to safety. The committee's purpose is to promote cooperation among member countries to feedback the experience to safety improving measures, enhance efficiency and effectiveness in the regulatory process and to maintain adequate infrastructure and competence in the nuclear safety field. The CNRA's main tasks are to review developments which could affect regulatory requirements with the objective of providing members with an understanding of the motivation for new regulatory requirements under consideration and an opportunity to offer suggestions that might improve them or avoid disparities among member countries. In particular, the committee reviews current management strategies and safety management practices and operating experiences at nuclear facilities with a view to disseminating lessons learned.

The committee focuses primarily on existing power reactors and other nuclear installations; it may also consider the regulatory implications of new designs of power reactors and other types of nuclear installations.

In implementing its programme, the CNRA establishes cooperative mechanisms with the Committee on the Safety of Nuclear Installations (CSNI) responsible for the programme of the Agency concerning the technical aspects of the design, construction and operation of nuclear installations. The committee also co-operates with NEA's Committee on Radiation Protection and Public Health (CRPPH) and NEA's Radioactive Waste Management Committee (RWMC) on matters of common interest.

FOREWORD

The Committee on Nuclear Regulatory Activities (CNRA) believes that safety inspections are a major element in the regulatory authority's efforts to ensure the safe operation of nuclear facilities. Considering the importance of these issues, the Committee established a special Working Group on Inspection Practices (WGIP) in 1990. The purpose of the WGIP is to facilitate the exchange of information and experience related to regulatory safety inspections among NEA member countries.

A fundamental goal a regulatory authority's oversight of nuclear facilities is to establish confidence that adequate arrangements are in place for emergency preparedness and response. The CNRA published a report in 1998 on the inspection of licensee activities in emergency planning [NEA/CNRA/R(98)2]. Significant changes have occurred in the interim period, including early lessons learnt from the Fukushima accident. Therefore, the WGIP determined that it would be prudent for member countries to share good inspection practices associated with emergency arrangements (preparedness and response) and to produce an updated report. The CNRA approved this task in December 2009.

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1. EXECUTIVE SUMMARY

The Working Group on Inspection Practices (WGIP) was tasked by the NEA CNRA to examine and evaluate the extent to which emergency arrangements are inspected and to identify areas of importance for the development of good inspection practices. WGIP members shared their approaches to the inspection of emergency arrangements by the use of questionnaires, which were developed from the requirements set out in IAEA Safety Standards.

Detailed responses to the questionnaires from WGIP member countries have been compiled and are presented in the appendix to this report. The following commendable practices have been drawn from the completed questionnaires and views provided by WGIP members:

- RBs and their Inspectors have sufficient knowledge and information regarding operator's arrangements for the preparedness and response to nuclear emergencies, to enable authoritative advice to be given to the national coordinating authority, where necessary.
- Inspectors check that the operator's response to a nuclear emergency is adequately integrated with relevant response organisations.
- Inspectors pay attention to consider the integration of the operator's response to safety and security threats.
- The efficiency of international relations is checked in depth during some exercises (*e.g.* early warning, assistance and technical information), especially for near-border facilities that could lead to an emergency response abroad.
- RB inspection programmes consider the adequacy of arrangements for emergency preparedness and response to multi-unit accidents.
- RBs assess the adequacy of arrangements to respond to accidents in other countries.
- The RB's role is adequately documented and communicated to all agencies taking part in the response to a nuclear or radiological emergency.
- Inspectors check that threat assessments for NPPs have been undertaken in accordance with national requirements and that up-to-date assessments have been used as the basis for developing emergency plans for NPPs.
- Where RBs have an influence over land use around NPPs, they use the knowledge of their local or resident inspectors to inform decisions.
- Inspectors check that appropriate action levels or criteria to identify an actual or radiological emergency are clearly defined and readily available to decision makers.
- When observing emergency exercises inspectors check that:
 - an appropriate and timely declaration is made;
 - plant operators respond in accordance with the emergency plan and emergency instructions; and
 - an appropriate level of response is initiated on and off-site.
- RBs conduct follow-up inspections after real events, to ensure that the correct emergency response has been followed.
- Inspectors verify that reliable data will be used to support the evaluation of environmental impact from a nuclear or radiological emergency, to the extent that this is within the jurisdiction of the RB.

- Routine inspections and emergency exercise observations include a check that lines of communication are sufficiently resilient.
- When observing emergency exercises inspectors, where practicable, check that timely, accurate and consistent information is provided to the public, in accordance with the off-site emergency plan.
- RBs inspect the ability of the operator to give accurate medical and radiological information about casualties, to enable the correct treatment to be given.
- Additional emergency equipment that is held in reserve off-site, provided to enhance resilience (post Fukushima), is included in the RB planned inspection and/or emergency exercise programme.
- Inspectors check that licensee staff are adequately trained to connect and use additional equipment provided to enhance resilience.
- Inspectors utilise the NPP operator's approved on-site emergency plan when inspecting on-site emergency arrangements.
- RBs include human factors staff in emergency exercise evaluation teams to consider safety culture and human performance.
- RBs consider the need for exercise scenarios to be undisclosed to exercise participants.
- Bilateral trans-national inspection programmes between RBs on the topic of emergency preparedness should be developed and continued.

2. INTRODUCTION

This task originated at the 38th meeting of the Working Group on Inspection Practices. Members recommended a proposal to the NEA Committee on Nuclear Regulatory Activities (CNRA) to examine and evaluate the extent to which emergency arrangements are inspected and the benefits of the inspections. This information would then be used to identify areas of importance for the development of good inspection practices. The CNRA approved the task request in December 2009.

This task builds on a previous WGIP report published in 1998, *Inspection of Licensee Activities in Emergency Planning* [NEA/CNRA/R(98)2]. The WGIP members considered that it was a timely to revisit this topic, since significant changes had occurred and required updating. The 1998 report is concerned with the inspection of emergency planning within WGIP member countries. This latest task has a modified scope to address all aspects of emergency arrangements, including preparedness and response. The accident at Fukushima occurred during early preparations for this report and the scope was modified to address a request from the CNRA Senior Task Group on the Impacts of Fukushima, to include some of the early lessons learnt from the accident, such as the inspection of centrally held equipment.

The objectives of the task were to report on inspection practices currently adopted by WGIP members to assist with self-assessment and to identify commendable inspection practices which would promote more effective inspection activities on emergency arrangements.

3. BACKGROUND

The arrangements for responding to a nuclear emergency arising from an event at a NPP provide an important contribution to the minimisation of risks to people, property and the environment. Inspections by national regulatory bodies (RBs) provide confidence in the adequacy of these arrangements.

WGIP members initiated this task to share their approaches to the inspection of emergency arrangements and to identify common and commendable practices. Information sharing has been facilitated by the use of questionnaires, which were developed from the requirements set out in IAEA Safety Standard GS-R-2 (Preparedness and Response for a Nuclear or Radiological Emergency).

Two questionnaires were developed, to address aspects of emergency preparedness and emergency response. Details of the questions posed to WGIP members are set out in Section 4 of this report.

Twenty WGIP member countries responded:

- Belgium.
- Canada.
- Czech Republic.
- Finland.
- France.
- Germany.
- Hungary.
- India.
- Japan.
- Korea.
- Mexico.
- Poland.
- Russian Federation.
- Slovak Republic.
- Slovenia.
- Spain.
- Sweden.
- Switzerland.
- United Kingdom.
- United States.

WGIP members' responses to the two questionnaires have been combined and presented as an Appendix to this report. Not all WGIP members responded to both questionnaires, on the basis that they do not make a distinction between preparedness and response. The tables presented in the Appendix identify where separate answers have been provided by WGIP members to questions on preparedness and response.

An analysis of WGIP members' responses is presented in Section 5 of this report and conclusions are presented in Section 6.

4. QUESTIONNAIRES

The questionnaires on emergency preparedness and emergency response were categorised into nine areas:

1. Basic Responsibilities.
2. Concept of Operations.
3. Threat Assessment.
4. Identifying, Activating and Notifying.
5. Taking Urgent Protective Action.
6. Keeping the Public Informed.
7. Managing the Medical Response.
8. Infrastructure.
9. On-Site Plans, Facilities and Exercises.

Each of the above nine areas were sub-divided and a total of 44 questions posed, as follows:

1.1 Basic Responsibilities – Legislative Framework

- What legislation does the member state have that assigns responsibilities for preparedness for a nuclear or radiological emergency?
- What legislation does the member state have that assigns responsibilities for response to a nuclear or radiological emergency?

1.2 Basic Responsibilities – Operators Responsibilities, Off-Site Responsibilities and International Responsibilities

- How are the responsibilities for emergency preparedness assigned within the RB?
- How are the responsibilities for emergency response assigned within the member state?

1.3 Basic Responsibilities – National Coordinating Authority

- Does the role of the RB encompass national coordination?
- Is the RB's role clearly defined?
- What role, if any, does the NCA play in an emergency response?

1.4 Basic Responsibilities – Integrated Planning Concept

- How does the RB satisfy itself that the member state is co-ordinating its emergency planning to consider all hazards?
- How does the RB satisfy itself that the plans prepared by the operator, the off-site organisations and national plans (for international obligations) are co-ordinated?
- How does the member state assure itself that, in an emergency, co-ordination with non-nuclear planning bodies is achieved?

2.1 Concept of Operations

- Has the member state developed a national concept of operation for emergency situations?
- How does the RB satisfy itself that the Concept of Operations has been developed, shared and understood by the agencies taking part in the response?

3.1 Threat Assessment – Periodic Review of Threat Assessment

- How does the RB assess the potential for consequences from a nuclear installation?
- Is there a process to periodically review this assessment?
- How often is this review completed?
- How does the RB satisfy itself that the results of the periodic review are incorporated into both the on-site and off-site emergency plans?

3.2 Threat Assessment – Affected Areas

- Does the RB have the opportunity to influence land use planning decisions around the site, including the setting of the planning zones?

4.1 Identifying, Activating and Notifying – Identification

- How does the RB satisfy itself that operators have adequate arrangements for identification of an actual or potential nuclear or radiological emergency?

4.2 Identifying, Activating and Notifying – Level of Response

- How does the RB satisfy itself that the operator has adequate procedures and instructions to determine the appropriate level of response?

4.3 Identifying, Activating and Notifying – Classification

- How does the RB satisfy itself that the operator has established pre-determined criteria for emergency classification?

4.4 Identifying, Activating and Notifying – Declaration

- How does the RB satisfy itself that the operator has established a process for ensuring declaration to initiate the appropriate level of co-ordinated and pre-planned emergency response on and off the site?
- How does the RB have confidence that when a declaration is made by the operator the appropriate response is initiated on and off-site?

4.5 Identifying, Activating and Notifying – Responsibilities

- How does the RB satisfy itself that the responsibilities of response organisations are defined for each class of event?
- How does the Regulatory body have confidence that the initial response actions of the response organisations are implemented for the classes of event?

5.1 Taking Urgent Protective Action – Assessment of Results and Consequence Assessment

- Is there a process in place to urgently determine the impact of environmental and contamination information to decide on protection of the public and work?
- How does the RB have confidence that the arrangements for making prompt assessments of the consequence are likely to be effective in an emergency?

5.2 Taking Urgent Protective Action - Decision Making and Urgent Protective Action

- How does the RB satisfy itself that the communications infrastructure will allow implementation of decisions on urgent protective actions to be taken on and off site?
- How does the RB have confidence that the arrangements for taking urgent protective action are likely to be effective in an emergency?

6.1 Keeping the Public Informed – Public Information

- How does the RB satisfy itself that the on and off-site agencies have arrangements for providing public information, prior to an emergency?
- How does the RB satisfy itself that the on and off-site agencies have arrangements for keeping the public informed during an emergency?

7.1 Managing the Medical Response – Treating Casualties

- How does the RB satisfy itself that the appropriate Govt Department has discharged its responsibilities to ensure that arrangements are implemented to treat people who have been exposed or contaminated?
- How does the RB satisfy itself that the on and off-site agencies have arrangements for treating people who have been exposed or contaminated?

8.1 Infrastructure – Equipment

- Does the RB have a programme to inspect additional equipment held in reserve for emergencies (e.g. pumps filters etc.)?
- Does the RB inspect the use of additional equipment during demonstration exercises?

8.2 Infrastructure – Response Centres

- Does the RB inspect the ECC facilities and the arrangements for bringing it into operation?
- Does the RB inspect the ECC facilities and its performance during exercises?

9.1 On-Site – Plans, Facilities and Equipment, Drills and Exercise, Feedback and Improvements, Changes to Facilities and Plans

- Does the RB approve the plan?
- Does the RB inspect against the plan?
- Does the RB inspect the: condition of the facilities and the equipment; arrangements for using the facilities and equipment; and training and experience of the staff?
- Does the RB inspect the operator's programme of drills?
- Does the RB inspect the licensee's performance during exercises on-and off site?
- What elements of the demonstration exercise does the RB inspect (e.g. notification, rescue, contamination etc.)?
- How does the RB provide feedback of their assessment of the performance of the participating agencies both on and off site?
- How does the RB deal with changes to the plan, the organisation, or facilities and equipment?

WGIP members' responses to the above questions have been tabulated and are presented as an Appendix to this report.

5. ANALYSIS OF RESPONSES

5.1 Basic Responsibilities

All WGIP member countries have legislation in place that sets national requirements for emergency preparedness and clearly assign responsibilities for preparedness and response to a nuclear or radiological emergency. These responsibilities may be assigned at national or local levels and to national organisations (including the RB) and operators, depending on the countries legislative framework and system of government.

Responsibilities for emergency preparedness and response are typically assigned at three levels: operator, off-site and international. Operators of NPPs are responsible for managing the on-site response in all WGIP member countries, with RBs providing regulatory oversight. Responsibility for managing the off-site response invariably falls to local or regional government bodies and most RBs have more of an advisory role at this level. International obligations are managed at a national level and RBs often provide this role on behalf of central government.

National co-ordination is necessary to ensure that the functions and responsibilities of response organisations are clearly assigned, that arrangements are in place to achieving compliance; and to co-ordinate the assessment of nuclear or radiological threats from NPPs within the state. All WGIP member countries have a clearly identified national co-ordinating authority. In most cases, this function is provided by a ministry, or a delegated authority (Prefect, Civil Protection Office, etc.).

The role of RBs in the event of a nuclear or radiological emergency is clearly defined in WGIP member countries, although the extent of the responsibilities assigned varies considerably. Most RBs act as technical support or in an advisory capacity. But in some countries, RBs are assigned responsibilities at all levels, including national co-ordinator (*e.g.* Korea, Germany).

It is necessary for the national coordinating authority and the response organisations to ensure that the arrangements for response to a nuclear or radiological emergency are coordinated with the arrangements for response to conventional emergencies. The responsibility for ensuring integration of the off-site response is not generally assigned to the RB. But the majority of WGIP members do have responsibility for the review and approval of on-site plans and a significant involvement in the assessment of emergency exercises designed to demonstrate that on-site and off-site plans are adequately integrated. The integration of the on-site response to safety and security threats is not addressed explicitly in IAEA GS-R-2, but WGIP members agreed that this is an important area for consideration by RBs.

Responsibilities concerning international relations vary considerably between countries. Responsibilities may be officially taken by governments (*e.g.* Canada and Czech Republic), by the RB (*e.g.* France, Hungary, Mexico and Poland), or be split between federal and local governments (*e.g.* Germany). International responsibilities may include obligations to a range of bodies (*e.g.* IAEA, bilateral agreements, European Union) which could lead to some complicated situations where the transmission of accurate technical data and useful information between states, RBs and TSOs may be difficult.

RBs generally enforce the on-site emergency plans of utilities, but the position is more complicated for off-site and national plans managed by federal/national states, regional/provincial states or other civil protection bodies. RBs are often limited to an advisory role when the plans are written and an overview of its efficiency during exercises. A failure of the body in charge of off-site and national plans may not be necessarily addressed by the RB. This is less of a problem in countries where the RB is officially in charge of coordinating the civil defence response (*e.g.* Korea).

Observation

- The scope of responsibilities assigned to WGIP RBs varies considerably, but common areas of responsibility include the regulation of operator's on-site plans, the evaluation of emergency exercises and the ability to provide robust and authoritative advice to central government.

Commendable Inspection Practices

- RBs and their Inspectors have sufficient knowledge and information regarding operator's arrangements for the preparedness and response to nuclear emergencies, to enable authoritative advice to be given to the national coordinating authority, where necessary.
- Inspectors check that the operator's response to a nuclear emergency is adequately integrated with relevant response organisations.
- Inspectors pay attention to consider the integration of the operator's response to safety and security threats.
- The efficiency of international relations is checked in depth during some exercises (*e.g.* early warning, assistance and technical information), especially for near-border facilities that could lead to an emergency response abroad.
- RBs consider the adequacy of arrangements for emergency preparedness and response to multi-unit accidents.
- RBs assess the adequacy of arrangements to respond to accidents in other countries.

5.2 Concept of Operations

The majority of WGIP member countries have developed a national concept of operation for emergency situations. This establishes the required response to an emergency and ensures that all those involved in the development of a response capability share a common vision.

Observation

- Exercises are used by all WGIP member countries as a basis for testing that the licensee and responding agencies understand their role and that the response to a nuclear or radiological emergency is adequately coordinated.

Commendable Inspection Practice

- The RB's role is adequately documented and communicated to all agencies taking part in the response to a nuclear or radiological emergency.

5.3 Threat Assessment

All WGIP member countries (with the exception of Japan) require an assessment to be carried out of the threats posed by NPPs. The threat assessment is usually carried out by the licensee and evaluated by the RB.

The frequency at which the threat assessment is periodically reviewed varies considerably. Some WGIP member countries review the threat assessment every year (*e.g.* Russian Federation and Sweden); whereas other countries may carry out such a review at a periodicity of up to 10 years. A few of countries review the threat assessment in response to events such as 9/11 or Fukushima (*e.g.* USA)

The extent to which RB's have the opportunity to influence land use planning decisions and the setting of planning zones around NPPs varies as follows:

- Some RBs do not have any influence on planning decisions (*e.g.* Belgium, USA, Mexico, Switzerland and Spain).
- In Canada, there is a defined exclusion zone of 941m and the RB must approve land use.
- The Czech Republic ban constructions for permanent housing within 3 km of a NPP.
- In India, a 5 Km radius around NPPs is declared a sterilised zone.
- In France, Germany, United Kingdom and Sweden, the RB is consulted.

Observations

- The majority of WGIP member countries undertake a threat assessment of NPPs and review the findings periodically; either after a fixed period of time, or in response to significant events.
- The extent to which RBs have an influence over land use planning decisions around NPPs varies significantly.

Commendable Inspection Practices

- Inspectors check that threat assessments for NPPs have been undertaken in accordance with national requirements and that up-to-date assessments have been used as the basis for developing emergency plans for NPPs.
- Where RBs have an influence over land use around NPPs, they use the knowledge of their local or resident inspectors to inform decisions.

5.4 Identifying, Activating and Notifying

Operators are expected to have arrangements for the prompt identification of an actual or potential nuclear or radiological emergency. WGIP member countries require operators to explicitly define action levels or criteria (*e.g.* USA, Mexico, France and India) that will trigger the declaration of a nuclear or radiological emergency, or these arrangements are in the process of being put in place (*e.g.* Japan). WGIP RBs check that operators have adequate arrangements for the identification of an emergency by oversight of the emergency plan, inspections and participation in emergency exercises. Emergency exercises also serve to provide confidence that the operator will initiate an appropriate level of response on and off-site.

RBs generally review the on-site emergency plan and operational procedures to verify that operators have adequate arrangements in place for responding to a nuclear or radiological emergency. Oversight of emergency exercises and inspections are generally used by RBs to verify that the correct response will be achieved in practice.

All WGIP member countries have pre-determined criteria for classification of a nuclear or radiological emergency. The system for classifying emergencies specified in IAEA GS-G-2.1 does not appear to be in widespread use, although classification systems adopted are broadly equivalent.

In most WGIP member countries, the initial actions of response organisations are set out in off-site emergency plans. In addition, some WGIP member countries provide guidance at a national level on the roles and responsibilities of responding organisations (*e.g.* Hungary, Russian Federation, Japan, Spain Switzerland and United Kingdom). WGIP RBs generally rely on the observation of emergency exercises to gain confidence that the defined initial response of responding organisations will be implemented in practice.

Observations

- The majority of WGIP member countries require NPP operators to define action levels or criteria that identify an actual or potential emergency.
- WGIP member countries place significant reliance on the observation of emergency exercises to provide confidence that an appropriate response will be triggered on and off-site, that is proportionate to the level of threat.

Commendable Inspection Practices

- Inspectors check that appropriate action levels or criteria to identify an actual or radiological emergency are clearly defined and readily available to decision makers.
- When observing emergency exercises inspectors check that:
 - An appropriate and timely declaration is made.
 - Plant operators respond in accordance with the emergency plan and emergency instructions.
 - An appropriate level of response is initiated on and off-site.
- RBs conduct follow-up inspections after real events, to ensure that the correct emergency response has been followed.

5.5 Taking Urgent Protective Action

WGIP member countries adopt a variety of strategies to determine the impact of a nuclear or radiological emergency and to inform decision making on public protection. For example:

- All WGIP member countries have arrangements in place for environmental monitoring, which may be provided by the operator, the state or a combination.
- Some WGIP countries report that they have a national monitoring network (*e.g.* Czech Republic, Germany, Korea, Spain and United Kingdom), which is operated by the RB in some cases (*e.g.* Korea).
- The majority of WGIP member countries have processes in place for the evaluation of plant condition, source terms and atmospheric conditions to support decision making. In some cases the RB has the capability to independently evaluate the source term, dispersion and consequence predictions (*e.g.* Hungary, Slovak Republic, Spain and USA).

The evaluation of environmental monitoring information takes place according the arrangements of each country and as set out in off-site emergency plans.

WGIP member countries adopt a variety of methods to ensure that decisions on urgent protective action are supported by the communications infrastructure. For example:

- Members of the public who are resident in the local area around NPPs may be warned directly by the use of sirens (*e.g.* Canada, Czech Republic, France, Hungary), or more generally via radio and television.
- Many WGIP member countries have established dedicated and/or diverse means of communication between relevant authorities, including the RB (*e.g.* Germany, Hungary, Korea, Spain and USA).
- France requires the use of satellite phones for use by operators in the event that normal lines of communication are lost.
- The majority of WGIP RBs reported that communications channels are checked by tests and during emergency exercises.
- Japan, Mexico and Switzerland are considering upgrading their communications systems in the light of Fukushima.

WGIP RBs generally utilise the observation of emergency exercises to gain overall confidence that the arrangements for taking urgent protective action are likely to be effective in an emergency.

Observations

- It is widely recognised that the implementation of decisions to protect the public need to be supported by resilient communication channels and a number of WGIP member countries have identified the need to review their communications infrastructure following Fukushima.
- WGIP member countries place significant reliance on the observation of emergency exercises to provide confidence that arrangements for taking urgent protective action are likely to be effective in an emergency.

Commendable Inspection Practices

- Inspectors verify that reliable data will be used to support the evaluation of environmental impact from a nuclear or radiological emergency, to the extent that this is within the jurisdiction of the RB.
- Routine inspections and emergency exercises include a check that lines of communication are sufficiently resilient.

5.6 Keeping the Public Informed

The responsibility for providing appropriate information to the public prior to a nuclear or radiological emergency generally falls to either the NPP operator or local government and is undertaken in accordance with national laws. The responsibility of the RB with regard to public information varies considerably across WGIP member countries. For example, in the United Kingdom, the RB examines the content and delivery of prior information. Whereas in France, ASN has no competency ensure that the public are provided with prior information. The majority of RBs in WGIP member countries do not appear to be proactive in this area.

The responsibility for providing appropriate, timely, truthful and consistent information to the public following the declaration of a nuclear or radiological emergency usually falls to a ministry, a delegated authority or institution. Exceptionally, RBs may be directly involved in the provision of information to the public where they also act as national co-ordinator (e.g. Korea and Germany). Generally, RBs gain confidence from observation of emergency exercises that suitable arrangements are in place for keeping the public informed.

Observations

- There appears to be little direct involvement by most WGIP RBs to check that adequate prior information has been provided to the public regarding action to be taken in a nuclear or radiological emergency.
- WGIP members noted a potential concern that stocks of KI tablets must be checked and refreshed to ensure that they conform to the emergency plan.
- Confirmation that public behaviours will be consistent with assumptions in the emergency plan, including the use of information supplied prior to a nuclear or radiological emergency, is a challenge.

Commendable Inspection Practice

- When observing emergency exercises inspectors, where practicable, check that timely, accurate and consistent information is provided to the public, in accordance with the off-site emergency plan.

5.7 Managing the Medical Response

The provision of adequate medical centres for the treatment of people who have been exposed or contaminated is generally outside the competency of the RB. The involvement of RBs in this topic area is generally limited to the review of emergency plans and observation of emergency exercises. A number of

WGIP member countries have identified specific medical centres that have expertise in the treatment of exposed or contaminated casualties (*e.g.* India, Korea, Poland, Spain, Sweden and Switzerland). In Canada, further work is planned in this area as a result of Fukushima.

Observations

- WGIP members generally make limited checks that adequate arrangements for the treatment of people who have been exposed or contaminated have been implemented (*e.g.* that a contract is in place with local hospitals).
- WGIP members noted that NPPs provide additional capability for the detection and assessment of contaminated persons.

Commendable Inspection Practice

- RBs inspect the ability of the operator to give accurate medical and radiological information about casualties, to enable the correct treatment to be given.

5.8 Infrastructure

All NPPs have equipment stored on site for use during an emergency (*e.g.* pumps, engines, hoses, vehicles). The RBs of WGIP member countries generally include such equipment in their planned NPP inspection programmes and/or require it to be demonstrated during emergency exercises.

In response to Fukushima, a number of countries either have or are planning to provide additional reserve equipment stored off-site:

- Switzerland has a flood-proof and earthquake-resistant external storage facility that has been inspected by the RB.
- India has off-site equipment that is managed by public authorities.
- Germany has additional capability provided by plant manufacturers and a joint operator organisation that is not subject to regulatory supervision.
- In France, additional equipment is held by an inter-company supplier group that is not within the jurisdiction of the RB.
- Canada, Spain and UK have plans in place to provide additional off-site equipment storage facilities.

The operation of emergency control centre (ECC) facilities is inspected by all RBs during the observation of emergency exercises. Many RBs also undertake planned inspection of ECC facilities.

Observation

- Several WGIP member countries are currently planning or implementing improvements to provide additional equipment held in reserve for emergencies.

Commendable Inspection Practices

- Additional emergency equipment that is held in reserve off-site, provided to enhance resilience (post Fukushima), is included in the RB planned inspection and/or the emergency exercise programme.
- Inspectors check that licensee staff is adequately trained to connect and use additional equipment provided to enhance resilience.

5.9 On-Site Plans, Facilities and Exercises

NPP operators are required to put plans or other arrangements in place for managing the on-site response to a nuclear or radiological emergency. WGIP RBs carry out the following activities concerning on-site plans:

- Canada, Czech Republic, Finland, Germany, Hungary, Mexico, Russian Federation, Slovak Republic, Spain, India, Switzerland, Poland, United Kingdom and USA approve the on-site plan and any changes to it.
- Korea, Sweden, Belgium, Slovenia, and Japan do not approve on-site emergency plans

The majority of WGIP RBs carry out inspections of NPP operator's emergency facilities and equipment. RBs may also take account of the performance of emergency facilities and equipment during the observation of emergency exercises. In the case of USA and Switzerland, separate inspections are not undertaken and reliance is placed on the performance observed during emergency exercises. Japan does not currently carry out the inspection of emergency facilities.

The observation of NPP emergency exercises by the RB is a key element in building confidence in the adequacy of the operator's arrangements for emergency preparedness and response. The nature and frequency of RB involvement in site drills and demonstration exercises varies considerably, *e.g.*:

- France observes 10 national exercises per year but does not inspect drills for staff training.
- Hungary requires the submission of an annual training and exercise programme and the most important exercises are witnessed.
- India and USA have a programme of bi-annual observed off-site exercises.
- Mexico has a programme of bi-annual observed off-site exercises and sampling of on-site drills.
- Korea has a programme of observed off-site exercise held every 5 years and annual on-site exercises are observed.
- Spain has a triennial programme of observed off-site exercises and observes the performance of on-site drills.
- The United Kingdom has a programme of observed biannual off-site exercises and annual on-site exercises are observed.
- Japan and Poland do not currently observe emergency exercises. Poland does not operate commercial NPPs and Japan has plans to introduce this inspection requirement.
- Some countries (Finland, Germany and Mexico) include unscheduled emergency exercises in their inspection programme.

An evaluation of emergency exercise performance is usually provided by the RB to NPP operators and other participating organisations by a combination of verbal feedback and a follow-up report.

Observation

- The approach to inspection of emergency exercises by RBs appears to differ considerably between WGIP member countries and is an important area for further development, given the reliance placed on this activity.

Commendable Inspection Practices

- Inspectors utilise the NPP operator's approved on-site emergency plan when inspecting on-site emergency arrangements.
- RBs include human factors staff in emergency exercise evaluation teams to consider safety culture and human performance.
- RBs consider the need for exercise scenarios to be undisclosed to exercise participants.
- Bilateral trans-national inspection programmes between RBs on the topic of emergency preparedness should be developed and continued.

6. CONCLUSIONS

Detailed responses to the questionnaires from WGIP member countries have been compiled and are presented in the appendix to this report. The following commendable practices may be drawn from the completed questionnaires and views provided by WGIP members:

- RBs and their Inspectors have sufficient knowledge and information regarding operator's arrangements for the preparedness and response to nuclear emergencies, to enable authoritative advice to be given to the national coordinating authority, where necessary.
- Inspectors check that the operator's response to a nuclear emergency is adequately integrated with relevant response organisations.
- Inspectors pay attention to consider the integration of the operator's response to safety and security threats.
- The efficiency of international relations is checked in depth during some exercises (*e.g.* early warning, assistance and technical information), especially for near-border facilities that could lead to an emergency response abroad.
- RB inspection programmes consider the adequacy of arrangements for emergency preparedness and response to multi-unit accidents.
- RBs assess the adequacy of arrangements to respond to accidents in other countries.
- The RB's role is adequately documented and communicated to all agencies taking part in the response to a nuclear or radiological emergency.
- Inspectors check that threat assessments for NPPs have been undertaken in accordance with national requirements and that up-to-date assessments have been used as the basis for developing emergency plans for NPPs.
- Where RBs have an influence over land use around NPPs, they use the knowledge of their local or resident inspectors to inform decisions.
- Inspectors check that appropriate action levels or criteria to identify an actual or radiological emergency are clearly defined and readily available to decision makers.
- When observing emergency exercises inspectors check that:
 - an appropriate and timely declaration is made;
 - plant operators respond in accordance with the emergency plan and emergency instructions; and
 - an appropriate level of response is initiated on and off-site.
- RBs conduct follow-up inspections after real events, to ensure that the correct emergency response has been followed.
- Inspectors verify that reliable data will be used to support the evaluation of environmental impact from a nuclear or radiological emergency, to the extent that this is within the jurisdiction of the RB.
- Routine inspections and emergency exercises include a check that lines of communication are sufficiently resilient.
- When observing emergency exercises inspectors, where practicable, check that timely, accurate and consistent information is provided to the public, in accordance with the off-site emergency plan.
- RBs inspect the ability of the operator to give accurate medical and radiological information about casualties, to enable the correct treatment to be given.
- Additional emergency equipment that is held in reserve off-site, provided to enhance resilience (post Fukushima), is included in the RB planned inspection and/or emergency exercise programme.

- Inspectors check that licensee staff is adequately trained to connect and use additional equipment provided to enhance resilience.
- Inspectors utilise the NPP operator's approved on-site emergency plan when inspecting on-site emergency arrangements.
- RBs include human factors staff in emergency exercise evaluation teams to consider safety culture and human performance.
- RBs consider the need for exercise scenarios to be undisclosed to exercise participants.
- Bilateral trans-national inspection programmes between RBs on the topic of emergency preparedness should be developed and continued.

**APPENDIX
QUESTIONNAIRE RESPONSES**

- Question 1.1 Basic responsibilities – Legislative framework
1. What legislation does the member state have that assigns responsibilities for preparedness for a nuclear or radiological emergency?
 2. What legislation does the member state have that assigns responsibilities for response to a nuclear or radiological emergency?
-

Belgium

Q1.

The overall responsibility for emergency preparedness and response belongs to the Minister of Home Affairs. The Regulatory Body's responsibilities are limited to the radiological protection of the population, intervention workers and environment. These include *e.g.* defining the intervention guidelines as well as some specific responsibilities within the organisation of the emergency response (see below):

- Law of 31 December 1963 concerning the Civil Protection.
- Law of 15 April 1994 concerning the protection of the population and the environment against the dangers of ionising radiation and concerning the Federal Agency for Nuclear control.
- Royal Decree of 20 July 2001 concerning the basic safety standards for radiation protection of the population, workers and environment.
- Royal Decree of 16 February 2006 on the emergency and intervention plans.
- Royal Decree of 31 January 2003 defining the emergency plan for events and crisis situations requiring a coordination or management at the national level.
- Royal Decree of 17 October 2003 (published 20 November 2003) defining the nuclear and radiological emergency plan for the Belgian territory.
- Directive of the FANC of 17 October 2003 concerning the intervention guidelines for radiological emergency situations.

Through §2.5.1 of the RD of 17 October 2003 the Regulatory Body is assigned different responsibilities with regard to preparedness for a nuclear or radiological emergency:

- Providing technical assistance to the Minister of Home Affairs to develop emergency plans.
- Organisation of the committees in charge of the technical and radiological evaluation (CELEVAL) and the environmental measurements (CELMES); both chaired by a representative of the FANC.
- Providing technical and scientific support to CELEVAL, CELMES and the information cell (CELINFO).
- Defining the intervention guidelines.

Being the competent authority for EC and IAEA concerning nuclear or radiological emergency occurring in Belgium

The RB is in charge of the evaluation of the radiological risk and to propose protective actions to keep the dose to the public and emergency workers ALARA and below limits or intervention guidelines. Decisions on protective actions belongs to the decision makers (representatives of the ministers), in particular to the minister of home affairs and to the minister of public health.

Canada

Preparedness

Q1.

Primary authority is derived through the federal Emergency Management Act, and similar provincial legislation. The federal Nuclear Safety and Control Act provides additional responsibilities internal to the CNSC and NPP. Note that the management of the onsite accident is federally regulated (CNSC), while off site activities are regulated and controlled by the provinces.

Response

Q2.

The federal Emergency Management Act identifies responsibilities of the federal minister to prepare emergency management plans, coordinate with and support provincial plans, and support international responses. The current Federal Nuclear Emergency Management Plan was issued in 2002 by Health Canada. The plan allocates responsibilities amongst federal agencies, and coordinates with provincial plans. Note that the primary responsibility for managing emergency response is provincial, with federal support.

Czech Republic

Q1.

Act No. 18/1997 Sb. Atomic Act – defines authority and obligation of SONS, obligation of a licensee to ensure emergency preparedness, and obligation of some ministries to contribute for the emergency preparedness.

Details and requirements for emergency preparedness in the case of extraordinary events (radiation incidents and accidents) are established in the implementing regulations related to the Atomic Act:

- SÚJB Decree No. 318/2002 Coll., on details in emergency preparedness of nuclear installations and workplaces with ionizing radiation sources, and on requirements on the content of on-site emergency plans and emergency rules, as amended by the SÚJB Decree No. 2/2004 Coll.
- SÚJB Decree No. 307/2002 Coll., on radiation protection, as amended by the SÚJB Decree No. 499/2005 Coll.
- SÚJB Decree No. 319/2002 Coll., on function and organisation of the National Radiation Monitoring Network, as amended by the SÚJB Decree No. 27/2006 Coll.

Government Order No. 11/1999 Coll., defines requirements for the licensee for the elaboration of a proposal for establishing an emergency planning zone, for ensuring the activity of National Radiation Monitoring Network in the emergency planning zone, for the provision of the population in the emergency planning zone with antidotes, for ensuring the press and information campaign, for the notification system of involved bodies about occurrence or suspected occurrence of a radiation accident, for ensuring the warning system of population in the emergency planning zone.

Further requirements are laid down by the Act No. 239/2000 Coll., on the integrated rescue system and by the Act No. 240/2000 Coll., on crisis management.

Act No. 239/2000 Coll., as amended, establishes:

General definition of the extraordinary event, which is not identical (is broader) with the term “radiological emergency”, Integrated Rescue System, way of control and coordination of activities of basic and other units of the integrated rescue system during rescue and remedial work, powers and duties of bodies and representatives of regions, municipalities with an extended competency and municipalities in the case of extraordinary events, rights and duties of legal and physical entities during the preparation for extraordinary events and during rescue and remedial work and during the population protection during extraordinary events including radiation accidents, and division of responsibility.

Act No. 240/2000 Coll., the Crisis Act, stipulates the power and competencies of government bodies and authorities of regional self-government units as well as the rights and duties of legal entities and individuals in preparation for crisis situations and in their solution.

The relevant details are amended by:

Ministry of Interior Decree No. 328/2001 Coll. establishes details for ensuring integrated rescue system operation, including principles for coordination and collaboration of its units during common intervention. The Decree further establishes requirements for the contents of documentation of the integrated rescue system, way of elaboration of documentation and details on alarm degrees of the alarm plan. It also

establishes principles and way of elaboration, approval and use of regional emergency plan and off-site emergency plan, as well as the principles of crisis communication and connection within the integrated rescue system.

The Ministry of Interior Decree No. 380/2002 Coll., establishes, among others, details in the manner of informing legal and physical entities on the nature of the possible threat, upcoming measures and the way of their implementation, details of technical, operational and organisational plans ensuring a unified warning and notification system as well as a way of providing emergency information.

The Government Order No. 462/2000 Coll., establishes among others details of the emergency plan and emergency preparedness plan, and way of their elaboration.

Finland

Q1.

Legal requirements are sufficient.

France

Q1.

On-site

The operator has the obligation to establish an internal emergency plan (Decree n°2007-1557 of 2 November 2007, Article 20) and recently Ministerial Decree of 7 February 2012 that set general rules concerning fixed nuclear installation.

Off-site

The law n°2004-811 of 13 August 2004 (Articles 13 to 29) and especially the Decree n°2005-1158 of 13 September 2005 requires the *Préfet* to establish a “particular plan of intervention” (off-site emergency plan).

The *préfet* is, in a département, representative of the State appointed by the President.

Germany

Q1.

Based on the regulations of the Atomic Energy Act, the Precautionary Radiation Protection Act, the Radiation Protection Ordinance and the disaster control laws of the *Länder*, planning of emergency preparedness is described by the subordinate regulations and by recommendations.

To ensure an uniform approach in the planning and possible implementation in the case of an event, the BMU (Federal Ministry for the Environment, Nature Conservation and Nuclear Safety) developed, with the support of the SSK (Commission on Radiological Protection) and in co-operation with the *Länder*, the Basic Recommendations for Emergency Preparedness in the Environment of Nuclear Facilities, the Radiological Bases for Decisions on Measures for the Protection of the Population against Accidental Releases of Radionuclides and, also with the support of the RSK (Reactor Safety Commission), the Basic Recommendations for the Planning of Emergency Control Measures by the Licensees of Nuclear Power Plants (NPPs).

Hungary

Preparedness

Q1.

The Act CXVI of 1996 on Atomic Energy defines the responsibilities for responding to and preparing for emergencies. There is also an Govt. Decree (167/2010 Korm) that further specifies the tasks and responsibilities within the national nuclear emergency response system.

Response

Q2.

Act No 128 of 2011 on the disaster management and its executive governmental decree provides the general framework for disaster management, and governmental decree No 167 of 2010 defines the specific operational responsibilities on governmental, regional and local levels and also for operators of nuclear and radiological facilities activities. Responsibilities for international early notification and provisions for assistance are laid down in the Atomic Act No 116 of 1996.

India

Q1.

Government of India enacted “the disaster management act, 2005” which provides for the effective management of disasters including accidents involving nuclear power plants (NPP) for handling off-site emergencies. As per the provisions of this act, the National Disaster Management Authority (NDMA) has been established with Prime Minister of India as the Chairperson and similar authorities in the states with Chief Ministers as Chairpersons.

The role of RB and licensee during radiological and nuclear emergencies is defined in Radiation Protection rules enacted by the Government of India under the Atomic energy act.

As per Atomic Energy act, RB has issued codes and guides for allocating responsibilities for preparedness and response for nuclear and radiation emergencies. The legislation has assigned the responsibilities in (a) NDMA Act (b) Atomic Energy Act (c) Radiation Protection Rule-2004.

Japan

Q1.

The national laws are as follows:

Basic Act on Disaster Control Measures

Act on Special Measures Concerning Nuclear Emergency Preparedness (Nuclear Emergency Preparedness Act)

Please note:

In the Japan there is no difference between the requirements for preparedness and response. It is required that the preparedness elements be implemented during response.

Japanese framework of the regulation system and laws will be revised in the near future.

Korea

Q1.

The roles of NSSC (Nuclear Safety & Security Commission) in emergency preparedness and response inside the national emergency organisation are stipulated in the “Act on Physical Protection and Radiological Emergency” (APPRE) and subsequent regulations. The measures for emergency preparedness

and response taken for such purpose constitute a part of national level disaster management system under the “Framework Act on the Management of Disasters and Safety” and the “Framework Act on Civil Defence”. The Republic of Korea has joined the Convention on Early Notification of a Nuclear Accident (Treaty No. 1009, Entry into force on 9 July 1990) and the Convention on Assistance in the Case of a Nuclear Accident or Radiological Emergency (Treaty No. 1010, Entry into force on 9 July 1990).

Mexico

Q1.

The national laws are:

Regulatory Law of Constitutional Article 27 on Nuclear matter: Article 28.

Other regulations adopted a national level are found in Title 10 of the US Code of Federal regulations, Part 50 and Appendix E of Part 50.

Poland

Preparedness

Q1.

Legal framework:

1. Act of Parliament of 29 November 2000 on Atomic Law.
2. Act of Parliament of 26 April 2007 on Crisis Management.
3. Regulation of the Council of Ministers of 18 January 2005 on emergency response plans in case of radiation emergency.
4. Regulation of the Council of Ministers of 20 February 2007 amending regulation on emergency response plans in case of radiation emergency.
5. Regulation of the Council of Ministers of 17 December 2002 on the stations for early detection of radioactive contamination and on the units conducting measurements of radioactive contamination.
6. Regulation of the Council of Ministers of 18 January 2005 on ionizing radiation dose limits.

Response

Q2.

Legal framework:

1. Act of Parliament of 29 November 2000 on Atomic Law
2. Act of Parliament of 26 April 2007 on Crisis Management
3. Regulation of the Council of Ministers of 18 January 2005 on emergency response plans in case of radiation emergency
4. Regulation of the Council of Ministers of 20 February 2007 amending regulation on emergency response plans in case of radiation emergency
5. Regulation of the Council of Ministers of 17 December 2002 on the stations for early detection of radioactive contamination and on the units conducting measurements of radioactive contamination
6. Regulation of the Council of Ministers of 18 January 2005 on ionizing radiation dose limits
7. Regulation of the Council of Ministers of 27 April 2004 on prior information for the general public in the event of radiation emergency
8. Regulation of the Council of Ministers of 27 April 2004 on values of intervention levels for particular types of intervention measures and criteria for revoking these measures
9. Regulation of the Council of Ministers of 27 April 2004 on specifying entities competent for performing inspection of foodstuffs and feedstuffs with regard to their compliance with maximum admissible levels of radioactive contamination following a radiation emergency

Russian Federation

Q1.

- Federal Law “On the use of atomic energy”,
- Federal Regulations and Rules (FRR) “Provisions on the investigation and account of violations in NPP operation” (NPP-004-08), “Provisions on the emergency situation announcement, expeditious data communications and arrangement of urgent assistance to NPP in case of radiation hazardous situations” (NPP-005-98), “Standard content of action plan on personnel protection in case of NPP accident” (NP-015-2000).

Slovak Republic

Preparedness

Q1.

The most important Act in the area of peaceful use of nuclear power in the Slovak Republic is the Act No. 541/2004 Coll. on Peaceful use of nuclear energy (Atomic Act).

§ 28 sets down general requirements for emergency planning:

The main duties: to prepare On- and Off-site emergency plans and emergency transport orders

Response

Q2.

Off-site emergency provisions are made according to the Act No. 42/1994 Coll. on Civil Protection as amended. County offices are obliged to establish an off-site response organisation and prepare off-site emergency plans for respective threats on their territory.

Slovenia

Q1.

- The National Radiation Emergency Response Plan, 2010
- Act on Protection Against Natural and Other Disasters (Official Gazette of the RS, Nos. 51/06 – official - consolidated text 1, and 95/07 – Act Amending the Public Sector Salary System Act)
- Act on Ionising Radiation Protection and Nuclear Safety (Official Gazette of the RS, No. 102/04 – official consolidated text 2)
- Decree on the Contents and Drafting of Emergency Response Plans (Official Gazette of the RS, Nos. 3/02, 17/02, 17/06 and 76/08)
- Decree on Dose Limits, Radioactive Contamination and Intervention Levels, Official Gazette of the RS, No. 49/04

Spain

Preparedness

Q1.

Law 2/1985, of January 21, approving the Civil Defence Act.

Royal Decree 407/1992, of April 24, which approves the basic Standard on civil defence.

Royal Decree 1836/1999, of December 3, which approves the Regulation on nuclear and radioactive facilities.

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

Response

Q2

- Law 2/1985, of January 21, approving the Civil Defense Act.
- Royal Decree 407/1992, of April 24, which approves the basic Standard on Civil Defense.
- Royal Decree 1836/1999, of December 3, which approves the Regulation on nuclear and radioactive facilities.
- Royal Decree 1546/2004, of June 25, approving the Basic Nuclear Emergency Plan.
- Royal Decree 1428/2009, of September 11, modifying the Basic Nuclear Emergency Plan, approved by Royal Decree 1546/2004, of June 25.

Sweden

Q1.

The legislation for the RB the Swedish Radiation Safety Authority (SSM) and other authorities are:

- The Ordinance (2008:1) The Swedish Radiation Safety Authority's Regulations concerning Safety in Nuclear Facilities.
- The Ordinance (2008:15) The Swedish Radiation Safety Authority's Regulations concerning Emergency Preparedness at Certain Nuclear Facilities.
- The Ordinance (2008:452) with instructions for the Swedish Radiation Safety Authority.
- The Act (1984:3) on Nuclear Activities, the Ordinance (1984:14) on Nuclear Activities.
- The Radiation Protection Act (1988:220), the Radiation Protection Ordinance (1988:293).
- The Civil Protection Act (2003:778), the Civil Protection Ordinance (2003:789).
- The Emergency Preparedness and Heightened State of Alert Ordinance (2006:942).

Switzerland

Q1.

Switzerland has defined the responsibilities for preparedness for a nuclear or radiological emergency in the following acts and ordinances:

- Radiological Protection Act and Ordinance
- Nuclear Energy Act and Ordinance
- Ordinance on the Organisation of Operations in Connection with NBC and Natural Events (NBCN Operations Ordinance)
- Ordinance on Protection in the Case of an Emergency
- Ordinance on the National Emergency Operation Centre
- Ordinance on Alerting and Alarming (Alarming Ordinance)
- Ordinance on Iodine Prophylactics in the Case of a Nuclear Accident
- Ordinance on Swiss Federal Nuclear Safety Inspectorate ENSI
- Convention on Nuclear Safety signed by Switzerland
- Convention on Early Notification and Assistance ratified and put into force in 1988
- Bilateral agreements with neighbour countries Germany, Austria, France and Italy

Below the legislative level of acts and ordinances the Concept for the Emergency Protection in the Vicinity of Nuclear Power Plants (by the ComNBC, Federal Commission for NBC Protection, 2006) explains the interaction between the above mentioned legislative requirements in detail and defines a process for the off-site emergency management in case of a nuclear accident.

Generally, the responsibilities for the emergency preparedness are distributed on the federal level on ENSI, NEOC resp. FOCP, the Federal NBCN Crisis Management Board, the affected cantons and the nuclear operators (licensees).

Frequently used acronyms:

EP & R.....	Emergency Preparedness and Response	NPP.....	Nuclear Power Plant
FOCP.....	Federal Office for Civil Protection	RB.....	Regulatory Body
NBCN.....	Nuclear, biological, chemical and natural	SAMG.....	Severe Accident Management Guidance
NEOC.....	National Emergency Operation Centre		

United Kingdom

Q1.

Hierarchy of legislation:

- Health & Safety at Work Act 1974 (HSWA)
- Nuclear Installations Act 1965 (NI Act): LC11 in particular
- Radiation (Emergency Preparedness & Public Information) Regulations 2001 (REPPIR)

Also Civil Contingencies Act 2004 (CCA) describes responsibilities of central government and national agencies, and guidance (Cabinet Office document: ‘Emergency Preparedness’) links this to other (hazard-specific) legislation. Chapter 19 “The Fit with Other Legislation” provides this information.

Nuclear-specific guidance provided in Nuclear Emergency Planning Liaison Group (NEPLG) Consolidated Guidance.

NI Act places responsibilities on Licensee only.

LC11(1) requires ‘arrangements’, and in satisfying this requirement the operator produces an (operator’s) site emergency plan which is subject to Approval by the RB (LC11(2)). The emergency plan assigns responsibilities to organisations involved in the on-site response to a nuclear emergency.

The RB has produced Technical Guidance (T/INS/011) which, together with guidance provided in REPPIR Schedule 7, provides information on the expected content of an operator’s emergency plan. The guidance requires the plan to identify the key roles within the emergency organisation and their associated levels of responsibility and authority. The plan should also describe the roles of, and interfaces with, the organisations with whom the licensee has collaborated in drawing up the plan (*e.g.* emergency services, local authorities and enforcement agencies).

REPPIR assigns responsibilities to other duty holders (*e.g.* Local Authorities, Health & Safety Executive/Office for Nuclear Regulation (HSE/ONR)). REPPIR non-statutory guidance provides interpretation.

Additionally, the HSWA places a general duty on all responders to do all that is reasonably practicable to reduce risk whilst the Ionising Radiations Regulations 1999 (IRR) (made under the HSWA) contain specific requirements for the protection of employees and the public from radiation.

NEPLG Consolidated Guidance (in particular Chapter 4: The Roles & Responsibilities of Responding Organisations) provides detailed information on the particular responsibilities and activities undertaken by responding organisations.

NB UK emergency arrangements do not strictly follow the approach taken in IAEA GSR and GSG documents to identify threat categories. Instead, a comprehensive framework of legislation and overarching approach to the licensing of nuclear facilities in the United Kingdom requires the hazards and risks of nuclear facilities to be assessed and appropriate measures adopted for their safe operation.

NB UK emergency arrangements do not strictly follow the approach taken in IAEA GSR and GSG documents to identify threat categories. Instead, a comprehensive framework of legislation and overarching approach to the licensing of nuclear facilities in the UK requires the hazards and risks of nuclear facilities to be assessed and appropriate measures adopted for their safe operation.

USA

Q1.

The national laws are:

- The Atomic Energy Act of 1954
- Reorganisation Plan No. 3 of 1970
- The Energy Reorganisation Act of 1974
- Hazardous Materials Transportation Uniform Safety Act of 1990
- Presidential Executive Order 12148

The germane regulations are found in Title 10 of the US Code of Federal regulations, Part 50 and Appendix E to Part 50

Please note: in the US there is no difference between the requirements for preparedness and response. It is required that the preparedness elements be implemented during response.

- Question 1.2 Basic responsibilities – Operators’ responsibilities, off-site responsibilities and international responsibilities
1. How are the responsibilities for emergency preparedness assigned within the RB?
 2. How are the responsibilities for emergency response assigned within the member country?
-

Belgium

Q1.
See 1.1

Canada

Preparedness

Q1.
Operators responsibilities

The CNSC has a division (Emergency Management Programs Division - EMPD) dedicated to reviewing and approving licensee emergency plans. This division also supports NPP inspection activities as subject matter experts.

Off-site responsibilities

Off site response is the responsibility of the provincial Emergency Measures Organisation (EMO), supported by the operator, and federal EMO. EMPD is also responsible for liaison with provincial and federal EMO, and ensuring the CNSC emergency plan fits into the broader federal and provincial plans.

International responsibilities

International responsibilities are managed through the federal government. EMPD supports the development of the federal emergency plan, and during an emergency supports the liaison between the federal and provincial EMO.

Response

Q2.
Operators responsibilities

The operator is responsible for on-site management of the emergency including preventing and controlling releases. Conducting and reporting on site and off site surveys for plume tracking to the provincial Emergency Measures Organisation (EMO). The operator also provides technical resources, and personnel (decontamination) to the province.

Off-site responsibilities

Off site response is managed by the provincial EMO, supported by the operator, and federal EMO.

International responsibilities

International responsibilities are managed through the federal government. Note that since the CANDU fleet is located near the United States border, the provincial EMO have direct contact with the US state and federal EMO.

Czech Republic

Preparedness

Q1.

I.a.w. to Act No. 240/2000 Coll., the Crisis Act, there is established a ERC (Emergency response centre) as a workplace of crisis management, a special working place in direct subordination to office chairman, authorized for coordination of crisis management at all three levels.

Responsibilities of RB (SÚJB) for a nuclear or radiological emergency purposes are defined by Section 3, Act No. 18/1997 Coll.

Response

Q2.

Licensee

Broad framework Operator's responsibilities are set up in Section 18 and 19 of the Atomic Act. In details are operator's responsibilities set up in Decree No. 318/2002 Coll. and in Government Order No. 11/1999 Coll.,

Regional Authorities

Responsibilities of regional authorities are set up in Act No. 240/2000 Coll, Act No. 239/2000 Coll and Act No. 241/2000 Coll.

Government

Government responsibilities are set up in Act No. 240/2000 Coll, Act No. 239/2000 Coll , Act No. 241/2000 Coll., Act No. 18/1997 Coll.

France

Q1.

Operators responsibilities

The Operator has to define in his emergency plan the organisation measures, the operation methods and the necessary means that he has to put in place in order to prevent from radiations his personnel, the people and the environment. The name of this plan is PUI – PUI plan: the on-site emergency plan.

Off-site responsibilities

The *Préfet* has to define in his plan the ways of information and protection of the people living in the cities covered, schemes of evacuation, the interruption of the traffic, inventory of means available, role of rescue teams etc. The name of this plan is PPI.

The PPI falls within the framework of the ORSEC plan (Disaster and Emergency Response Organisation) that specifies the protective measures implemented in large-scale emergencies.

Consequently, beyond the perimeter established by the PPI, the modular and progressive departmental or zoned ORSEC plan applies in full.

(PPI plan: The off-site emergency plan established by the *Préfet* in application of decree 2005-1158 of 13th September 2005

ORSEC plan: Disaster and Emergency Response Organisation)

International responsibilities

ASN is the Competent Authority within the framework of the international Conventions on early notification and assistance.

Germany

Preparedness

Q1.

Operators responsibilities

The operator is responsible for the on-site emergency planning and has to perform an emergency exercise per NPP unit and year. The review of its preparation, execution and evaluation is assigned to the competent supervisory authorities of the *Länder*.

Off-site responsibilities

Off-site emergency planning falls within the competence of the authorities of the *Länder* (regarding disaster control) and the Federation (regarding precautionary radiation protection). Within the organisational structure of the *Länder*, the responsibilities are delegated from the authorities of the interior to regional or also to local level. The nuclear supervisory authorities and the radiation protection authorities of the *Länder* provide their support.

International responsibilities

The Federal Government authorities are responsible for the preparation and planning of general requirements, cross-national emergency preparedness and international reporting systems. Its authorities participate in international activities to determine the state of the art in science and technology and regarding the nuclear regulations and provision for national purposes. Furthermore, *Länder* government authorities participate in the co-operation with neighbouring countries in the case of installations close to the border, especially on the basis of bilateral agreements.

Response

Q2.

Operators responsibilities

The operator is responsible for the performance of all on-site measures for coping with emergencies. The respective measures are laid down in the alarm regulation contained in the operating manual and in the accident management manual. The alarm regulation includes also the alert plans for alerting of the competent authorities. The accident management manual covers both measures to reduce the probability of severe accidents (preventive accident management measures) as well as measures to mitigate the consequences of severe accidents with core damage (mitigative accident management measures).

Off-site responsibilities

As above.

International responsibilities

The Federal Government, namely the BMU, is responsible for the fulfilment of the international information and reporting obligations, *e.g.* for the implementation of the Convention on Early Notification of a Nuclear Accident, the Convention on Assistance in the Case of a Nuclear Accident or Radiological Emergency and the information exchange for radiological emergencies according to bilateral agreements. Furthermore, *Länder* government authorities participate in the co-operation with neighbouring countries in the case of installations close to the border, especially on the basis of bilateral agreements.

In the event of an emergency, the measurement data acquired within the monitoring programmes and the situation assessment of the plant operator will be the basis for reporting in accordance with the EU

agreement on rapid information exchange and the Convention on Early Notification of a Nuclear Accident. They also serve as basis for the information exchange for fulfilling bilateral agreements. This ensures that Germany's neighbouring countries will receive timely information. The measurements routinely performed in accordance with the Guideline on Emission and emission Monitoring are also used for the reports to the EU in accordance with Article 36 of the EURATOM Treaty. Germany has signed bilateral agreements regarding mutual assistance in the case of an emergency with all of the nine neighbouring countries. Moreover, assistance agreements have been concluded with Lithuania, Hungary and the Russian Federation. Similar agreements with Italy and Bulgaria have been initialled or are in preparation. Due to such agreements, there are direct information and data exchanges at the regional level at NPP sites near the border between the respective disaster control authorities or organisations for determining the radiological situation.

In addition, regarding further development and harmonisation of nuclear emergency preparedness regulations at an adequate high international level, representatives of the BMU and other organisations participate for Germany in the relevant commissions at OECD/NEA and IAEA.

Hungary

Preparedness

Q1.

Operators responsibilities

The operator is responsible for responding within the site and for providing the required alert, notification and information for the off-site authorities.

Off-site responsibilities

The off-site organisations are responsible for protecting the environment and the public off the site of the facilities. The local authorities are responsible within their jurisdiction, while the national organisations are responsible for assisting them, then take the lead in response in the later phase and to coordinate the national response. Within that the regulatory body shall keep the contact with the plant and evaluate the technical and radiological situation and shall propose the necessary protective actions for the public.

International responsibilities

The RB is responsible for international communication (i.e. competent authority) with the IAEA, EU and bilateral countries.

Response

Q2.

Operators responsibilities

Operator is responsible for immediate response according to the on-site emergency plan and notification of all institutions incorporated in the national emergency response plan.

Off-site responsibilities

According to §44 of the Atomic Act No 116 of 1996 off-site organs are responsible for those arrangements that exceed the capabilities of the operator in case of an emergency.

International responsibilities

Responsibilities for international early notification and provisions for assistance are laid down in the Atomic Act No 116 of 1996.

India

Preparedness

Q1.

Operators responsibilities

RB Safety guide “Role of the Regulatory Body with respect to emergency response and preparedness at Nuclear and Radiation facilities” (AERB/SG/G-5, 2000) describes the role of RB in case of nuclear and radiological emergencies. It provides necessary information intended to assist the facilities, and other participating/collaborating agencies, to fulfil the requirements stipulated in the code. It also elaborates on the RB’s review and approval process of the emergency response and preparedness plans formulated by the nuclear and radiation facilities.

Off-site responsibilities

The responsibility for preparedness and response to radiological emergencies is public domain is assigned to state authorities.

International responsibilities

Crisis Management Group (CMG) under Department of Atomic Energy is the nodal agency under the IAEA notification and IAEA assistance convention.

Response

Q2.

Operators responsibilities

The responsibility for overall co-ordination in case of site emergencies rests with the plant management.

Off-site responsibilities

During off-site emergencies the responsibility rests with the public functionaries such as district and central government authorities.

Japan

Q1.

Operators responsibilities

By regulation see 1.1.

Responsibilities of the operator are stipulated in Article 3, the Nuclear Emergency Preparedness Act as follows:

“A nuclear operator shall be responsible for taking full-scale measures for the prevention of the occurrence of a nuclear disaster pursuant to the provisions of this Act or any other relevant Act and for taking, in good faith, necessary measures with regard to the prevention of the progression (expansion) of a nuclear disaster (including the probability of the occurrence of a nuclear disaster) and nuclear disaster recovery efforts.”

Off-site responsibilities

By regulation see 1.1, the operator is dependent on cooperation from local governments.

Responsibilities of local governments are stipulated in the article 5, the Nuclear Emergency Preparedness Act as follows:

“A local government shall, pursuant to the provisions of this Act or any other relevant Act, fulfil its responsibilities under Article 4, paragraph 1 and Article 5(*), paragraph 1 of the Basic Act on Disaster Control Measures concerning a nuclear disaster by taking measures necessary for the implementation of measures to prevent nuclear emergency, emergency response measures and measures for restoration from nuclear emergency.”

*: These articles stipulate that local governments formulate emergency preparedness action plans for the protection of local residents' lives, bodies and the interests.

International responsibilities

Coordination with IAEA is the responsibility of the national government.

Japan is proactively utilizing websites concerning the Emergency Convention (ENAC Web) operated by IEC of the IAEA as an existing information sharing system. The RB body has established standard procedures for notification of information to the ENAC Web, and has been making efforts to speed up the provision of information.

This framework of providing emergency information to neighbouring countries will be changed in the near future.

Korea

Q1.

Operators responsibilities

As per Chapter 3 (Radiological Disaster Management Measures) and Chapter 4 (Supplementary Provisions) of the "Act on Physical Protection and Radiological Emergency" (APPRE), NSSC has overall statutory responsibility and authority for emergency preparedness and regulatory responsibilities for the following:

- To conduct and evaluate radiological emergency exercises.
- To inspect nuclear licensee's emergency preparedness.
- To designate institution to take charge of education for radiological emergency.

Off-site responsibilities

NSSC may request the head of the local government concerned to rectify or supplement the local emergency plan if necessary, and approves the Emergency Plan submitted by nuclear licensee. KINS reviews the licensee's Radiological Emergency Plan in accordance with Article 45 (Entrustment of Duties) of the APPRE.

As per Article 18 (Formulation of a National Radiological Emergency Plan, etc.) and Article 34 (Relations to Framework Act on Civil Defence, etc.) of the APPRE, and Article 20 (Formulation of a National Radiological Emergency Plan, etc.) of the Enforcement Decree of the APPRE, NSSC develops and implements the National Radiological Emergency Plan every year. KINS develops and implements the Radiological Emergency Technical Advisory Plan.

International responsibilities

The Republic of Korea is a contracting party to the Convention on Early Notification of a Nuclear Accident and the Convention on Assistance in the Case of a Nuclear Accident or Radiological Emergency. In the event of a radiological disaster, NSSC has a responsibility to notify the International Atomic Energy Agency (IAEA) and related countries of the details of such radiological disaster and request emergency assistance, if necessary, under the above international conventions and other bilateral agreements, in accordance with Article 40 (International Cooperation, etc.) of the APPRE.

Mexico

Q1.

Operators responsibilities

Regulatory Law of Constitutional Article 27 on Nuclear matter: Article 28 for Operators.

Off-site responsibilities

Regulatory Law of Constitutional Article 27 on Nuclear matter: Article 50 for RB. And the operator is dependent on cooperation from local government authorities.

International responsibilities

Coordination with IAEA and national neighbours is the responsibility of the National Commission on Nuclear Safety and Safeguards (CNSNS) which is the Mexican Nuclear Regulatory Commission.

Poland

Q1.

Operators responsibilities

The responsibilities for emergency preparedness are assigned in the Act of Parliament of 29 November 2000 on Atomic Law, chapter 11, article 84.

In case of radiation emergency on facility level, the head of the organisational entity is responsible for actions aimed at the elimination of the hazard and of the consequences of the emergency.

If the radiation emergency occurred during transport, the actions aimed at the elimination of the hazard and of the consequences of the emergency are directed by the person responsible for the shipment's security in transport, in arrangement with the regional governor appropriate for the emergency site, who cooperates with the state regional sanitary inspector.

The licensee has to have appropriate radiation emergency plan in place. The emergency preparedness and response, including the actions planned within the radiation emergency plan, must be subject to periodic exercises (not less than once every 2 years (in case of X-ray operators once every 3 years).

Off-site responsibilities

The responsibilities for emergency preparedness are assigned in the Act of Parliament of 29 November 2000 on Atomic Law, chapter 11, Article 84.

During a radiation emergency on a regional scale, the actions aimed at the elimination of the hazard and of the consequences of the emergency shall be directed by the region's governor in cooperation with the state regional sanitary inspector, unless the radiation emergency occurred during licensed transport.

If the radiation emergency occurred during transport, the actions aimed at the elimination of the hazard and of the consequences of the emergency shall be directed by the person responsible for the shipment's security in transport, in arrangement with the regional governor appropriate for the emergency site, who cooperates with the state regional sanitary inspector.

During radiation emergency on a national scale, the actions aimed at the elimination of the hazard and of the consequences of the emergency shall be directed by the minister competent for home affairs, with the assistance of the RB (within the RB, the responsibilities for emergency preparedness and response are fulfilled by the department Radiation Emergency Centre).

The region's governors have radiation emergency plans, and perform exercises not less than once every 3 years.

The national radiation emergency plan is included in the Regulation of the Council of Ministers of 18 January 2005 on emergency response plans in case of radiation emergency. This plan has to be subject of exercise at least once every 3 years.

The roles and responsibilities in case of radiation emergency (radioactive contamination) on national scale, within phases of prevention, preparedness, response and restoration are described in the National Crisis Management Plan (created on basis of Act of Parliament of 26 April 2007 on Crisis Management).

International responsibilities

The responsibilities for emergency preparedness in international level are assigned in the Act of Parliament of 29 November 2000 on Atomic Law, Chapter 10 Article 77.

Within the RB there is National Contact Point (domestic and abroad) appointed in the Radiation Emergency Centre. It operates 24/7 and it enables immediate contact with appropriate contact point in IAEA, European Commission, Baltic Sea States Council and countries with which Poland has bilateral agreements signed.

http://www.paa.gov.pl/en/doc/atomic_law_consolidated.pdf

Russian Federation

Preparedness

Q1.

RB is not responsible for emergency preparedness. RB is responsible for supervision of emergency preparedness by operator and agencies. Within RB, Department of NPP and RR is responsible for supervision of emergency preparedness.

Response

Q2.

Responsibilities for emergency response are established by legislation.

Slovak Republic

Preparedness

Q1.

Operators responsibilities

To be able to assess a course and consequences of incidents and accidents at nuclear facilities important from the point of view of their possible impact to the environment, to prepare proposals of provisions or recommendations for further actions as well as for realisation of exercises UJD has built an Emergency Response Centre (ERC).

Off-site responsibilities

ERC basic operation modes Basic operation modes of ERC are defined in three basic levels:

Monitoring level.

Emergency level.

Post-emergency level.

International responsibilities

In relation to IAEA as well as EU RB has a role of national contact point.

Response**Q2.**

Operator is responsible for immediate response according to the on-site emergency plan and notification of all institutions incorporated in off-site emergency plans.

County authorities are responsible for implementation of response arrangements according to the off-site emergency plans.

The main responsibility for emergency response on the national levels has national emergency headquarters which coordinate the civil protection and armed components of state.

Slovenia

Preparedness**Q1.**

By organisational structure, by internal rules and procedures

Response**Q2.**

By the national plan

Spain

Preparedness**Q1****Operators responsibilities**

On-site responsibilities: To evaluate and inspect the onsite emergency plans of each nuclear power plant.

Off-site responsibilities

Off-site responsibilities: To collaborate with the competent authorities in the elaboration of the criteria to which the off-site emergency plans and those for the physical protection of nuclear and radioactive installations, as well as transportation, must be adjusted. Once these plans are formulated it shall participate in their approval.

To coordinate, in all those aspects related to nuclear safety and radiological protection, the measures for assistance and response to emergency situations, integrating and coordinating the different bodies and public or private companies whose participation is deemed necessary for the implementation of the functions attributed to this Body.

Furthermore, to carry out whatever other activities in emergency matters that are assigned to it in the applicable regulations.

International responsibilities

International responsibilities: To maintain official relationships with similar foreign bodies, and to participate in international organisations with competences in the field of nuclear safety and radiological protection.

Similarly, it shall collaborate with international bodies or organisations in programs of assistance on matters of nuclear safety and radiological protection, taking part in their execution, either directly, or by contracting third parties or entities for this end, always in compliance with the conditions determined by these organisations.

Response

Q2.

Operators responsibilities

Operator responsibilities: The nuclear power plant licensees shall collaborate in the preparation and performance of the activities for implementation and continued efficiency of the Nuclear Emergency Plans (PEN). The framework for their collaboration in this respect shall be explicitly established in their programming.

Off-site responsibilities

Off-site responsibilities: The director of the PEN will be Delegate of the Government in the autonomous community in which the nuclear power plant is located. He may delegate his functions to the Sub-delegate of the Government in the province housing the nuclear power plant.

The director of the PEN will set up a management body to guarantee coordination between the different public Administrations concerned in the event of an emergency and ensure that all the necessary means and resources available in the territory are made available to him, as required.

The central response and support level nuclear emergency plan (PENCRA) requests extraordinary support at national level from the other PEN and international assistance.

International responsibilities

International responsibilities: Spain is a member of the EU Civil Protection Cooperation Mechanism to share emergency services of Civil Protection, if required.

Sweden

Q1.

Operators responsibilities

The Emergency Preparedness and Response unit in the department for Radiation Protection at SSM has the operator's responsibilities mainly through the Ordinance 2008:1 and 2008:15 by the Acts 1984:3 and 1988:220, see 1.1.

Off-site responsibilities

The Emergency Preparedness and Response unit in the department for Radiation Protection at SSM and other authorities have The Off-site responsibilities mainly through the Ordinance 2008:452, 2006:942 and the Act 2003:778, see 1.1.

International responsibilities

The Swedish Radiation Safety Authority (SSM) is the competent authority in Sweden for the IAEA Convention on Assistance in the case of a Nuclear Accident or Radiological Emergency and the Convention on Early Notification of a Nuclear Accident. It is the responsibility of SSM to ensure that Sweden acts in accordance with the IAEA Conventions on assistance and early warning, the European Union's early warning system under the EURATOM treaty, and to provide the Government with the expertise needed for international assistance in the field of emergency preparedness and response.

Switzerland

Q1.

Duties and responsibilities of the RB are set forth in the ordinance on Protection in the Case of an Emergency.

The RB is involved in the following emergency preparedness activities:

- Supervision and inspection of the licensee's EP & R activities.
- Maintenance of the internal emergency organisation and its infrastructure.
- Operation and maintenance of a measuring network for automatic dose rate monitoring.
- Advice and support to the cantons in the planning and preparation of their tasks.
- Contribution to the development and maintenance of legislative and regulative requirements at the federal level.
- Update of the emergency zone plans surrounding nuclear installations.
- As a member of the NBCN management board, contribution to the improvement of EP & R preparations at the federal level.

Generally, the assignment of duties is defined in the RB's Business Plan.

The Radiation Protection department is involved to a large extent in the inspection of the EP & R activities of the licensees. Typical cases are the inspection of emergency exercises, inspection of communication lines, approval of new or modified emergency plans. If needed, employees of other departments will be involved to assess specific issues such as SAMG.

The emergency organisation, its structure and duties of its constituting elements are described in the electronic management system of the RB. The Radiation Protection department encompasses a section focusing on EP & R issues along with an emergency coordinator whose duty is the coordination and maintenance of the emergency infrastructure and to oversee and ensure the engagement readiness of the RB's emergency organisation.

The RB, in particular the section mentioned above, is represented in all relevant boards and networks concerning emergency preparedness and management, *e.g.* the Federal Commission for NBC Protection. Moreover, the RB is organiser of the meetings of the Swiss Information Platform "Emergency Protection", which serves as a round table of all stakeholders in the off-site emergency management.

United Kingdom

Preparedness

Q1.

Operators responsibilities

Responsibilities assigned chiefly to operators through NI Act. LC11 provides specific information on Licensee responsibilities, and is used as the main focus for regulation by the RB.

REPPIR also used by RB to regulate specific responsibilities placed on operators.

Operator's responsibilities tend to be covered by specific regulatory Programme Areas of the RB, which cover all aspects of the operation of nuclear facilities (including emergency preparedness). Specific advice and services are provided to the Programme Areas by the Office for Nuclear Regulation (ONR) Emergency Preparedness Response Team.

Off-site responsibilities

REPPIR is the key legislation used by the RB in determining off-site responsibilities, though NEPLG Consolidated Guidance also very influential in interpreting requirements and determining standards.

Off-site responsibilities tend to be regulated by a specific team within the RB which undertakes the interactions with off-site bodies to effect regulatory compliance and good practice.

International responsibilities

Little interaction by RB with respect to international responsibilities.

The RB's responsibilities to act of an international platform are governed by the requirements of the Lead Government Department, which in the case of civil nuclear emergency arrangements is the Department of Energy & Climate Change (DECC).

Response

Q2.

Operators responsibilities

REPPIR Reg 13 provides for implementation of emergency plans, and states that the operator has a duty to put its emergency plan into effect.

Operator's responsibilities are assigned and described in the operator's site emergency plan.

Off-site responsibilities

REPPIR Reg 13 provides for implementation of emergency plans, and states that the Local Authority has a duty to put its emergency plan into effect.

The responsibilities of responding organisations are described in the off-site emergency plan.

International responsibilities

NEPLG Consolidated Guidance Chapter 4 provides detailed information on the particular responsibilities and activities undertaken by responding organisations, including international responsibilities.

NEPLG Consolidated Guidance Chapter 19 provides information on responsibilities for response to an overseas nuclear accident. The Department for Energy & Climate Change (DECC) is the Lead Government Department for co-ordinating the initial UK response to an overseas nuclear accident.

The UK Government has also established bilateral agreements with the Belgian, Danish, Dutch, French, Irish, Norwegian and Russian governments which provide for early notification and provision of information on the course of events occurring at an accident site.

USA

Q1.

Operators responsibilities

By regulation see 1.1

Off-site responsibilities

By regulation see 1.1, the operator is dependent on cooperation from local authorities.

International responsibilities

Coordination with IAEA and national neighbours is the responsibility of the US Nuclear Regulatory Commission (NRC).

- Question 1.3 Basic responsibilities – National co-ordinating authority
1. Does the role of the RB encompass national coordination??
 2. Is the RB's role clearly defined?
 3. What role, if any, does the NCA play in an emergency response?
-

Belgium

Q1.

No. Assigned to the General Directorate Crisis Centre of the Ministry of Home Affairs.

Q2.

Yes (see 1.1).

Canada

Preparedness

Q1.

The CNSC supports national coordination through the federal EMO.

Q2.

Yes the role of the CNSC is clearly defined with in the federal EMO.

Response

Q3.

The federal EMO has several roles:

- Coordinate with and provide support to the provincial EMO (such as the Canadian Forces).
- Provide technical support (such as plume dispersion).
- Coordinate federal organisations.
- Liaise with foreign NCA.
- Inform the federal government.
- Inform the public.

Czech Republic

Preparedness

Q1.

No. It does not.

National coordination is provided by the Ministry of Interior. SÚJB works as a consulting body.

Q2.

Yes it is. According to the Act No. 18/1997 Section 3 art. 2 a) the Office shall carry out State supervision of nuclear safety, nuclear items, physical protection, radiation, protection and emergency preparedness and shall inspect the adherence to the fulfilment of the obligations arising out of this Act

Response

Q3.

In accordance with Section 3 of the Atomic Act, within its competence, the SÚJB:

- Approves on-site emergency plans and their modifications after discussion on the relations to off-site emergency plans; the approval of on-site emergency plan is one of the conditions for obtaining a permit for the commissioning of the installation and its operation.
- Establishes an emergency planning zone, based on the licensee request.
- Controls the activity of the National Radiation Monitoring Network and performs the activities of its head office.
- Ensures the activities of the Emergency Response Centre and international information exchange on the radiation situation.
- Ensures, by means of the National Radiation Monitoring Network and based on assessment of the radiation situation, the background information necessary to take decisions aimed at reducing or averting exposure in the case of a radiation accident.
- Is obliged to provide the public with adequate information concerning the results of its activities, unless they are subject to state, professional or business secret, and to publish once a year a report on its activities and to submit the report to the Government of the Czech Republic and to the public.

Finland

Q1.

The RB supports emergency services and provides recommendations and information.

Q2.

It is clear.

France

Q1.

Not really. The relevant ministries and the ASN jointly advise the *Préfet* with regard to the protective measures to be taken. They provide the information and advice necessary for the *Préfet* to assess the state of the facility, the seriousness of the incident or accident, its possible developments, and the measures required to protect the general public and the environment.

Q2.

Yes.

Q3.

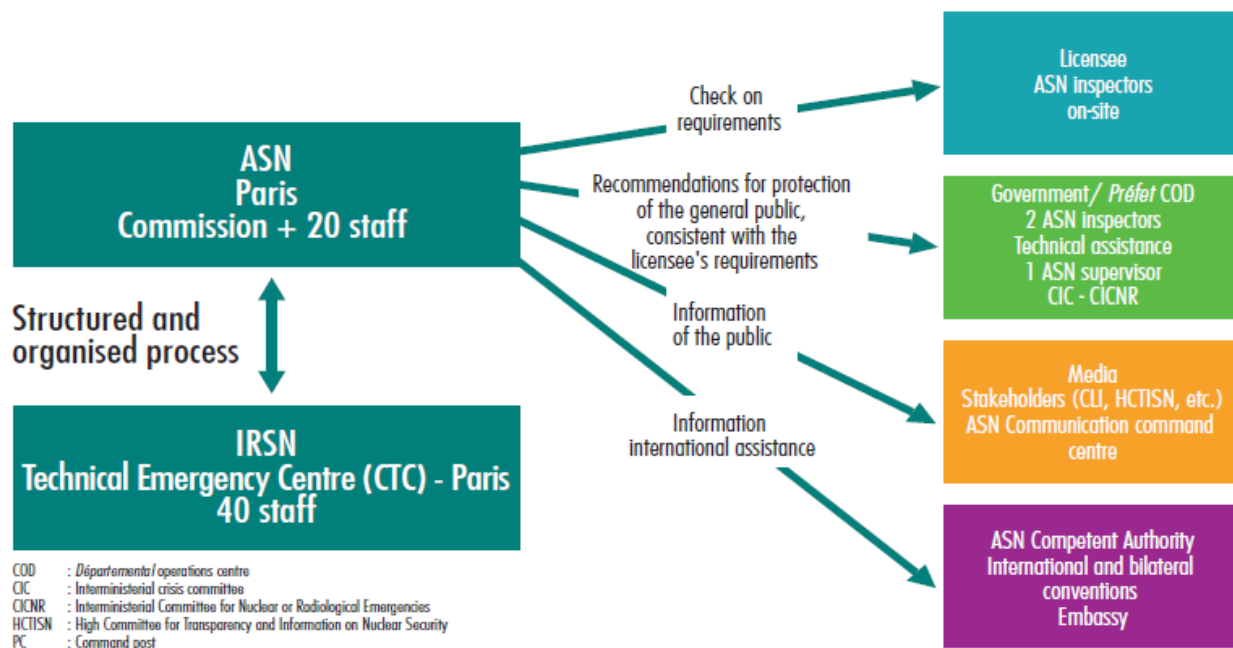
In terms of preparation, according to the TSN Act (now codified in books I and V of the Environment Code by ordinance no.2012-6 of 5 January 2012), the responsibilities of ASN are as follows:

- To regulate: ASN is consulted in every project of regulatory text concerning nuclear safety, and state them in technical decisions.
- To carry out licensing procedures.
- To control the safety of nuclear installations by inspecting them and imposing disciplinary actions for deviation.
- To contribute to emergency situations management.
- To organise information of the general public on nuclear safety and radiation protection.

ASN also participates in the French delegation in the bodies of international organisations.

In an emergency situation, the responsibilities of ASN, with the support of IRSN, are as follows:

- 1) To ensure that judicious provisions are made by the licensee.
- 2) To advise the Government.
- 3) To contribute to the dissemination of information.
- 4) To act as Competent Authority within the framework of the international Conventions on early notification and assistance.



Germany

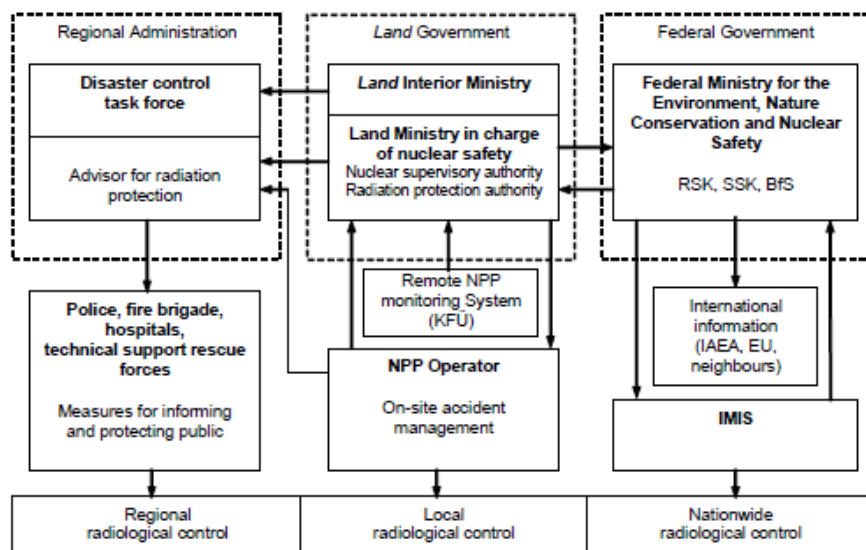
Preparedness

Q1, Q2.

Yes. Pursuant to Article 70 of the Basic Law, averting of danger by disaster control is a task of the *Länder* which, to this end, passed the disaster control laws. The implementation falls under the responsibility of the authorities of the interior of the *Länder* and, depending on the respective *Land*, is delegated to the regional or also to the local level. The nuclear supervisory authorities and the radiation protection authorities of the *Länder* provide their support. BMU takes on a co-ordinating role. If needed, the BMU makes its resources available for providing support and advice to the *Länder*. These resources also comprise its subordinate authority BfS (Federal Office for Radiation Protection) and the Technical Support Organisation GRS (Gesellschaft für Anlagen- und Reaktorsicherheit) as well as the BMU advisory committees RSK and SSK.

By the way, during disasters, all federal and *Land* authorities shall render legal and administrative assistance to one another, pursuant to Article 35 of the Basic Law.

Emergency Preparedness Organisation in Germany



RSK - Reactor Safety Commission
 SSK - Commission on Radiological Protection
 BFS - Federal Office for Radiation Protection
 IMIS - Integrated Measurement and Information System

Response Q3.

When required, the role of a NCA is covered by the federal authorities. As in case of a nuclear accident, large areas outside the area requiring disaster control measures may be radiologically affected below the danger threshold, precautionary radiation protection measures are necessary for these regions, too. In such cases, close co-ordination between the *Land* authorities responsible for disaster control and the federal authorities responsible for radiation protection is required. The BMU makes its resources available for providing support and advice to the *Länder*. These resources also comprise its subordinate authority BfS (Federal Office for Radiation Protection) and the Technical Support Organisation GRS (Gesellschaft für Anlagen- und Reaktorsicherheit) as well as the BMU advisory committees RSK and SSK.

By the way, during disasters, all federal and *Land* authorities shall render legal and administrative assistance to one another, pursuant to Article 35 of the Basic Law.

Hungary

Preparedness Q1.

The national coordination mainly lies with a inter-ministry committee and the national directorate general for disaster management.

However the development of the national nuclear emergency plan is developed and maintained by a High Level Working Group headed and operated by the regulatory body.

Q2.

The role of the RB is clearly defined in the national system. On the one hand the RB oversees the nuclear facilities' emergency preparedness and, on the other hand takes part in the national system.

Response**Q3.**

The Disaster Management Coordination Committee (DMCC) plays the role of National Coordinating Authority. Its responsibilities are defined in Act No 128 of 2011 on the disaster management and its executive governmental decree, and in the governmental decree No 167 of 2010. According to these regulations the DMCC approves the National Nuclear Emergency Response Plan. In case of general emergency the DMCC elaborates decision proposals for the Government, and based on the Government decision DMCC coordinates the implementation of decision.

India

Preparedness**Q1.**

No.

Q2.

The handling of emergency situations calls for co-ordination amongst various response organisations including different service groups of the NPP. The responsibility for the overall co-ordination in the case of site emergencies rests with the plant management and during off-site emergencies the responsibility rests with the public functionaries such as District and Central Government authorities. The responsibilities of various agencies, their sub-units and also the concerned officials are described in the emergency response plans.

In accordance with the crisis management plan evolved by the government, DAE has been identified as the nodal authority in respect of nuclear/radiological emergencies in the public domain. For this a Crisis Management Group (CMG) has been set up in DAE.

National Crisis Management Committee (NCMC) established by government of India is the national coordinator for all types of emergencies.

Response**Q3.**

In accordance with the Crisis Management Plan evolved by the government, Department of Atomic Energy has been identified as the nodal authority in respect of nuclear/radiological emergencies in the public domain. For this purpose, a Crisis Management Group (CMG) has been set up in DAE. The CMG has access to resource agencies and provide advice and organise assistance in the areas of radiation measurement, protection and medical management.

Japan

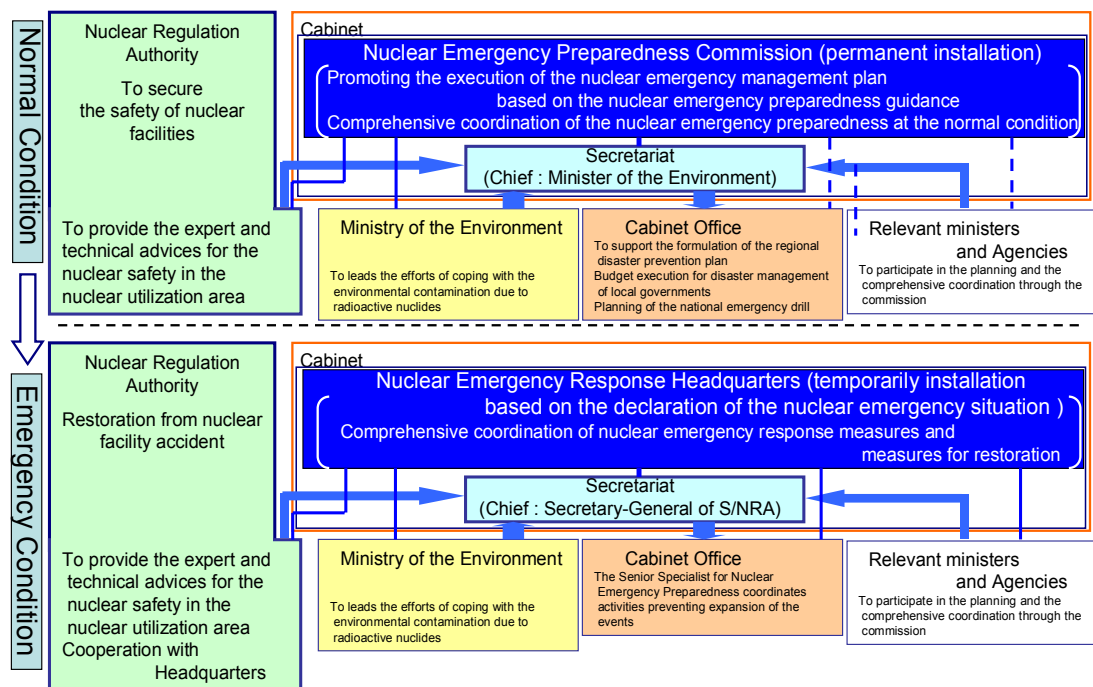
Q1.

No. The RB leads the nuclear disaster measures to be taken based on the Nuclear Emergency Preparedness Action Plans. The framework of all hazards is provided in Basic Act on Disaster Control Measures. Based on this Act, the formulation, execution of disaster management plan and the comprehensive coordination at the national level will be implemented by the disaster management organisation, comprising the Prime Minister, Central Disaster Management Council, Designated Administrative Organs and Designated Public Corporations.

Q2.

The outline of the revised organisations relating to nuclear emergency responses is shown in the following diagram. The detailed functions of each organisation will be progressively established (please note that the wordings in the diagram is tentative).

The response organisation of the government
 The normal condition..... Nuclear Emergency Preparedness Commission
 The emergency condition..... Nuclear Emergency Response Headquarters



Korea

Preparedness

Pursuant to Chapter 3 (Radiological Disaster Management Measures) and Chapter 4 (Supplementary Provisions) of the APPRE, NSSC is fully responsible for coordinating national response to a nuclear or radiological emergency. In addition, NSSC takes charges of the following emergency response measures:

- Declaration and withdrawal of a radiological disaster.
- Notification of the occurrence of a radiological disaster.
- Installation of the National Emergency Management Committee (NEMC) and the Off-site Emergency Management Centre (OEMC).
- Implementation of the Convention on Early Notification of a Nuclear Accident and the Convention on Assistance in the Case of a Nuclear Accident or Radiological Emergency.
- Consultation on Mid- and Long-term Radiological Impact Assessment, Damage Restoration Plan, and Post-Radiological Disaster Measures.
- Investigation of a disaster.

In the event of an emergency, KINS provides technical advice to NSSC by establishing and operating the Radiological Emergency Technical Advisory Center (RETAC).

NSSC and KINS were designated as the National Competent Authority (NCA) and the National Warning Point (NWP), respectively, under the framework of the Convention on Early Notification of a Nuclear Accident and the Convention on Assistance in the Case of a Nuclear Accident or Radiological Emergency

Mexico

Q1.

No, the CNSNS has the role of recommend and advise on security measures nuclear, radiological, physical, and administrative safeguards that apply in emergency or abnormal conditions in the case of nuclear and radioactive facilities, and identify and execute in these cases, when technically recommended retention, deposit insurance or ionizing radiation sources or equipment containing, or partial or total closure, temporary or permanent, of where they are or those that have been affected, without prejudice to the measures adopted by other competent authorities.

Q2.

CNSNS lead technical role in response to accidents at licensed facilities, but the External Radiological Emergency Plan (EREP) establishes a comprehensive all-hazards approach to enhance the ability of the Mexican States to manage domestic incidents. The plan incorporates best practices and procedures from incident management disciplines – homeland security, emergency management, firefighting, navy and army personnel, public works, public health, responder and recovery worker health and safety and emergency medical services – and integrates them into a unified structure. It forms the basis of how the federal government coordinates with state and local Governments during incidents. The Department of Interior has the Lead role in coordinating Federal Response.

Poland

Preparedness

Q1.

RB does not encompass national coordination in area of threat assessment for threats within the state. The risk analysis on national level is conducted by other governmental organisation: Government Centre for Security based on information, inputs and assessments provided by stakeholders involved in crisis management and emergency response, including RB.

RB supervises the licensees – by means of inspections and post-inspection decisions can influence the operators' preparedness for radiation emergency.

The preparedness for radiation emergency of other state organisations is not a subject of control of RB, nevertheless it may be tested during the regional or national exercises.

Q2.

The role of the RB is clearly defined.

Response

Q3.

During emergency response to on-site emergency or emergency on regional level the role of NAEA is to analyse the situation, make assessments, advise and provide assistance to the person responsible for directing action aimed at elimination of hazard.

During emergency response on national level, the NAEA has certain catalogue of responsibilities and actions to be taken, within the national radiation emergency plan. These actions are described in the Regulation of the Council of Ministers of 18 January 2005 on emergency response plans in case of radiation emergency.

http://www.paa.gov.pl/en/doc/atomic_law/2007-912.pdf

Russian Federation

Preparedness

Q1.

No.

Q2.

National Coordinating Authority is Group of Assistance to NPP, organised by Rosatom (representatives of RB are included).

Response

Q3.

National Coordinating Authority is Group of Assistance to NPP, organised by Rosatom (representatives of RB are included). The staff is 145 employees, 240 experts. They represent 19 Government Agencies, Ministries, research and design organisations. NCA coordinate and control emergency response.

Slovak Republic

Preparedness

Q1.

No, RB is only support for National emergency headquarters. Off-site emergency provisions are made according to the Act No. 42/1994 Coll. on Civil Protection as amended. County offices are obliged to establish an off-site response organisation and prepare off site emergency plans for respective threats on their territory.

Q2.

Yes, the role of RB is clearly defined. The RB is regulating and supervising all activities concerning nuclear installations and through the ERC gives the suggestions to National emergency headquarters for decision making concerning protective measures.

Response

Q3.

Ministry of Interior coordinates through the National Emergency Headquarters (EHQ) activities of all state bodies. EHQ takes decisions on all significant measures concerning affected population in case when the scope of emergency extends beyond possibilities of county. Representatives of individual ministries and state authorities including Nuclear Regulatory Authority are members of EHQ.

Slovenia

Preparedness

Q1.

Yes, the RB director is heading the Inter-ministerial Commission for national coordination, as set by the national plan.

Q2.

Yes.

Response

Q3.

Consulting the civil protection commander by recommending protective actions.

Spain

Preparedness

Q1, Q2.

The Spanish Nuclear Safety Council participates in the Radiation Protection recommendations at the national emergency system, mainly as the radiological group.

Response

Q3.

The National Coordinating Authority in Spain is the Directorate General for Civil Defence and Emergencies that coordinates the competent authorities and public Administration organisations concerned in a nuclear or radiological emergency.

Sweden

Q1.

Yes partly. The Swedish Civil Contingencies Agency (MSB) has overall responsibility for the national coordination. SSM shall however cooperate and support other relevant authorities in the event of a crisis within SSM's field of responsibility. SSM shall in particular:

- Have the ability to immediately be able to establish a crisis management function.
- Keep the Government informed about developments, the situation, expected developments, available resources and taken as well as planned measures.
- Following a request by the Crisis Management Coordination Secretariat at the Prime Minister's Office or Swedish Civil Contingencies Agency (MSB) provide the information needed in order to get an overall picture of the situation.

Q2.

Yes, RB's role is clearly defined through the ordinance 2008:452 and 2006:942 and the Act 2003:778.

Switzerland

Q1.

The RB's role is clearly defined in the legislation documents mentioned above.

Q2.

By legislation (NBCN Operations Ordinance), the coordinative role is assigned to the NBCN Crisis Management Board and its chair, taken by the Director of the Federal Office of Civil Protection (FOCP).

United Kingdom

Preparedness

Q1.

No specific role of the RB in national coordination.

Q2.

The RB uses generic principles in undertaking licensing activities of nuclear operators.

Where the RB regulates aspects of UK legislation (*e.g.* NIA/LC11, REPPiR) that place specific duties on operators and response organisations, its acts in a manner to ensure legal compliance.

Response

Q3.

The Department of Energy and Climate Change (DECC) would be the lead Government Department in the event of an emergency at a civil nuclear site in England or Wales, and for coordinating the UK response to an overseas nuclear emergency. The designation of lead departments, for various types of accident, was made by the Cabinet Office following a review of Government emergency responsibilities. There is no legislative basis for this arrangement.

DECC would be responsible at the national level for co-ordinating the response to an emergency at a civil nuclear site in England or Wales. The department would:

- Assemble up to date information on the emergency, including measures being taken to protect the public and make the site safe again. This is done by liaising closely with other Government Departments, the Welsh Assembly Government, agencies and organisations close to the affected site, such as the police, fire service and local authority, on measures being taken to protect the public and make the site safe again.
- As the lead Government department, ensure that information is available to the public and media.
- Be responsible for alerting the International Atomic Energy Agency, the European Commission and various neighbouring countries of the accident.
- Provide the Secretary of State for Energy and Climate Change, who is responsible to Parliament for civil nuclear safety matters, with briefing on the course of the accident and measures being taken to protect the public.
- Appoint a Government Technical Adviser (GTA) from ONR to advise the police and emergency services on measures to protect the public.

The Scottish Government would be the lead Government Department in the event of an emergency at a civil nuclear site in Scotland.

In the event of an emergency at a defence nuclear site, or involving defence nuclear assets, the Ministry of Defence (MOD) would, in addition to its responsibilities as the owner/operator of the nuclear assets, become the Lead Government Department with responsibility at the national level for co-ordinating the central Government response to the defence nuclear emergency.

USA

Q1, Q2.

No, the NRC has the lead technical role in response to accidents at licensed facilities, but the National Response Plan, (NRP) establishes a comprehensive all-hazards approach to enhance the ability of the United States to manage domestic incidents. The plan incorporates best practices and procedures from incident management disciplines – homeland security, emergency management, law enforcement, fire-fighting, public works, public health, responder and recovery worker health and safety, emergency medical services, and the private sector – and integrates them into a unified structure. It forms the basis of how the federal government coordinates with state, local, and tribal governments and the private sector during incidents. The Department of Homeland Security has the Lead role in coordinating Federal Response

- Question 1.4 Basic responsibilities – Integrated planning concept
1. How does the RB satisfy itself that the member state is co-ordinating its emergency planning to consider all hazards?
 2. How does the RB satisfy itself that the plans prepared by the operator, the off-site organisations and national plans (for international obligations) are co-ordinated?
 3. How does the member state assure itself that, in an emergency, co-ordination with non-nuclear planning bodies is achieved?
-

Belgium

Q1.

This duty is assigned to the General Directorate Crisis Centre of the Ministry of home Affairs.

Q2.

Through yearly thematic inspections performed to NPPs and through exercises.

The thematic dedicated inspection is supported by an inspection support document have been developed (check-list) based on national and international references (such as OSART guidelines, GS-R-2, GS-G-2.1).

Inspectors verify if the internal emergency plan complies with the requests of the Royal Decree of 17 October 2003 defining the nuclear and radiological emergency plan for the Belgian territory. Recommendations are also made by the inspectors in order to improve the licensee internal emergency plan. Verification on the field can be performed during the inspection to confirm the information given by the licensee or written in licensee's documents. The following items can be inspected:

- Communication system to activate the internal emergency plan.
- Facilities dedicated to the crisis management.
- Gathering rooms/places for personnel and visitors.
- Facilities with intervention equipments (for example fire equipment).
- Dispersion model(s) to evaluate the radiological consequences.
- Equipments to perform contamination measures in the environment.
- Means to protect the staff in case of radiological accident (iodine, individual protection, air monitoring systems...).
- Arrangements to perform decontamination activities and/or medical care.
- Knowledge tests of licensee personnel involved in emergency preparedness and response.

Emergency procedures and plan are discussed with the licensee during the inspection. The following issues are among others checked:

- Description of functions and responsibilities.
- Procedure to determine the notification level.
- Procedure for the emergency plan activation.
- Control programme for emergency equipments.
- Procedure/instructions to determine the necessary measures to protect the staff.
- Procedure/instructions to evaluate the radiological consequences to the population and environment.
- Procedure/instructions to perform contamination measurements in the environment.
- Procedure/instructions in case of fire or medical care.
- Agreements with hospitals or fire brigades.
- Emergency plans of the operator, the off-site organisations and national plans are regularly tested through national exercises to assure and test the coordination at the different levels.

Response

Q3.

For most installations information exchange agreements exist between nuclear and neighbouring non-nuclear enterprises. Another channel will be through the minister of economic affairs present in the management cell or through ECOSOC, a cell in charge of the evaluation of social and economical impacts of the situation and protective actions taken.

Canada

Preparedness

Q1.

All emergencies are managed through provincial EMO. They would identify a threat to a local NPP. The operators are also responsible for monitoring weather conditions, and local facilities that could have an impact on station operation. The operators emergency plan, and the provincial emergency plans are considered as part of the five year licence renewal process in Canada. The CNSC gains further assurance by participating with the provincial EMO during exercises.

Q2.

Regular contact with provincial and federal EMO when revising emergency plans, and during the development and execution of emergency exercises.

Inspection of operator performance during emergency exercises.

Response

Q3.

All emergencies are managed through provincial EMO. They would identify a threat to a local NPP. The operators are also responsible for monitoring weather conditions, and local facilities that could have an impact on station operation. The operators emergency plan, and the provincial emergency plans are considered as part of the five year licence renewal process in Canada.

Czech Republic

Preparedness

Q1.

The SÚJB Decree No. 215/1997 Coll. establishes criteria for the assessment of the particular site suitability from the aspect of nuclear safety and radiation protection. At the same time, protection of other interests, resulting from the valid legislation, remains preserved. This Decree defines the exclusion and conditioning criteria.

Exclusion criteria are those limiting characteristics, which unequivocally exclude utilization of a particular region for siting nuclear installations. These criteria include radiological impacts of the planned installation on its vicinity under normal operating conditions and radiation emergency, as well as effects of the site on nuclear safety and radiation protection of the same installation.

Conditioning criteria are such characteristics, which make an area or land suitable for siting nuclear installations under the condition that it is feasible or technically possible to offset the unfavourable regional conditions, both natural and the ones caused by human activities.

In the implementing SÚJB Decree No. 195/1999 Coll., on basic design criteria for nuclear installations with respect to nuclear safety radiation protection and emergency preparedness, and particularly in the SÚJB Decree No. 215/1997 Coll., on criteria for siting of nuclear installations and very significant ionizing radiation sources, IAEA recommendations and guidelines for nuclear installations siting are taken into account.

The above mentioned implementing regulations of the Atomic Act, in accordance with the IAEA recommendations, require that assessments within the siting process should consider the historically most significant phenomena registered in the particular locality and its vicinity, as well as a combination of natural phenomena, phenomena resulting from human activity and accident conditions due to these phenomena. Within the siting and design, nuclear installations must be evaluated as to their resistance against the following natural phenomena and phenomena initiated by human activity:

- Earthquakes.
- Climatic effects (wind, snow, rainfall, outdoor temperatures, etc.).
- Floods and fires.
- Air crash, and flying and falling objects.
- Explosions of industrial, military and transport means, including explosions in nuclear installations buildings.
- Release of dangerous and explosive fluids and gases.

Based on probabilistic assessment some of these events may be excluded when the probability of their occurrence is very low. It is in the SÚJB competence to establish such limiting values for each of those cases.

Q2.

Article 19 of Atomic Act establishes the obligation of the licensee to submit to the appropriate Regional Authority and to the relevant Municipal Offices with extended competence background documents to prepare the off-site emergency plan and to co-operate with the authority in order to ensure emergency preparedness within the emergency planning zone.

Response

Q3.

Section 2 Act No. 239/2000

- (1) Regional authorities ensure preparation for emergency, provision of rescue and remedy work a citizens protection.
- (2) Regional authority in performance of administration for the purpose specified in article 1:
 - a) Organises the cooperation between district authorities and other administrations and municipalities in particular region, namely in preparation of alarm scheme of integrated rescue system, ensures emergency preparedness and verifies it by trainings.
 - b) Directs the integrated rescue system on regional level.
 - c) Unifies proceedings of district authorities and territorial administrations with regional jurisdiction in the field of citizens protection.
 - d) Prepares plan on provision of rescue and remedy work in the area of the region (herewith only “regional emergency scheme”).
 - e) Prepares the alert plan of integrated rescue system.
 - f) Cooperates in preparation and modernization of flood scheme of whole river basin according to special legal regulation 1.
 - g) Concludes agreements with relevant territorial region of neighbouring State, provided an international contract, approved by the Parliament of Czech Republic and announced in Law digest or in International agreements code, does not specify otherwise.
- (3) Where the emergency planning zone extends to territories of more than one district of proper region, or extends to regional territory from territory of other region, prepares the regional authority together with relevant district authorities a scheme for rescue and remedy work in the vicinity of dangerous source (herewith only “external emergency scheme”). Where the emergency planning zone extends to territories of more regions, then the coordination of preparation of external emergency scheme and of the joint remedy of emergency ensures that regional authority, on whose territory is the source of danger located. The external emergency scheme is a part of regional crisis scheme.

- (4) For the preparation of external emergency schemes is the regional authority authorized, provided the security of data is respected, to employ, collect and register data from crisis schemes of regions and districts, according to special legal regulation 6.
- (5) The tasks of regional authorities specified in articles 1 to 4 fulfils the regional Fire and Rescue Service, constituted according to special law 2.

For assurance of rescue and remedy work it further:

- a) Manages construction and operation of informative and communicative networks and services of integrated rescue system.
- b) Organises instruction and training in the range of citizens protection and in the preparation of component parts of integrated rescue system, aimed to their mutual cooperation; for this purpose establishes educational institutes.
- c) Assures warning and information.
- d) Coordinates rescue and remedy work a fulfils tasks in rescue and remedy work, specified by Ministry of Interior.
- e) Organises determination and marking of dangerous areas, decontamination and other protective provisions.
- f) Organises and coordinates evacuation, temporary accommodation, emergency supply of drinking water, food and other necessary means for population survival.
- g) Organises a coordinates humanitarian help.
- h) Organises management of Civil Ward material.
- i) Keeps evidence of and controls the Civil Ward buildings and of buildings affected by requirements of Civil Ward in relevant region.

Finland

Q1.

Co-operation with rescue services.

Q2.

Inspection of emergency planning and documents.

France

Q1.

Pursuant to 13 September 2005 orders concerning the PPI and the ORSEC plan, the *Préfet* is responsible for preparing and approving the PPI. ASN assists the *Préfet* by analysing the technical data to be provided by the licensees, with the help of its technical support organisation, IRSN, in order to determine the nature and scope of the consequences of an accident.

ASN and IRSN carry out this analysis taking account of the knowledge acquired from severe accidents and radioactive material dispersion phenomena.

IRSN: Institute for radiation protection and nuclear safety. It is the ASN technical support.

Q2.

About 10 national exercises are played every year and enable to test the national crisis organisation (see below question 2.1.). All the plans and missions of every crisis actor is then tested, so as the coordination between them. A general debrief meeting is organised one month after each exercise.

Germany

Preparedness

Q1.

Primarily, averting of danger by disaster control is a task of the *Länder*. This covers the preparation for response to conventional emergencies, as well as nuclear emergencies. The nuclear supervisory authorities and the radiation protection authorities of the *Länder* provide their support.

Q2.

The disaster control authorities at the *Länder* level and at the regional level regularly perform large-scale disaster control exercises at the nuclear power plant sites, albeit at intervals of several years due to the considerable efforts and expenditure required. In addition to the competent authorities and the technical advisory commissions, the plant operator also participates in the exercises. Objectives of these exercises are the improved interaction of the different organisations and authorities involved in emergency management and the assurance of effective co-operation in the disaster control and precautionary radiation protection. Another objective of the exercises is the practical deployment of forces within the framework of measurements and special support services, such as testing of temporarily established emergency care centres, dedicated to decontamination and medical services for the public, and the communication and co-operation of the different authorities and organisations involved. The coordination is performed within regulatory committees.

Response

Q3.

The responsibility for disaster control is generally assigned to the disaster control authorities of the *Länder*. Within the organisational structure of the *Länder*, the responsibilities are delegated from the authorities of the interior to regional or also to local level. They are in charge of emergency preparedness and response to nuclear emergencies as well as to conventional emergencies. In case of nuclear emergencies, the nuclear supervisory body provides its support to the emergency response, e.g. by providing the radiological situation centre and a crisis management team, and by giving advice about the radiological impact and suitable protection measures.

Hungary

Preparedness

Q1.

The RB requires the plant to develop an all hazard emergency plan that covers conventional, nuclear, radiological and security risks. The RB also requires the plant to take into account all external and natural hazards. In this respect the coordination is provided. On the other hand, at national level the Disaster Management Act created a common framework for responding to emergencies that also ensures the due coordination.

Q2.

The RB requires from the plant to coordinate its own plan with the national plan. On the other hand there is an obligation for the plant to provide its own plan and the necessary information for the off-site authorities. Actually, in practice, this works very well.

Response

Q3.

Act No 128 of 2011 on the disaster management and its executive governmental decree defines the Central National Disaster Management Plan with the role to integrate the management of all types of emergencies in to a unified disaster management system.

India

Preparedness

Q1.

As a mandatory requirement, each NPP prepares an emergency preparedness and response plan. AERB reviews and approve of the emergency response plans and procedures in order to ensure that sufficient means exist to cope with an emergency and it meets the regulatory requirements. RB evaluates the procedures for emergency detection, classification and decision making as also those for notification, communication, and dose calculation and assessment.

NDMA is ensuring that arrangements are in place for management of emergencies considering all hazards, including nuclear and radiological,

Q2.

The nuclear and radiological emergency plans prepared by operators are reviewed and approved by RB. RB ensures that these plans are in synchronism with regulatory body safety guides and national legislations. RB representative is a member of the committee for preparation of national disaster management plans.

These plans are further verified during emergency exercises, in which AERB inspectors take part as observers.

Response

Q3.

The CMG co-ordinates between the local authority in the affected area and the National Crisis Management Committee (NCMC) of the government of India.

Japan

Q1.

The Fukushima Dai-ichi Nuclear Power Station had been struck by the great earthquake and the resulting tsunamis, followed by a nuclear accident.

In the case of the complex disasters, both the nuclear emergency response headquarters and the non-nuclear emergency preparedness headquarters shall be established to cope with such emergency situations.

Based on the lesson learned from Fukushima Dai-ichi accident, the RB has clearly stipulated the coordination between those two organisations (nuclear and non-nuclear) in the Basic Plan for Emergency Preparedness based on the Basic Act on Disaster Control Measures.

As for the nuclear emergency response headquarters, see the answer of 1.3.

Q2.

The Central Disaster Management Council formulates the Basic Plan for Emergency Preparedness based on the Basic Act on Disaster Control Measures. And also, the local governments work out their respective regional disaster prevention plans based on the Basic Plan for Emergency Preparedness. These plans are

coordinated in the Central Disaster Management Council. In addition, the operator shall formulate the Nuclear Operator Emergency Action Plan based on the Nuclear Emergency Preparedness Act. The national government may, when the Regulatory body finds the Nuclear Operator Emergency Action Plan of a nuclear operator to be in violation of the provisions of the government's requirements or not to be sufficient to prevent the occurrence or progression (expansion) of a nuclear disaster pertaining to the relevant nuclear site, order the nuclear operator to prepare a Nuclear Operator Emergency Action Plan or to revise its Nuclear Operator Emergency Action Plan.

The outline of RB's organisation is shown in 1.3 answer.

Korea

Q1, Q3.

The arrangements for emergency response actions both within and outside nuclear power plants are dealt with through the regulatory process, which is led by the NSSC (Nuclear Safety & Security Commission) with shared responsibilities of other national agencies having involvement in the general emergency management framework. This framework plan is developed for 33 different types of emergencies, each of which is led by the competent national authority. The response to radiation emergency is one of these 33 emergencies; this arrangement fits into the concept of all-hazard emergency management approach. For nuclear and radiological emergency, NSSC is fully responsible for leading and coordinating all activities of the Korean Government relating to emergency preparedness and response in accordance with the relevant laws such as the "Atomic Energy Act" (AEA) of 1958 and the "Act on Physical Protection and Radiological Emergency" (APPRE) of 2004. Through regulatory activities such as review and inspection based upon the laws relating to emergency preparedness and response, and associated regulations and guides, NSSC and the Korea Institute of Nuclear Safety (KINS) ensure that appropriate protective actions can be taken in a rational, effective and timely manner where a nuclear or radiological emergency occurs at a nuclear power plant or other nuclear facilities (research reactor, nuclear fuel cycle facility, radioactive waste management facility, and so on). NSSC is responsible for regulating the licensees' on-site emergency planning and for the offsite planning, as well.

Q2.

NSSC is the National Competent Authority according to the Conventions, KINS serves as the National Warning Point, with 24hr/7days coverage.

Mexico

Q1.

First of all, in according with the Regulatory Law of Constitutional Article 27 on Nuclear matter: Article 50, Section VII, prior to the commencement of operations the CNSNS shall review, evaluate and approve the plans for the management of abnormal or emergency conditions for both nuclear and radioactive facilities.

On other hand, the Regulatory Law of Constitutional Article 27 on Nuclear matter: Article 32, establish that nuclear and radioactive facilities are subject to inspections, audits, inspections and surveys by the CNSNS, to check the conditions of nuclear, radiation and physical, and compliance with the safeguards in such installations.

So, inspections and audits are performed mainly to verify that the member state is co-ordinating its emergency planning to consider all hazards.

Q2.

The CNSNS performs the revision of the onsite emergency plan prepared by the operator. On other hand, the CNSNS performs the revision of the offsite emergency plan prepared by the Office of Civil Protection.

The scope of revision is to ensure coordination and functionality, and that both plans are in accordance with the standards. Biennial exercises are evaluated by CNSNS inspectors at LVNPP to verify capability.

Poland

Preparedness

Q1.

The roles and responsibilities of the state are described in the Act of Parliament of 29 November 2000 on Atomic Law and in the National Crisis Management Plan (created on basis of Act of Parliament of 26 April 2007 on Crisis Management). RB does not co-ordinate emergency planning between different state organisations.

Q2.

The roles and responsibilities of operator and off-site organisations are described in legislation (Act of Parliament of 29 November 2000 on Atomic Law, Regulation of the Council of Ministers of 18 January 2005 on emergency response plans in case of radiation emergency, Regulation of the Council of Ministers 20 February 2007 amending regulation on emergency response plans in case of radiation emergency, National Crisis Management Plan).

Within the preparedness of only polish facility of threat category II (NCBJ), the assessment of different types of threats for this facility is included in its safety report. It contains amongst others list of external threats and list of sources of threat during normal operation.

The operator's emergency plans are scrutinized during the process of authorization.

On regional level the regional radiation emergency plans are not consulted or accepted by the RB, nevertheless they have to be in line with the standard form of regional emergency plan included in the Regulation of the Council of Ministers 20 February 2007 amending regulation on emergency response plans in case of radiation emergency.

On national level, the coordination of planning should be provided by the Minister of Interior who is responsible for directing actions aimed at elimination of radiation emergency.

Response

Q3.

Please note that Poland is non NPP country so far.

The roles and responsibilities of the state organisations are described in the Act of Parliament of 29 November 2000 on Atomic Law and in the National Crisis Management Plan (created on basis of Act of Parliament of 26 April 2007 on Crisis Management).

RB does not co-ordinate emergency planning between different state organisations.

Russian Federation

Preparedness

Q1.

By participation in special emergency drills.

Q2.

By participation in special emergency drills.

Response**Q3.**

By participation in special emergency drills.

Slovak Republic

Preparedness**Q1.**

Based on bilateral treaties the RB satisfied itself through common meetings and data exchanges during emergency exercises that the emergency planning of all bordering countries follow IAEA standards and suggestions. All countries emergency plans were harmonized with IAEA standards.

Q2.

Preliminary on-site emergency plan shall be approved by ÚJD.

On-site emergency plan shall be approved by ÚJD.

Off-site emergency plan shall be approved by Ministry of Interior after review by UJD.

Without RB positive stand point the off-site emergency plans cannot be approved.

Response**Q3.**

Non-nuclear planning bodies are informed by operator according to the list of organisations. Response to the conventional emergencies is also a part of on- and off-site emergency plans. Non-nuclear emergencies are also a part of emergency exercises and are inspected.

Slovenia

Preparedness**Q1.**

The RB director is heading the Inter-ministerial Commission for national coordination.

Q2.

The RB director is heading the Inter-ministerial Commission for national coordination.

Response**Q3.**

Response to radiation emergency is governed by the authority which is responsible for conventional emergencies as well.

Spain

Preparedness**Q1, Q2.**

To collaborate with the competent authorities in the elaboration of the criteria to which the off-site emergency plans and those for the physical protection of nuclear and radioactive installations, as well as transportation, must be adjusted. Once these plans are formulated it shall participate in their approval.

The central response and support level nuclear emergency plan will be drawn up by the Directorate General for Civil Defence and Emergencies within six months as from the date of publication of this royal decree, and will be approved by the Minister of the Interior following a favourable report by the Nuclear Safety Council and the national Commission for Civil Defence.

The off-site nuclear emergency plan master plans referred to in title IV of the PLABEN will be approved by the Cabinet in response to a proposal by the Minister of the Interior and on the initiative of their respective directors, following a favourable report by the Nuclear Safety Council and the national Commission for Civil Defence.

The directives that are to govern the programmes for previous public information, the training and preparation of those required to intervene and drills referred to in title IV of this Basic Plan will be approved through resolution by the Deputy Secretary of the Interior following a favourable report by the Nuclear Safety Council and the national Commission for Civil Defence.

The regulatory body evaluates the onsite emergency plan of the nuclear installations. It shall detail the measures envisaged by the licensee and the assignment of responsibilities to deal with all accident conditions in order to mitigate their consequences, protect the personnel of the facility and immediately notify its occurrence to the competent bodies, including the initial assessment of the circumstances and the consequences of the situation. Moreover, it shall establish the actions envisaged by the licensee to provide its help in protection interventions outside the facility, in accordance with the Offsite Emergency Plans established by the competent bodies, when the Nuclear Safety Council so determines it.

Response

Q3.

The director of the PEN shall be the sole person in command for the management and coordination of the different public and private entities and organisations that will be called upon to respond to emergency situations.

The PEN operations coordination centre (CECOP) is the physical location from which all nuclear emergency activities are directed and coordinated. It is the command post for the director of the PEN and is located at the headquarters of the representative of the Government in the province in which the nuclear power plant is located.

The operations coordination room (SACOP), where the executive body will be located, the transmissions centre (CETRA) and the administrative office will be part of the CECOP.

The executive body will be made up of the following:

1. Head of the technical assistance and coordination group.
2. Head of the radiological group.
3. Head of the public security and order group. This group integrates the State Security and Police Forces.
4. Head of the medical group.
5. Head of the logistical support group. This group includes the Fire Brigade and the transport of injured people.

The Military Emergency Response Unit (UME) also participates for response to a nuclear or radiological emergency.

In the event of an emergency, the executive body will also incorporate a representative of the Ministry of Defence and the Chief Commissioner of the National Police Force for the province in which the nuclear power plant is located, the aim being to guarantee the support to be provided by the Armed Forces and the National Police Force within their respective realms of competence.

The coordinator of the executive body will be the head of the technical assistance and coordination group. The CECOP shall be provided with all the redundant data-processing and communications resources and all the auxiliary media required for the performance of the activities to be carried out at the centre.

Sweden

Q1.

Swedish Civil Contingencies Agency (MSB) is responsible for making arrangements during the planning phase so that the emergency responses of all the off-site response organisations are coordinated. The establishment of emergency operations begins with the on-site response and gives rise to the local and national response to any nuclear or radiological emergency.

The responsibility for conducting the rescue operations lies with regional or local authorities. However, SSM has the responsibility for activating the national response. Among other things SSM alerts the government and central and regional authorities through a secure fax message. SSM activates and coordinates the national organisation for expert support and also coordinates and assists responsible organisations with radiation protection assessments.

Q2.

The Regulatory body satisfy itself in different ways. By inspections of the operator, national coordination meetings and reviewing the emergency plans for local and other authorities. The international obligations are mainly controlled by SSM. All the different plans are also tested during frequently performed drills for the concerned emergency preparedness organisations.

Switzerland

Q1.

The FOCP has defined a list of NBC-scenarios which serve as a reference to judge the adequacy of the emergency preparedness of the state. The RB is mainly involved in defining the NPP-accident scenario.

As far as the hazards from the NPP are concerned, the licensee is required by the legislation to analyse the whole spectrum of external hazards with relevance to the site. In the framework of the yearly periodic reports and the Periodic Safety Review the licensee has to evaluate the hazards relevant to the site. In case of major changes of hazards, the RB would require new analysis and additional protection measures.

The responsibility for the coordination of emergency planning is allocated to the NBCN Crisis Management Board and its chair, taken by the Director of FOCP. The NEOC as part of the FOCP is the specialist agency for all exceptional events, including NBC and natural events. However, as a member of the Federal NBCN Crisis Management Board the RB is also involved in the preparation, implementation and review of national plans.

Q2.

It is not the responsibility of the RB to oversee this coordination. However, the RB is well involved in the development of EP & R legislation and documents at the federal level. Moreover, changes in the emergency plans of the licensees have to be approved by the RB. One main task in the approval process for updated emergency plans is to check the conformity with the legislation and current concepts for the off-site emergency management. Furthermore, the adequacy of the plans prepared by the operator, the cantons and organisations at the federal level are assessed at least once every two years within the framework of a general emergency exercise.

United Kingdom

Preparedness

Q1.

Chapter 19 of the Cabinet Office document “Emergency Preparedness” establishes the relationship with civil emergency planning in the United Kingdom and arrangements and legislation associated with specific hazards (such as REPIIR and COMAH).

The RB does not carry out any coordinating activity for emergency planning to consider all hazards at the Member State level.

The RB regulates licensees and in doing so ensures under Licence Condition 11(1) that arrangements are adequate for dealing with ‘any accident or emergency’, *i.e.* not specific only to nuclear events.

Q2.

The RB does not carry out any coordinating activity for emergency planning to consider all hazards at the Member State level.

Overall coordination of plans is undertaken through a National Strategic Framework (NSF) for Nuclear Emergency Planning & Response, which is managed by the Department for Energy & Climate Change (DECC) as the UK’s Lead Government Department for civil nuclear emergency arrangements.

Response

Q3.

The Civil Contingencies Secretariat (CCS) was set up to improve the UK resilience against disruptive challenges through working with departments and other responders to anticipate, assess, prevent, prepare and respond to and recover from nationwide crises. These aims have been strengthened by the establishment of regional and local response tiers and the Civil Contingencies Act 2004, including the ability to bring in statutory measures in an emergency. CCS defines resilience as the ability at every level – national, regional and local – to detect, prevent and if necessary handle disruptive challenges. This would include nuclear emergencies. CCS will provide a secretariat function in cross government coordination in a major emergency.

The secretariat works in close partnership with DECC, MOD, the Scottish Government, the Welsh Assembly Government and the Northern Ireland Executive, and engages with them in:

- i. A co-ordinated cross-government response, sharing their learning with other departments.
- ii. Horizon scanning and developing early warning systems.
- iii. Their preparation of plans against various eventualities and ensuring that those plans are properly integrated with existing emergency plans.
- iv. The exercises needed to test the plans and enable continual improvements.
- v. Putting relevant information flows in place, particularly the key facts to inform strategic decisions made from the centre.

CCS has produced a Concept of Operations (CONOPS) for emergencies, (irrespective of their cause) requiring co-ordinated UK central government response.

USA

Q1.

This is not within the regulatory purview of NRC. However, the NRP does envelope response to all hazards (1.3).

Q2.

NRC with support from the Federal Emergency Management Agency (FEMA) review plans from onsite and offsite to ensure coordination and functionality. Biennial exercises are evaluated by NRC and FEMA inspectors at each NPP to verify capability.

- Question 2.1 Concept of operations
1. Has the member state developed a national concept of operation for emergency situations?
 2. How does the RB satisfy itself that the Concept of Operations has been developed, shared and understood by the agencies taking part in the response?
-

Belgium

Q1.

No.

Q2.

N/A

Canada

Q1.

Defined in the federal emergency plan for the federal response.

Q2.

Developed with advice from federal and provincial agencies and organisations. The plan is also exercised with federal and provincial EMO during major operator exercises.

Czech Republic

Q1.

General framework of national concept of operation for emergency situation is set by Act No. 240/2000 Coll., Act. No. 239/2000 Coll., Act 241/2000 Coll.

In the Czech Republic there uses to be an emergency exercise called ZONA prepared and conducted every two years. During the preparing phase of the exercise there are set many principles and measures which are applied in to competent authorities' emergency preparedness documentation.

Q2.

An exercise ZONA is being hold every two years to exercise and improve a national concept of operation. All exercising agencies and authorities follow this concept of operation.

Finland

Q2.

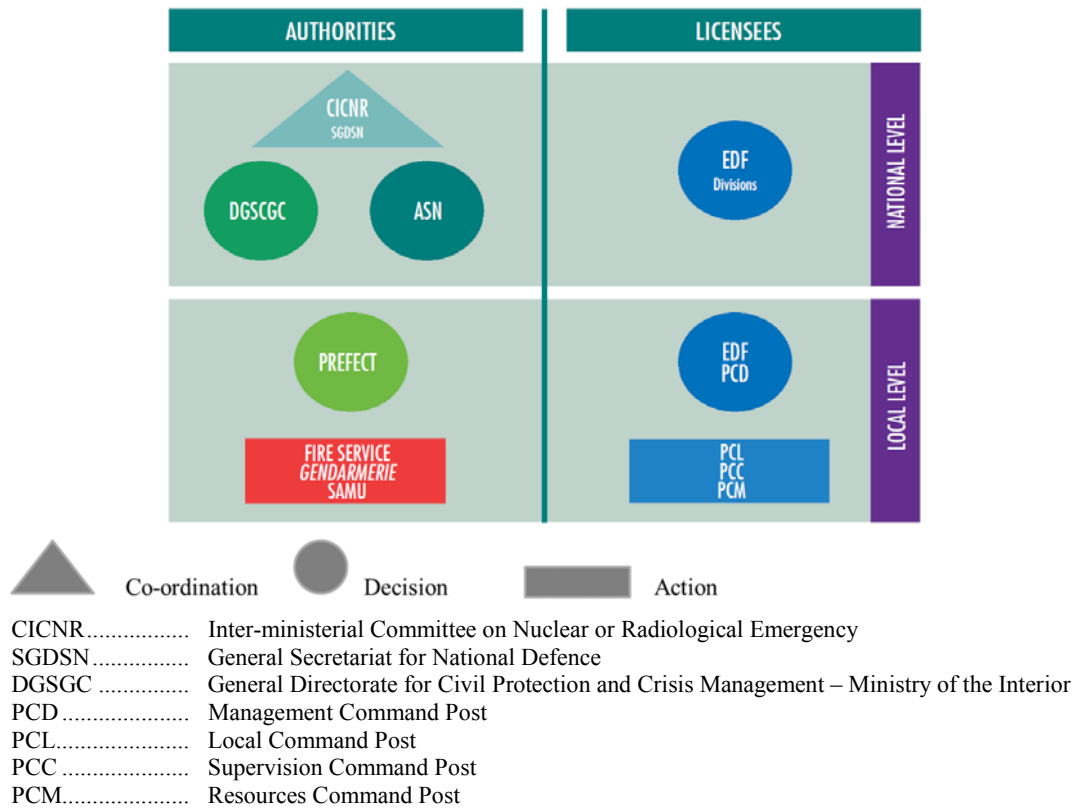
Annual exercises with each licensee. Once in 3 years / licensee there is national exercise. This means 2 times in 3 years in Finland.

France

Q1.

Yes, the concept of national crisis organisation has been developed as you can see on the scheme below.

Emergency Response Organisation in an accident situation affecting a nuclear reactor operated by EDF



Q2.

Mainly by carrying out exercises.

In order to be fully operational, the entire response system and organisation must be regularly tested. This is the purpose of the nuclear and radiological emergency exercises. These exercises, specified by an annual circular, involve the licensee, ministries, prefectures, ASN and IRSN. They are a means of testing the off-site emergency plans, the response organisation and procedures and of helping with training the participating staff. The main objectives are defined at the beginning of the exercise. They are primarily to ensure a correct assessment of the situation, to bring the installation on which the accident occurred to a safe condition, to take appropriate measures to protect the general public and to ensure satisfactory communication with the media and the populations concerned. At the same time, the exercises are a means of testing the arrangements for alerting the national and international organisations.

Germany

Q1.

The necessary principles are determined in current standards (s.a. in answer 1.1). The responsible disaster control authorities prepare special disaster control plans for the vicinity of the plants. They continuously update the plans and review them at regular intervals (in principle annually). Primary objective of the planning of disaster control is, in case of accidental release, to prevent or mitigate direct consequences from the accident on the public. The content of the planning is based on the Basic Recommendations for Emergency Preparedness in the Environment of Nuclear Facilities. The disaster control plans focus on the co-action of the planning of the disaster control authorities and of measures of the plant operator and on the implementation of the measures for protection of the public. Moreover, part of the planning are the measurements required for determining the situation.

Q2.

The Concept of Operation is set up in consultation with the agencies taking part. The interaction of the different agencies and authorities involved in emergency management and the assurance of effective co-operation in the disaster control and precautionary radiation protection is regularly tested in exercises, wherein also the different parts of the regulatory body participate.

Hungary

Q1.

Yes, the National Nuclear Emergency Plan contains the planning basis, the operation modes and criteria for the operation of the national response system.

Q2.

Actually the major part of the National Nuclear Emergency Plan was developed by the RB. Also the concept of operation is the product of the RB. A system of guidelines has also been developed under the national plan to assist all agencies in the preparation. Through the inter ministry committee it was successfully ensured that all participants of the system prepared and harmonized their own plan with the national plan.

India

Q1.

Government of India enacted “the Disaster Management Act, 2005” which provides for the effective management of disasters including accidents involving nuclear power plants (NPP).

Q2.

Off-site emergency exercises are witnessed by RB observers along with CMG & NDMA to ensure that the emergency planning is adequate and its implementation is effective. The preparedness is also checked during regulatory inspections of NPPs.

Japan

Q1.

Yes, see 1.3

Q2.

Based on the Nuclear Emergency Preparedness Action Plans coordinated between the relevant authorities, the nuclear emergency response drills are implemented to verify whether emergency response measures function in a predetermined way, and whether information sharing and cooperation among related organisations are adequate.

Korea

Q1.

The legal and regulatory provisions for emergency preparedness and response against nuclear and radiological emergency in Korea are prescribed in the Act on Physical Protection and Radiological Emergency (APPRE) and the subsequent regulations.

The NSSC (Nuclear Safety & Security Commission) establishes the “National Radiological Emergency Plan” pursuant to Article 18 (Formulation of a National Radiological Emergency Plan, etc.) of the APPRE. This Plan constitutes a part of the national level disaster management system in accordance with the “Framework Act on the Management of Disasters and Safety” and the “Framework Act on Civil Defence”. The head of the local government in charge of a radiological emergency planning zone formulates the “Local Radiological Emergency Plan” in accordance with the National Radiological Emergency Plan, and submits it to the Chairman of NSSC. Details of this procedure are provided in Article 19 (Formulation of a Local Radiological Emergency Plan, etc.) of the APPRE. On the other hand, the nuclear licensee prepares its own Radiological Emergency Plan and obtains approval from NSSC as per Article 20 (Radiological Emergency Plan of a Nuclear Licensee) of the APPRE.

Q2.

NSSC is designated as a competent authority having overall responsibilities of emergency preparedness and response for a radiological disaster as per Chapter 3 (Radiological Disaster Management Measures) and Chapter 4 (Supplementary Provisions) of the APPRE. Namely, NSSC has the responsibility to perform the followings:

- Declaration and withdrawal of a nuclear disaster.
- Notification of a disaster.
- Establishment and operation of the NEMC and the OEMC.
- Implementation of the “Convention on Early Notification of a Nuclear Accident” and the “Convention on Assistance in the Case of a Nuclear Accident or Radiological Emergency”.
- Mid- to long-term radiological impact assessment and restoration planning.
- Implementation of actions following radiological emergency and disaster investigation.

The responsibility of NSSC for nuclear and radiological emergency preparedness and response is also clearly prescribed in the “Presidential Decree on the Organisation of the Ministry of Education, Science and Technology and the Affiliated Organisations”, and thereby the financial and human resources needed for its activities are provided from the government budget.

KINS establishes the RETAC in an emergency situation in accordance with Article 32 (Technical Support for Radiological Emergency Management, etc.) of the APPRE and operates the AtomCARE system in order to provide technical advice for radiological emergency preparedness, to dispatch a technical advisory team to the site, and to carry out technical advisory activities for protecting the public and the environment in an effective manner.

Additionally, the “Nuclear Liability Act” and the “Act on Indemnity Agreement for Nuclear Liability” are being implemented to provide compensation for those who suffered from nuclear damages. Thus, the nuclear licensee is totally responsible to provide *ex ante* financial security.

Mexico

Q1.

Yes, see 1.3.

Q2.

Approval of emergency plans and routine inspection against regulations (see 1.4).

Poland

Q1.

Yes, it is described in the Regulation of the Council of Ministers of 18 January 2005 on emergency response plans in case of radiation emergency and Regulation of the Council of Ministers of 20 February 2007 amending regulation on emergency response plans in case of radiation emergency. These regulations contain the standard forms of on-site and regional radiation emergency plans and the national emergency plan, containing basic, obligatory elements of emergency plans. Nevertheless each plan may include additional elements, adjusted for the needs (according to article 86b of Act of Parliament of 29 November 2000 on Atomic Law).

Q2.

Concept of operations is included into legal framework – Regulation of the Council of Ministers of 18 January 2005 on emergency response plans in case of radiation emergency and Regulation of the Council of Ministers of 20 February 2007 amending regulation on emergency response plans in case of radiation emergency. Additionally the understanding of concept by the agencies taking part in the response is verified by means of regional and national exercises.

Russian Federation

Q1.

Yes. This concept is established by FRR.

Q2.

By participation in special emergency drills.

Slovak Republic

Q1.

A National Emergency Plan exists, which contains competences, duties and scope of co-operation of individual authorities of state administrative and authorities involved in the structure of emergency planning on the state level.

Q2.

During the planned large scale exercises the RB assesses all activities and coordination of involved organisations.

Slovenia

Q1.

Yes, by the national plan.

Q2.

By conducting exercises and inspections.

Spain

Q1, Q2.

The off-site level response will be made up of two different, complementary and interdependent ways: the off-site nuclear emergency plans (PEN) and the central level response and support nuclear emergency plan (PENCRA).

The director of the PEN shall be the sole person in command for the management and coordination of the different public and private entities and organisations that will be called upon to respond to emergency situations.

The plans deriving from the PLABEN will establish a hierarchical structure, to which functions will be assigned, allowing for the efficient implementation of the protective measures and other emergency response actions foreseen in them.

The central response and support level nuclear emergency plan (PENCRA) requests extraordinary support at national level from the other PEN and international assistance.

The onsite emergency plans apply only to the nuclear power plant sites and detail the measures envisaged by the licensee and the assignment of responsibilities to deal with accident conditions in order to mitigate their consequences, protect the personnel of the facility and immediately notify its occurrence to the competent bodies, including the initial assessment of the circumstances and the consequences of the situation.

All these plans are tested in order to assure their effectiveness, by means of performing and evaluating periodic coordinated trainings and drills.

Sweden

Q1.

Yes through Swedish Civil Contingencies Agency (MSB). For the RB (SSM) the Swedish Meteorological and Hydrological Institute (SMHI) serves as the contact point for early notification in the event of emergencies abroad (National Warning Point, NWP). However SMHI is instructed, through an agreement, to swiftly relay any incoming information of such kind to SSM which has the role of NCA (AD). SMHI also relays the information to the national alarm central (SOS Alarm) who in turn pages the SSM Duty Officer. The Duty Officer can check the incoming notification using any internet connected device since the fax is converted to an e-mail by a fax gateway. Both SMHI and SOS Alarm are manned 24/7. SSM's Duty Officer is available 24/7.

Most of the larger scrap metal melting facilities have radiation detectors at the entrance of their facilities. These facilities however are not subject to any radiological regulation, so the facilities perform radiation detection on their own to prevent any radioactive source melting. Monitoring at the borders to other EU countries and at international borders is not currently performed in Sweden unless there is evidence for suspected criminal acts. This can lead to the import of non-registered radioactive goods, radioactively contaminated material or smuggling of radioactive or nuclear materials.

SSM is not responsible for providing guidance to first responders. However, the responsible authorities in Sweden are expected, with the expert support of SSM, to provide such guidance to first responders.

Q2.

Drills are performed for the concerned emergency preparedness organisations.

Switzerland

Q1.

Emergency plans are available at the national, the local and the international level. At the national level, the "Concept for the Emergency Protection in the Vicinity of Nuclear Power Plants" (2006) has been adopted. The intervention levels for off-site protective measures are defined in the dose-measure-concept, integrated in the Ordinance on the Organisation of Operations in Connection with NBC and Natural Events.

A national strategy for NBC protection has been set up (2007) with the participation of the cantons. Bilateral agreements concerning the information exchange exist with neighbouring countries and international institutions. Switzerland is part of the EMERCON and ECURIE information systems.

However, the IRRS mission carried out at the end of 2011 suggested that the government should consider the development of a comprehensive national radiation emergency response plan. The RB will contribute to the development of such a plan.

Q2.

The leading role in this process is taken by the NBCN Crisis Management Board and its chair, the FOCP. The main instrument to check the coordination of the emergency organisation of a nuclear power plant with external bodies, and the cooperation between the various external departments are General Emergency Exercises with frequency of one in two years. Participants in a General Emergency Exercise are one of the four NPP, the Federal NBCN Crisis Management Board, Canton and/or local authority, and any foreign authorities as specified in bilateral and international agreements.

United Kingdom

Q1.

Cabinet Office document “Responding to Emergencies, the UK Central Government Response, Concept of Operations”, describes the national concept of operation for emergency situations.

Q2.

RB is an integral part of the UK nuclear emergency planning & response national strategic framework and forms part of the UK governance arrangements for the NSF. It is represented at a number of UK fora that develop UK policy in nuclear emergency planning.

Recognition is made in NEPLG Consolidated Guidance of the alignment of nuclear emergency response with arrangements under CCA. Also references in Chapter 19 of “Emergency Preparedness” of “aligning activity under different regulatory regimes”.

USA

Q1.

Yes, see 1.3.

Q2.

Approval of emergency plans and routine inspection against regulations (see 1.1)

- Question 3.1 Threat assessment – Periodic review of threat assessment
1. How does the RB assess the potential for consequences from a nuclear installation?
 2. Is there a process to periodically review this assessment?
 3. How often is this review completed?
 4. How does the RB satisfy itself that the results of the periodic review are incorporated into both the on-site and off-site emergency plans?
-
-

Belgium

Q1.

Through periodic safety review (every 10 years) by assessing the external risks.

Q2.

PSR

Q3.

10y

Canada

Q1.

The Operator's Final Safety Analysis Report (FSAR) must be updated every three years with the results of any new analysis and submitted for CNSC review and approval.

Q2.

Yes, the submission of the FSAR is included as a licence condition and routinely performed. Completion of the routine updates to the FSAR is included in the five year licence renewal process.

Q3.

Three years.

Q4.

The FSAR forms the basis for the operator's emergency plan. The plan is reviewed as part of the licensee renewal process. Significant changes in the Outputs of the FSAR would trigger a review of the emergency plan outside of the licence renewal cycle.

Czech Republic

Q1.

In the case of a nuclear installation construction, the Civil Construction Act established three-stage procedure comprising a site decision (siting) – within competence of the respective local department of planning and building control (unless the regional office or the Ministry for Regional Development reserves this right pursuant to Section 17 paragraph 2 and 3).

The construction permit and operating license (permanent operation) – is issued by the department of planning and building control of the Ministry of Industry and Trade. Their resolutions are conditional upon positions issued by specialized regulatory bodies, including SÚJB. The department of planning and building control of the Ministry of Industry and Trade can issue the operating license only with the approval of the municipal department of planning and building control competent to issue the site decision, which verifies observance of its conditions; the approval is not an administrative action. If neither site

decision nor site approval is issued, the opinion of the municipal department of planning and building control on compliance of designed site with projects of regional planning shall be sufficient. For more information see chapter 2.1.2.

The Atomic Act establishes the way of utilization of nuclear energy and ionizing radiation, as well as conditions for the performance of activities related to the utilisation of nuclear energy and radiation practices. A precondition for the performance of such activities is a SÚJB license to be issued in an administrative procedure, which is independent of the above-described procedure required under the Civil Construction Act. The Atomic Act explicitly forbids launching siting, construction, operation and other activities at nuclear installations, requiring the SÚJB license, before the respective SÚJB license becomes legally effective. For more details see chapter 3.1.2.

That means that the approval procedure, besides the three-stage process mentioned above, also includes a number of other partial licenses issued by the SÚJB in accordance with the Atomic Act during different stages of the service life of a nuclear installation.

According to the provisions of Section 17 of the Atomic Act, a licensee shall verify nuclear safety during all stages of the installation's service life (in the scope appropriate for the particular licenses), assess it in a systematic and comprehensive manner from the aspect of the current level of science and technology, and ensure that results of such assessments are translated into practical measures. The verification/assessment shall be documented. The content of the documentation is specified in the Appendix to the Atomic Act. Safety assessment is, in compliance with the Atomic Act, reviewed by the SÚJB, both analytically and within its inspection activities. Details concerning the safety related documentation preceding construction of a nuclear installation, preceding its commissioning and during its operation, are described in Chapters 17, 18 and 19 of the Article.

The implementing decrees complement the Atomic Act to establish basic criteria for nuclear safety assessment of a nuclear installation during different stages of its service life.

The following are particularly concerned:

- **SÚJB Decree No. 215/1997 Coll.**, on criteria for siting nuclear installations and very significant ionizing radiation sources,
- **SÚJB Decree No. 195/1999 Coll.**, on basic design criteria for nuclear installations with respect to nuclear safety, radiation protection and emergency preparedness,
- **SÚJB Decree No. 106/1998 Coll.**, on nuclear safety and radiation protection assurance during commissioning and operation of nuclear facilities, which defines and establishes particularly the following:
 - Individual stages of commissioning.
 - Requirements for the content of the commissioning programs.
 - Requirements for the contents of Limits and Conditions for safe operation.
- **SÚJB Decree No. 132/2008 Coll.**, on Quality Assurance System in carrying out activities connected with utilization of nuclear energy and radiation protection and on Quality assurance of selected equipment in regard to their assignment to classes of nuclear safety
- **SÚJB Decree No. 309/2005 Coll.**, on assurance of technical safety of selected equipment

This decree defines the following:

 - Method of determination of selected equipment specifically designed for nuclear installation.
 - Technical requirements for assurance of technical safety of selected equipment in production and in operation.
 - Procedures for consideration of the compliance of selected equipment specifically designed for nuclear installations with technical requirements.
 - Method of assurance of technical safety of selected equipment in operation.

As described below, practical application of the requirement to perform systematic and comprehensive assessment of a nuclear installation to check on its continual compliance with its design, applicable safety requirements in the valid national legislation and with Limits and Conditions includes in particular:

- Systematic monitoring of nuclear and technical safety (supervision, inspections, tests).
- Deterministic evaluation of nuclear safety (Pre-Operational (Final) Safety Report).
- Probabilistic safety assessment (so called “living” Probabilistic Safety Assessment Study and its application-Safety Monitor).

Q2.

Continuous monitoring of the Dukovany NPP and Temelín NPP units’ nuclear safety performed by the operator focuses in particular the observation of the Limits and Conditions for safe operation.

This activity is performed both by personnel of the departments responsible for such activities and by specialists of the nuclear safety department in both NPPs. Personnel of the nuclear safety department is responsible for independent verification of the fulfilment of test completion criteria during operation and after maintenance, before equipment after maintenance is ready for operation.

Independent inspections of compliance with additional requirements are executed during outages, dealing with the procedures of works and manipulations on primary circuit technological equipment. The inspections are also executed by the personnel of the nuclear and technical safety departments of both NPPs as well as by the managers of other departments whose personnel or, if applicable, contractors, carry out work during the outages. For strengthening of supervision independence and quality, accredited Inspection authority of type „B“ was established within Technical Safety Department.

The information on nuclear and technical safety assurance is presented both in textual and graphic forms. The latter form uses indices containing information about safety systems reliability, conditions of certain equipment in general, environmental impact of NPPs operation and about compliance with the established principles for the given area (fire protection, industrial safety).

The Safety Monitor, version 3.5a, is used to monitor the operational risk level of all units of ČEZ NPPs depending on current equipment configuration. This tool is used at Temelín and Dukovany NPP, cumulative and point-in-time risk may be evaluated or pre-calculated by using this tool depending on currently valid or intended NPP technology in given instant of time or during given period of time.

This tool is also used to evaluate the time schedules of all outages for risk level optimization at least two months prior to implemented outage, and to evaluate real or intended changes in time schedule during outage. Original and actual course of the risk is analysed after outage completion in order to optimize maintenance activities in terms of unit configuration during outage.

At Temelín and Dukovany NPPs, the checking is executed every year in the field of beyond design basis accidents /BDBA/ focused on quality and the status of implementation of control documentation for management of emergency situation and the status of implementation of technical measures for mitigation of consequences of severe accidents.

Emergency Operating Procedures (EOPs) and Severe Accident Management Guidelines (SAMGs) were developed and implemented at both NPPs within the accident management programme.

EOPs are symptom-based procedures followed by the operating personnel of the main control room in case of emergency situation solving up to the onset of core damage. EOPs were developed in 1994-1998, verified and validated by 2000, and implemented in 1999 in Dukovany NPP and in 2000 in case of Temelín NPP. The revisions of EOP are executed in a systematic manner depending on executed modifications of Dukovany and Temelín NPPs.

The Severe Accident Management Guidelines are symptom-based structured guidelines for selection of appropriate strategy for management of accident with fuel meltdown on the basis of current state of the

unit. SAMGs as well as EOPs were developed both for Temelín and for Dukovany NPPs by NPP personnel in co-operation with Westinghouse Energy System Europe company on the basis of so-called generic guidelines for severe accident management. SAMGs were completed at both power plants and issued in 2004 as a set of operating procedures. The validation of SAMGs is in case of both power plants executed by means of selected validation analyses demonstrating a proper selection of strategies and helpful for optimization of some of their aspects.

In 2009, the set of emergency regulations was completed with the documentation (manuals) designed for members of Technical Support Centre for the cases where the support of the main control room in the use of EOP is required. The manuals were prepared in co-operation with company Westinghouse.

A gradual increase in resistance of the units to severe accidents is executed at both NPPs, within Accident management programme controlled jointly for both NPPs.

The personnel of both NPPs involved in management of the accidents are regularly trained in the use of EOPs and SAMGs. The exercise of members of Technical Support Center concerning the use of SAMG instructions takes places regularly and it is controlled by the staff of company Westinghouse.

The information describing the level of nuclear and technical safety, radiation protection, fire protection and industrial safety is evaluated periodically (weekly reports on the nuclear safety status and monthly and annual reports on the status of safety in the Dukovany NPP and Temelín NPP) and discussed on the individual control levels within ČEZ, a. s. The unavailability of the individual components with impact on nuclear safety is monitored monthly. Results of this monitoring are submitted in the form of operational indicators into the power plants information system network.

Impact of individual component unavailability on nuclear safety is assessed using the immediate value of the Core Damage Frequency as well as a cumulative risk value, which are a products of the Core Damage Frequency and the duration of the component unavailability.

Q3.

The results of nuclear safety assessments at individual units are in compliance with the original and current legislation documented in the safety reports.

The validity and topicality of Pre-operational (Final) Safety Report of Dukovany and Temelín NPPs is the basis for issue of the licence both for continuous operation and for startup after shutdown with refuelling.

Pre-operational (Final) Safety Report of Dukovany and Temelín NPPs is regularly updated (always the following year as at the end of the 1st quarter for Dukovany NPP and as at the end of the 1st half-year for Temelín NPP, changes in Pre-operational (Final) Safety Report for the past year are submitted to SÚJB).

After ten years of operation, total revision of safety report of Dukovany and Temelín NPPs is regularly prepared as the background paper for granting of subsequent ten-year licence for Dukovany and Temelín NPPs.

Pre-operational (Final) Safety Report of Dukovany and Temelín NPPs is prepared according to the requirement of US Nuclear Regulatory Commission, standard RG 1.70, and it verifies the assurance status of nuclear safety of the units of Dukovany and Temelín NPPs in terms of state of the art and experience in the hitherto operation.

The modifications that have an effect upon safety and that change the preconditions used in Pre-operational (Final) Safety Report shall be approved by SÚJB prior to their implementation. This procedure was confirmed for both power plants by a joint agreement between SÚJB and ČEZ, a. s. The responsibilities of particular departments of power plant in evaluation of impacts of the modification upon particular processes are determined in the relevant control documentation.

Q4.

Article 19 of Atomic Act establishes the obligation of the licensee to submit to the appropriate Regional Authority and to the relevant Municipal Offices with extended competence background documents to prepare the off-site emergency plan and to co-operate with the authority in order to ensure emergency preparedness within the emergency planning zone.

Finland

Q1.

Annual inspections on EP.
PRA updates on level 2.

France

Q1.

Before being authorized to bring into service his plant, the operator has to establish a safety report including a threat assessment and a sizing study that enable to determine scenarios that have to be covered in the internal emergency plan. This safety report is instructed by ASN, with the help of its expert IRSN.

Q2.

Article 29 of the TSN Act requires that the licensees periodically conduct a safety review of their NPPs. This review is carried out every ten years. The periodic safety review is an opportunity to conduct a detailed, in-depth examination of the condition of the facilities, to check that they are in conformity with the applicable baseline safety requirements. Its aim is also to improve the level of safety in the facilities. The requirements applicable to the existing facilities are therefore compared with those to be met by the most recent facilities, and the improvements which could reasonably be implemented are proposed by the licensee. The periodic safety reviews therefore constitute one of the cornerstones of safety in France, by obliging the licensee not only to maintain the level of safety of its facility but

also to improve it.

Q3.

Every ten years.

Q4.

At the end of the safety review process, ASN can issue a series of prescriptions requiring that the licensee implement dedicated measures.

If these prescriptions apply to the on-site plan (PUI) ASN will follow the incorporation of those changes in the on-site plans.

Concerning, the Off-site plans, they are the competency of the Minister of the Interior: they are reviewed at least every five years.

Germany

Q1.

The threat assessment is carried out within the licensing procedure. In addition, since 1990, the operators have performed probabilistic safety analyses (PSA) for all German NPPs as part of the periodic safety review. Since 2005, Level 1 PSA also comprise low-power and shutdown states, probabilistic analyses for the external events, fire and – depending on the site – also for earthquake, and a Level 2 PSA for power states.

The assessment of possible releases may be incorporated into data banks, *e.g.* of the Real-time Online Decision Support System for nuclear emergency management RODOS for the performance of prognostic dispersion's calculations of pre-release phases.

Q2.

Yes, this is performed within the framework of a comprehensive periodic safety review, which is mandatory for NPPs in operation by law in Section 19a of the Atomic Energy Act.

Q3.

Since 2002, the results of the safety review have to be submitted to the competent supervisory authority by specified dates in the Atomic Energy Act. In principle, the safety review has to be renewed every ten years.

Q4.

The results of the periodic safety review as well as the on-site emergency plans of the operator are reviewed by the competent supervisory authority. If the results also concerns off-site emergency plans, it will be coordinated with the relevant authorities.

Hungary

Q1.

The reviews of the National Nuclear Emergency Plan contains the actual results of the threat assessment and takes care of the changes. The review practically takes place every few year.

Q2.

The High Level Working Group responsible for the development of the national plan is tasked with that responsibility by law and has a Rule of Operation that specifies this task.

Q3.

Practically every few years, but there is no timed specification, only it should be done if necessary.

Q4.

The RB requires the plant to coordinate with the national plan and during the permission process of the plan (its modification is a matter of regulatory permission) the RB verifies that this is done. After each modification of the national plan the concerned parties in the national system are called to perform the revision of their own plant accordingly.

India

Q1.

The impact of nuclear and radiological facilities is assessed before giving license for their operation. This aspect is covered the safety analysis of the facility.

Q2.

The safety analysis of the facilities is reviewed during Periodic Safety Review (PSR)

Q3.

PSR is carried out once in ten years.

Q4.

Emergency preparedness and response plans undergo revision once five years. The RB ensures that results of PSR are reflected in the revised documents.

Japan

Q1.

As for the nuclear disasters (threats), these threat assessments do not include in the NPP licensing conditions so far. So the development and maintenance of those assessments becomes the licensee's own responsibility. Under this circumstance, the RB is studying to introduce those assessments as the regulatory requirements on the part of regulation.

Q2.

No. We do not have yet.

Q3.

N/A

Q4.

We don't have the periodic review process.

Korea

Q1.

The Regulatory Body prepares and responds to all nuclear or radiological accidents, which are specified as Threat Categories I, II, III, IV and V in the IAEA Safety Standards GS-R-2 (Preparedness and Response for a Nuclear or Radiological Emergency).

Under the "Policy on Severe Accident of Nuclear Power Plants", the licensee submits a preliminary probabilistic safety analysis (PSA) report in the phase of construction permit and a final PSA report in the phase of operating license. KINS confirms the licensee's PSA by conducting comprehensive review on the results of the PSA based upon Section 19.1 (Probabilistic Safety Analysis) of the "Safety Review Guidelines for Light Water Reactors" (KINS/GE-N-01, Rev. 3, 2009). In addition, KINS has developed a reactor-specific PSA model, MPAS (Multi-purpose Probabilistic Analysis of Safety), established a framework for utilizing the regulatory PSA model, and conducted an independent regulatory verification by using the regulatory PSA model when needed in the process of safety review.

Q2.

In addition, NSSC may request the head of the local government concerned to rectify or supplement the local radiological emergency plan if necessary, and approves the Radiological Emergency Plan submitted by nuclear licensee. KINS reviews the licensee's Radiological Emergency Plan in accordance with Article 45 (Entrustment of Duties) of the APPRE.

The result of PSA on nuclear power plant is interactively fed back with the review results on the Emergency Operating Procedure (EOP), and the objective of PSA on nuclear power plant effectively envelops the objectives of PSA listed in §5.73 of the IAEA Safety Standards NS-R-1 (Safety of Nuclear Power Plants: Design).

KINS has also reflected a part of the PSA results on nuclear power plants into the Source Term Estimation System (STES), which is a subsystem of the Atomic Computerized Technical Advisory System for the Radiological Emergency (AtomCARE), and has been operating the STES. In order to develop a reasonable and useful model for damage assessment, in which such assessment criteria for damage from general disaster as damage in economy and individual health impact (deterministic/probabilistic) are taken into consideration, KINS is now improving an emergency response damage assessment model under the programme for enhancing the AtomCARE. Furthermore, regulatory review guide for Level 3 PSA was developed under the Program 2-1 (Establishment of Risk-informed Regulatory Framework) of the "First

Comprehensive Nuclear Safety Plan (2010-2014)”, and the PSA model for regulatory verification is being under further development.

Q3.

Once a year.

Q4.

As per Article 18 (Formulation of a National Radiological Emergency Plan, etc.) and Article 34 (Relations to Framework Act on Civil Defence, etc.) of the APPRE, and Article 20 (Formulation of a National Radiological Emergency Plan, etc.) of the Enforcement Decree of the APPRE, NSSC develops and implements the National Radiological Emergency Plan every year.

Mexico

Q1.

Through the study of nuclear accident phenomenon. WASH-1400 and NUREG-1150. But the most conservative is WASH-1400 and it is the basis for EP regulation.

Q2.

No, but due to the event of the Fukushima, currently the CNSNS is performing a revision of the new rules that will be applied in such field.

Q3.

N/A.

Q4.

Yes, see 3.1 above.

Poland

Q1.

The assessment of potential consequences from a nuclear installation (from research reactor) is made within the licensing process, safety analysis and inspections in this facility. The safety analysis is being scrutinised by the Department of Nuclear Safety NAEA.

There are no threat category I facilities in Poland.

Research nuclear reactor in NCBJ in Otwock-Swierk is the only facility of threat category II in Poland.

Q2.

Authorization given by RB to operate research reactor is valid for 6 years and in the process of renewing this licence Safety Analysis Report is a subject of review. Also when the operator introduced changes to safety report that demanded issuing an annex for licence for reactor’s operation.

Q3.

According to the new legislation (2011 amendment of Act of Parliament of 29 November 2000 on Atomic Law, Article 37e) the head of organisational entity operating nuclear facility shall regularly (periodically) assess the nuclear safety of the facilities, for compliance with the licence conditions, legal regulations, as well as national and international standards for nuclear safety and safe operation of installations, at least once every 10 years.

Q4.

Emergency plans are subject to periodical verification together with Safety Analysis Report in the re-licensing process.

Russian Federation

Q1.

RB assesses Safety Analysis Report for every nuclear installation under licensing and assesses periodically safety reports of operator.

Q2.

Yes, annual.

Q3.

As a rule.

Q4.

By inspections.

Slovak Republic

Q1.

Emergency headquarters works in three successions in order to assure continuity of their work also during the real events, which can last much more longer than 8 hours.

Every succession has its own management consisting of chairman, its assistant and leaders of individual groups. Groups are divided as follow:

- Reactor safety group.
- Radiation protection group.
- Mobile dosimetry group.
- Logistic group.
- Information group.
- Site inspector group.

Q2.

Yes, this process of periodically review is based on QA procedures.

Q3.

The plans are generally reviewed at each change and during periodic review.

Q4.

The periodic review is performed based on UJD decree and the final report is submitted to RB.

Slovenia

Q1.

By periodic review of threat assessment.

Q2.

No.

Q3.

It is done in several years period.

Q4.

By conducting exercises and inspections.

Spain

Q1, Q2, Q3, Q4.

The Nuclear Safety Council assesses the potential for consequences from a nuclear installation evaluating the Safety Study of each installation with the applicable regulations.

The licensees must submit to the Nuclear Safety Council every ten years a Periodic Safety Review that is evaluated by the technical staff.

The Nuclear Safety Council requires that the results of the evaluation of the Safety Study and the Periodic Safety Review have been incorporated to the official operating documents, and checks it by means of inspections in the installations.

In response to a proposal by the Minister of the Interior and following reports from the Nuclear Safety Council and the National Commission for Civil Defence, the Basic Nuclear Emergency Plan may be reviewed whenever any of the following circumstances occur:

- a) Review of the international standards whose contents affect the Basic Nuclear Emergency Plan.
- b) Review of the national standards whose contents affect the Basic Nuclear Emergency Plan.
- c) Modifications established by the Nuclear Safety Council regarding criteria of a nuclear or radiological nature contained therein.
- d) In response to proposals by the competent authorities and public Administration organisations concerned, as identified in the Basic Plan, in view of the experience acquired in application of the off-site nuclear emergency plans.

Sweden

Q1.

Yes, The Swedish Radiation Safety Authority do every year a threat assessment called "Risk och sår analys".

Q2.

Yes, the threat assessment through the Swedish Civil Contingencies Agency (MSB).

Q3.

Every year.

Q4.

The incorporation are performed mainly through supervision of the operators and by common projects between involved authorities.

Switzerland

Q1.

Each licensee must perform a plant-specific level-1 and level-2 PSA, including full power and shutdown states. The PSA has to be updated on a regular basis (“Living PSA”). The Regulatory Body has its own PSA-model for each Swiss NPP to perform an independent analysis.

Moreover the licensee has to demonstrate for a defined spectrum of design basis accidents, that the effective doses are below the dose limits defined in the Radiological Protection Ordinance.

The RB further evaluates the appropriateness of the measures taken by the plant operator in emergency planning and response and verifies their implementation, *e.g.* the operational readiness of the licensee’s emergency organisation (through emergency exercises) and of the communication systems. The RB further sets rules for the determination of source terms by the plant operator in an emergency, the execution of emergency exercises, the emergency preparedness in nuclear facilities and the organisation. The RB specifies to what extent licensees are required to participate in the preparation and implementation of emergency protection measures in the vicinity of the site or to adopt such measures themselves.

The RB has issued further guidelines on Quality and scope of probabilistic safety analyses and the application of probabilistic safety analyses (PSA). These guidelines give detailed instructions how to perform a PSA level-1 and level-2.

The radiation hazards resulting from severe accidents at selected spots important for carrying out accident management measures in the plant are assessed within so called Post-LOCA studies. These studies are in a process of being updated.

In an emergency situation, the RB uses a set of modern tools to assess the situation and the consequences from an accident at the facility.

Q3.

The licensee has to update the above mentioned PSA permanently.

Previously carried out deterministic analyses have to be assessed at least in the framework of the Periodic Safety Review. Impacts of changes (resulting *e.g.* from changes in procedures or back fitting) at the plant on these analyses need to be assessed by the licensee. The licensee has to demonstrate, that the deterministic analysis is conservative or has to recalculate it. The same can be required if international events (INES ≥ 2) with relevance for the Swiss NPP occurred. See also question 1.4-1.

Q4.

The impact of the periodic reviews mentioned above, the outcome from updated Post-LOCA studies or changes to the hazard level (see question 1.4-1) are being assessed as to their relevance to on-site or off-site emergency plans. The RB has drawn a number of lessons learned from the Fukushima accident and set up an action plan which will also address EP & R issues that may have an impact on existing on-site and off-site emergency plans.

In the aftermath of the Fukushima accident, the reference source term and scenario for the off-site emergency planning as well as the Emergency zone planning in the vicinity of nuclear power plants will be reviewed by the RB.

United Kingdom

Q1.

The RB operates a licensing and permissioning regime. Safety cases produced by Licensees contain details of the threats posed by facilities and operations. The RB assesses adequacy of safety arguments using published guidance – Safety Assessment Principles for Nuclear Facilities.

Q2.

LC15 requires Licensees to make arrangements to undertake systematic reviews of safety cases. Periodic Safety Reviews (PSRs) are required by the Site Licence to provide a systematic review and reassessment of the safety case, looking forwards up to ten years.

Q3.

Every ten years for each operator. Where an operator operates a number of sites, the review relates to each site.

Q4.

Findings from the PSR will be taken forward in an Action Plan against which the operator will have a programme of improvements. The RB monitors Licensees' activities against the published improvement programme as part of its Regulatory Intervention Programme.

On-site and off-site emergency plans should be reviewed with a frequency not exceeding three years (REPIR Reg 10).

ONR SAPs make reference to IAEA Safety Standards Series No. NS-G-2.10 2003 '*Periodic safety review of nuclear power plants safety guide*'.

USA

Q1.

Through the study of nuclear accident phenomenon. WASH-1400, NUREG-1150, NUREG/CR-6953 and the soon to be published NUREG/CR-7110 (SOARCA). But the most conservative is WASH-1400 and it is the basis for EP regulation.

Q2.

No, but it happens periodically due to events, such as the terrorist events of 2011, the Fukushima accident or a new study of consequences.

Q3.

N/A

Q4.

When necessary, regulations are changed, such as the 2011 EP rulemaking that included requirements germane to the terrorist threat as well as other enhancements.

- Question 3.2 Threat assessment – Affected areas
1. Does the RB have the opportunity to influence land use planning decisions around the site, including the setting of the planning zones?
-

Belgium

No.

Canada

Major facilities such as NPP have defined exclusion zones (941 metre) when the CNSC must approve land use, and the operator is expected to have title to the land.

Zones defined for evacuation purposes are defined by the provincial emergency plan. The CNSC provides advice during the development of the provincial emergency plans.

Czech Republic

Yes, it does. SÚJB approves EPZ and in the EPZ within 3 km from NPP there is general ban for any other constructions and for permanent housing. No other special permissions are set up.

Finland

Planning zones (20 km) are established but STUK do not issue any direct regulative actions (local planning authority takes care of this).

France

Land use

Four main principles underpin the protection of the general public against technological risks:

- Reducing risks at source.
- Implementing off-site emergency plans.
- Controlling urban development.
- Informing the general public.

The aim of controlling urban development is to limit the consequences of a severe accident for the population and property.

Since 1987, this type of approach has been implemented around non-nuclear industrial facilities and it has been reinforced since the AZF utility accident that occurred in Toulouse (South of France) in 2001.

The TSN Act (now codified in books I and V of the Environment Code by ordinance no.2012-6 of 5 January 2012) now enables the public authorities to control urban development around BNIs, by issuing public protection restrictions limiting or prohibiting any further construction in the vicinity of these facilities.

The urban development control actions entail a division of responsibilities between the licensee, the mayors and the State:

- The licensee is responsible for its activities and the related risks.
- The mayor is responsible for producing the town planning documents and issuing building permits.
- The Préfet informs the mayors of the risks that exist and ensures the legality of the acts of the municipalities.
- ASN supplies the technical data in its possession, in order to characterise the risk, and offers the Préfet its assistance in the urban development control process.

In recent years, urban development pressure in the vicinity of nuclear sites has increased. It is therefore important to incorporate the control of urban development into the management of the nuclear risk. The ASN current doctrine for controlling activities around nuclear facilities only concerns those facilities requiring a PPI and primarily aims to avoid compromising the feasibility of the protective measures mentioned in the PPI with regard to sheltering and evacuation. It focuses on the “reflex” zones of the PPIs, established in accordance with the circular of 10 March 2000 and in which automatic measures to protect the general public are taken in the event of a rapidly developing accident.

Since 2006, ASN has asked to be consulted with regard to building permit applications made in the immediate vicinity of nuclear installations. ASN has so far issued about 15% of reserved or unfavourable opinions on some 300 projects submitted.

A circular from the Ministry of the Environment dated 17 February 2010 has asked the Préfets to exercise greater vigilance over urban development near nuclear installations. This circular states that the greatest possible attention must be paid to projects that are sensitive owing to their size, their purpose, or the difficulties they could entail in terms of protection of the general public in the so-called “reflex” zone. This circular tasks ASN and the DGPR (General Directorate for Risk Prevention) with leading a pluralistic working group to determine the ways and means of controlling activities around nuclear installations.

In the years 2010 and 2011, the DGPR and ASN thus chaired a debate with the administrations, elected officials, the National Association of Local Information Commissions and Committees (ANCCLI) and the licensees concerned. These discussions led to the drafting of a guide for controlling activities around BNIs, which presents the general principles applicable to controlling urban development, the main ones being as follows:

- Preserve the operability of the off-site emergency plans.
- Favour urban development outside the zone in which the risk could rapidly develop.
- Allow controlled development that meets the needs of the resident population.

This guide was extensively opened to public consultation on the Ministry of the Environment and ASN websites, between 17th October and 17th December 2011. The purpose of this guide is to offer a uniform national framework to promote the consideration of risk at the local level.

Planning zones

The intervention levels are defined on the basis of the most recent international recommendations and, since 2003, have been included in regulatory requirements. The intervention levels are thus defined by ASN decision 2009-DC-0153 of 18 August 2009, which modified the intervention level with regard to the administration of stable iodine.

The intervention levels associated with the implementation of population protective measures in a radiological emergency situation, mentioned in article R. 1333-80 of the public health Code, are therefore as follows:

- An effective dose of 10 mSv for sheltering.
- An effective dose of 50 mSv for evacuation.
- An equivalent dose to the thyroid of 50 mSv for the administration of stable iodine.

The PPI perimeter must protect the general public in the first hours following the accident, without ruling out any subsequent actions to be taken. As the accident situation develops, and depending on the weather conditions on the day of the accident, the disaster and emergency services may implement general public protective actions beyond the PPI perimeter, as required by the ORSEC plan.

For example, the off-site emergency plans defined for the vicinity of a PWR reactor recommends sheltering of the population and the absorption of stable iodine tablets within a 10-kilometre radius, plus evacuation of the population within a 5-kilometre radius.

Germany

Yes. The supervisory authority is consulted when land use planning decisions are made around nuclear installations. Furthermore, the competent superior planning authority for regional land use planning is also the competent disaster control authority in the vicinity of nuclear facilities.

Hungary

The RB is tasked to approve the security perimeter around the plant which is meant to limit the activities affecting the plant.

The planning zones are part of the planning basis for the national emergency plan, and due to that the RB has direct influence on them.

India

Area of five kilometre radius around the NPPs is declared as sterilised zone. The development and land use in this zone is kept under check to prevent population growth in the area.

The site characteristics, including land use are checked during site selection. RB is a member of the site selection committee. The land use around the NPPs is reviewed during “Periodic Safety Review” carried out once in ten years.

Japan

At present, the RB is considering the introduction of PAZ, UPZ into the nuclear emergency preparedness plan. However the land use falling under PAZ, UPZ areas is the future challenges.

Korea

The Regulatory Body determines adequacy of the emergency planning zone (EPZ) which is established by nuclear licensee through consultation with local governments, by reviewing its radiological emergency plan. The nuclear licensee must obtain the approval of NSSC in cases where it intends to establish, modify or cancel the EPZ. Relevant provisions are prescribed in Article 5 (Emergency Planning Zone) and Article 22 (Application for Approval of a Radiological Emergency Plan) of the Enforcement Decree of the APPRE.

The documentation related with establishment of the EPZ includes the APPRE, the Enforcement Decree of the APPRE, the Enforcement Regulation of the APPRE, and relevant NSSC Notices, the National Radiological Emergency Plan, the Crisis Response Manual, and the radiological emergency plans of the local governments and nuclear licensees.

Mexico

Yes, CNSNS and Office of Civil Protection establish planning zones and inspect response capability within those zones. There are also regulatory standards for siting nuclear plants. However, land use for the most part is a local/state prerogative and the Federal regulations do not limit land use, so long as planning capability is maintained. There is a low population zone identified when the plant is licensed. If local land use changed the population within that zone, it could affect the status of the license. We are not aware of that occurring. Operators often own or control the low population zone around the plant.

Poland

Yes, around the nuclear facility, a restricted-use area must be established which covers an area within whose boundaries:

- 1) The annual effective dose from all routes of exposure shall not exceed 0.3 mSv under normal operating conditions of the nuclear facility and during predictable operating emergencies.
- 2) The annual effective dose from all routes of exposure shall not exceed 10 mSv in emergencies during which the reactor core remains safe.

The restricted-use area boundaries are subject to a favourable opinion of the Agency's President.

It is regulated by Act of Parliament of 29 November 2000 on Atomic Law, Articles 36f, 36g, 36h, 36i.

Russian Federation

Yes, through licensing and assessment of SAR.

Slovak Republic

According to RB decree, the regulatory 55/2006, the RB approves the emergency planning zones and their sizes based on operator application.

Slovenia

The RB has to give approval for any land use in the 1 500 m zone.

The planning zones were defined during the licensing procedure and are under revision as an post-Fukushima actions.

Spain

The Nuclear Safety Council participates in the update of the municipal nuclear emergency action plans (PAMEN) and the off-site nuclear emergency plans (PEN's), but does not influence land use planning decisions around the site.

Sweden

Yes by recommendation.

- a) The priorities during response are life-saving, preventing the occurrence of severe deterministic effects and reasonably reducing the risk of stochastic effects. The main requirements for preparedness are associated with the facilitation of these response priorities, requiring that:
 - The country adopts national intervention levels for taking urgent protective actions in accordance with the relevant international standards.
 - Arrangements are in place for effectively making and implementing decisions on urgent protective actions to be taken off the site.
 - Arrangements are in place to ensure the safety of all persons on the site in the event of a nuclear or radiological emergency.
- b) SSM is responsible for developing national intervention levels. Other authorities who are directly responsible to take actions are responsible to adopt intervention levels. The county administrative boards are responsible for deciding and adopting the urgent protective actions that are possible considering radiological health risks, possibilities to implement the protective actions and financial cost and benefits as well as social costs and benefits. In this regard, SSM recommends the intervention levels, but these levels are not stated in any legal document.

- c) SSM will give the agricultural and food authorities advice on the values they should follow to take agricultural or food countermeasures. There is no legislation on the values SSM would take, however they will give advice taking into account the EU recommended values.

SSM has adopted international recommendations on dose limitations for emergency workers in regulation SSMFS 2008:51 dealing with protection of occupational workers. The overall purpose of this regulation is protection of workers in activities with ionizing radiation and it is not fully developed for work in emergency situations. SSM has identified there is a further need for clarification regarding:

- The definition of emergency situations.
- The classification and categorization of emergency workers.
- How and in what situations incurred radiation doses should be monitored.

SSM has no responsibility in managing radiation doses received by emergency workers during an intervention. This responsibility rests with the employers of the emergency workers (local rescue services and other operative authorities) through regulation SSMFS 2008:51.

It is always the employer of the emergency workers who is responsible for managing the radiation doses. In case of an accident in a nuclear power plant, the county administrative board has set up plans and preparations for dose monitoring that can be adopted by the local employers, like the rescue services. For other nuclear or radiological emergencies there is no, or very little, preparation of this kind. In case of nuclear power plants dosimeters are deployed at the entrance of the facility for the purpose of providing dosimetry service for the emergency workers arriving from outside.

Switzerland

The RB has no influence on land use planning. The Swiss legislation does not know restrictions for settlement in the vicinity of nuclear facilities, as known from other countries.

The ordinance on emergency protection specifies that 2 zones are set up by the Federal Council in the vicinity of each NPP. The RB will issue a technical opinion on the sizes of the zones adopted. The RB is responsible for the yearly verification and update of appendix 3 of this ordinance, which lists the communities in zones 1 and 2. The cantons from zone 1 and 2 as well as the NEOC are consulted before updates of the zone plans are released by the Regulatory Body.

United Kingdom

The RB uses methodology known as PADHI (Planning Advice for Developments near Hazardous Installations) when providing land use planning advice.

The RB is a non-statutory consultee for certain developments near licensed nuclear sites, according to defined reference criteria.

Under REPPPIR (Reg 9) the Health & Safety Executive ((HSE) (ONR)) shall set the size of any Detailed Emergency Planning Zone (DEPZ) following an assessment of the area within which any member of the public is likely to be affected by a (reasonably foreseeable) radiation emergency.

USA

Yes, NRC and FEMA establish planning zones and inspect response capability within those zones. There are also regulatory standards for siting nuclear plants. However, land use for the most part is a local/state prerogative and the Federal regulations do not limit land use, so long as planning capability is maintained. There is a low population zone identified when the plant is licensed. If local land use changed the population within that zone, it could affect the status of the license. We are not aware of that occurring. Operators often own or control the low population zone.

- Question 4.1 Identifying, activating and notifying – Identification
1. How does the RB satisfy itself that operators have adequate arrangements for identification of an actual or potential nuclear or radiological emergency?
-

Belgium

Through yearly thematic inspections performed to NPPs + results from peer reviews (OSART, WANO...)

Canada

Licensee procedures for managing NPP transients are reviewed and inspected by the CNSC. Inspections of the training and examination of licensed operator staff provide part of the CNSC confirmation. Inspection of emergency exercises provides the rest.

Czech Republic

It is defined in the on-site emergency plan and SONS approves it.

Finland

Design approval, Inspection, exercise.

France

On-site emergency plan (PUI) of the operator has to define criteria that let to the initiation of it. The operability of these criteria is checked during the instruction of the plan, and inspections enable to check that operator know how to use them.

Germany

In order to identify an actual or potential nuclear or radiologic emergency detailed alarm criteria, as part of the alarm regulation in the operating manual, are available that comply with the specifications of a joint recommendation of the RSK and the SSK. In the alarm regulation plant-specific emission criteria and technical criteria for early warning or an emergency alert are defined which, when reached, require alerting the disaster control authorities with specification of the respective alert level. Here, the technical criteria, *e.g.* very high-temperature or low-water level in the reactor pressure vessel (RPV), are of particular importance, since they give an early indication to the violation of safety objectives and allow rapid alerting. In addition, alerting the disaster control authorities is also possible by the responsible supervisory authority.

The alarm regulation is part of the safety specifications of the operating manual and therefore subject to regulatory supervision and thus, inspection. The procedures described are regularly tested within exercises, usually with participation of the supervisory authority.

Hungary

The RB defined these requirements in the Nuclear Safety Code and inspects (during field inspections also) if they are met. Since the facilities' emergency plan is approved by the RB, this is also possibility to ensure the compliance with these requirements. In addition these arrangements are always inspected during the annual exercises.

India

Before the commencement of operation of an NPP, the plant management ensures that the following requirements are met:

- The emergency preparedness and response plans for NPP are drawn up and approval of AERB is obtained.
- Necessary training is imparted to the personnel in implementing the action plans.
- The plans are validated by conducting exercises.

The above requirements are verified during routine inspections by RB. The emergency manuals give symptoms and situations under which emergency should be declared.

Japan

Along with the introduction of the precautionary protective action into the nuclear emergency action plan, the operator will be requested to notify an alerting level event, a specific event and a nuclear emergency to RB depending on EAL. At this moment, EAL is being prepared by the operators and also RB is studying to add EAL to the regulatory requirements in parallel with this operator's preparation.

Korea

KINS reviews the licensee's Radiological Emergency Plan which describes the arrangements for identification of an actual or potential nuclear or radiological emergency in accordance with Article 45 (Entrustment of Duties) of the APPRE.

Mexico

In Mexico we use the document of NRC originally published (1980) which is an emergency action level (EAL) scheme that licensee was required to meet. Since that time, industry has made several improvements to that scheme and CNSNS has reviewed and approved those updated EAL schemes. All changes to a licensee EAL scheme are reviewed and where the change is substantial, approved by CNSNS. Regulations require the timely declaration of emergency classification when EALs are exceeded. Inspectors review events to ensure compliance. Currently, the Operator is making an updating of the EAL on basis of the document NEI-99-01 (Rev. 5).

Poland

The operator has to have radiation emergency plan, which is scrutinised by the RB during the authorisation process. The elements of this plan are specified in the Regulation of the Council of Ministers of 18 January 2005 on emergency response plans in case of radiation emergency and Regulation of the Council of Ministers 20 February 2007 amending regulation on emergency response plans in case of radiation emergency. One of elements of radiation emergency plan is description of potential radiation emergencies and actions to be taken in response. While performing a inspections in research reactor, EP is also periodically included in the scope of inspection.

Russian Federation

By inspections and participation in emergency drills.

Slovak Republic

The RB performs planned inspections of emergency preparedness of all operators of nuclear installations. The adequate arrangements are assessed by inspectors and shortcomings are summarised in inspection findings.

Slovenia

By conducting exercises and inspections.

Spain

By means of checking in the inspections and evaluations of the onsite emergency plan carried out by the technical staff that the operator's documents comply with the regulations.

Sweden

Through drills, supervision according to Ordinance 2008:1 and 2008:15 and follow up from occurred events.

Switzerland

The RB has defined the requirements concerning the extent and technical standards of accident instrumentation (parameter to be measured and their range) and the Safety Parameter Display System in a guideline.

According to the emergency plans of the NPP, the engineer on duty has to be alerted in case of all deviations from normal operation. The engineer on duty has to decide on declaring an emergency on behalf of the emergency criteria, defined in the emergency plan. Changes in the emergency plan have to be approved by the RB.

United Kingdom

LC11 requires the Licensee to make and implement adequate arrangements for dealing with any accident or emergency arising on the site and their effects, and also requires the licensee to submit for approval such part of the arrangements as is specified by HSE (ONR). This requirement is delivered by submission of the Licensee's (on-site) Emergency Plan, as being representative of the overall emergency arrangements.

REPPIR (Reg 7) (if applicable) requires the operator to produce an operator's emergency plan.

ONR has produced Technical Guidance (T/INS/011) which, together with guidance provided in REPPIR Schedule 7, provides information on the expected content of an operator's emergency plan. The guidance requires the plan to identify the types of possible incidents on the site, and describe the strategy, system and response structure for dealing with them.

USA

NRC originally published (1980) an emergency action level (EAL) scheme that licensees were required to meet. Since that time, industry has made several improvements to that scheme and NRC has reviewed and approved those updated EAL schemes. All changes to a licensee EAL scheme are reviewed and where the change is substantial, approved by NRC. Regulations require the timely declaration of emergency classification when EALs are exceeded. Inspectors review events to ensure compliance.

- Question 4.2 Identifying, activating and notifying – Level of response
1. How does the RB satisfy itself that the operator has adequate procedures and instructions to determine the appropriate level of response?
-

Belgium

According to the initial Safety Analysis Report, the licensee shall have an internal emergency plan. The RB has approved this initial Safety Analysis Report within the NPP licensing process.

RB receives updates of the internal emergency plan and associated documents (instructions...). RB witnesses at least one exercise per year and performs a dedicated inspection each year.

Canada

Licensee procedures for managing NPP transient are reviewed and inspected by the CNSC. Inspections of the training and examination of licensed operator staff provide part of the CNSC confirmation. Inspection of emergency exercises provides the rest.

Czech Republic

It is defined in the On-site emergency plan and SONS approves it.

Finland

Document inspection.

France

The on-site emergency plan (PUI) is made of Logic diagrams of decision-making support. According to the diagnosis, the person who is in charge of the initiation of the PUI decides the appropriate level of response. These supports are examined by ASN instruction phase.

Germany

The procedures and instructions for the operators' emergency planning are part of the operation manual (e.g. alarm regulation, see 4.1) and the accident management manual of the plant.

The procedures and approaches are trained regularly within exercises, usually with participation of the supervisory authority.

Hungary

The RB defined these requirements in the Nuclear Safety Code and inspects (during field inspections also) if they are met. Since the facilities' emergency plan is approved by the RB, this is also possibility to ensure the compliance with these requirements, because the respective procedures are also submitted for information with the plans.

India

This is verified by RB during routine inspections, review of plant documents and review of emergency preparedness and response plans.

This aspect is also checked during emergency exercises and routine regulatory inspections.

Japan

See the above answer to 4.1.

Korea

KINS inspects the licensee's Radiological Emergency Plan which describes the procedures and instructions to determine the appropriate level of response and response facility in accordance with Article 45 (Entrustment of Duties) of the APPRE.

Mexico

Emergency plans are approved and response capability is inspected through a full scope exercise biennially and periodic drills (during the annual inspection to EP).

Poland

The operator has to have radiation emergency plan, which is scrutinised by the RB during the authorisation process. The elements of this plan are specified in the Regulation of the Council of Ministers of 18 January 2005 on emergency response plans in case of radiation emergency and Regulation of the Council of Ministers 20 February 2007 amending regulation on emergency response plans in case of radiation emergency. One of elements of radiation emergency plan is description of potential radiation emergencies and actions to be taken in response.

Russian Federation

By inspections and participation in emergency drills.

Slovak Republic

The RB performs planned inspections of emergency preparedness of all operators of nuclear installations. The adequate procedures are assessed by inspectors and shortcomings are summarised in inspection findings.

Slovenia

By conducting exercises and inspections.

Spain

The operator procedures and instructions arise from the official operating documents (as the onsite emergency plan). The official operating documents are evaluated by the technical staff of the Nuclear Safety Council.

The technical staff checks in their inspections that the operator's procedures and instructions are in accordance with the content of the official operating documents.

Sweden

Through drills, supervision according to Ordinance 2008:1 and 2008:15 and follow up from occurred events.

Switzerland

According to the Nuclear Energy Act, the licensee shall notify without delay incidents to the Regulatory Body, in particular incidents that qualify as emergencies according to the emergency preparedness regulations. In an accident situation, the plant is responsible for timely alerting the RB as well as the NEOC. The alert-criteria are written down in the emergency preparedness plans of the plant. The emergency preparedness plans (and any changes to it thereafter) must be approved by the RB according to Nuclear Energy Ordinance. Further incident reporting criteria are set down in a guideline.

United Kingdom

The guidance requires the plan to define the strategy for dealing with defined incidents, describe the site's emergency response organisation and its deployment.

USA

Emergency plans are approved and response capability is inspected through a full scope exercise biennially and periodic drills.

- Question 4.3 Identifying, activating and notifying – Classification
1. How does the RB satisfy itself that the operator has established pre-determined criteria for emergency classification?

Belgium

Through yearly thematic inspections performed to NPPs + results from peer reviews (OSART, WANO...)

Canada

Review of the operator's emergency plan. Inspection of the emergency exercises.

Czech Republic

It is defined in the On-site emergency plan and SONS approves it.

Finland

It comes from the law/decreed and document inspection verifies this.

France

For EDF, due to the standardisation of French plants, with a large number of technically similar reactors, there is a generic approach of these criteria.

The EDF head office departments define a generic frame for the PUI. This frame is assessed by ASN department. Then each NPP has to implement this frame et define its own PUI on the basis on the generic frame.

Germany

See also answer 4.1. A definition for the alarm criteria is given in a joint recommendation of the RSK and the SSK. These pre-determined criteria are implemented in form of plant-specific emission criteria and technical criteria for early warning or an emergency alert. The criteria include levels, which, when reached, require alerting the disaster control authorities with specification of the respective alert level.

The criteria are included in the alarm regulation, which is part of the safety specifications of the operating manual and therefore subject to regulatory supervision.

Hungary

The criteria shall be included in the emergency plan of the facility and so approved by the RB.

India

The criterion for classification of emergencies is specified in regulatory guide. RB ensures that this criteria is include in emergency plans.

This is verified by RB during:

- Routine inspections.
- Review of plant documents.
- Review of emergency preparedness and response plans.

Japan

See the above answer to 4.1.

Korea

KINS reviews the licensee's Radiological Emergency Plan which includes the criteria for emergency classification accordance with Article 45 (Entrustment of Duties) of the APPRE.

Mexico

See answers to 4.1 and 4.2.

Poland

Criteria described in the GS-G-2.1 classification are not implemented in Polish emergency and response system. The radiation emergency is classified on basis of range (spatial range) of consequences of emergency, but it differs from GS-G-2.1 classification. It is essential that according to the safety analysis for nuclear installation in Otwock-Swierk (NCBJ) the consequences of accident in this facility will not cause the necessity of implementation intervention measures off-site.

The obligations regarding initial response actions for licensee and response organisations are given in Atomic Law and in the Regulation of the Council of Ministers of 18 January 2005 on emergency response plans in case of radiation emergency. According to the legal requirements RB shall be notified by operator or response organisation of any radiation emergency event. During emergency RB shall be informed constantly on actions implemented in order to eliminate or mitigate the hazard. Moreover RB approves facility radiation emergency plan, which must be developed and maintained by any licensee.

Russian Federation

Criteria for emergency classification are established by FRR (NP-004-08).

Slovak Republic

The RB performs planned inspections of emergency preparedness of all operators of nuclear installations. The criteria for emergency classifications are a part of documentations which are submitted to RB.

Slovenia

By conducting exercises and inspections.

Spain

The operator must comply with the recommendations included in the safety guide 1.3 "Site emergency plan in nuclear power plants" and in the international reference regulations, about the criteria for emergency classification.

The Nuclear Safety Council and the nuclear sector have elaborated a guide with the initiating events that apply in a nuclear emergency.

The technical staff of the Nuclear Safety Council in their inspections and when evaluate the onsite emergency plan, checks that the operator's documents comply with the regulations.

Sweden

Through drills, supervision according to Ordinance 2008:1 and 2008:15 and follow up from occurred events.

Switzerland

The operator is required by Nuclear Ordinance to immediately classify events using the INES scale (Nuclear Ordinance) and to estimate by Ordinance on Protection in the Case of an Emergency, if the criteria for a Warning or a General Alert are met.

The appliance of the INES scale in Switzerland is defined in a RB guideline. For the practical use and a quick decision on the INES level in a given event, the operator has developed internal procedures.

The criteria for Warning and General Alert according to the Ordinance on Protection in the Case of an Emergency are plant specific defined. The criteria are generally measurable plant parameters or derived from measured parameters. These criteria are defined in the emergency plan. Changes in the emergency plan have to be approved by the RB.

As a consequence of an IRRS mission carried out in 2011, the emergency classification will be made consistent with the IAEA GS-R-2. This includes the review of existing criteria for emergency classification.

United Kingdom

The guidance requires the plan to provide a classification system for the different levels of severity of emergency, providing criteria for the declaration of severity level.

NB the classification process differs to that described in GS-G-2.1.

USA

See 4.1 and 4.2.

- Question 4.4 Identifying, activating and notifying – Declaration
1. How does the RB satisfy itself that the operator has established a process for ensuring declaration to initiate the appropriate level of co-ordinated and pre-planned emergency response on and off the site?
 2. How does the RB have confidence that when a declaration is made by the operator the appropriate response is initiated on and off-site?
-
-

Belgium

Preparedness

Q1.

Through yearly thematic inspections performed to NPPs + results from peer reviews (OSART, WANO...)

Response

Q2.

Through regular notification of unusual events + exercises & drills

Canada

Preparedness

Q1.

Review of the operator's emergency plan. Inspection of the emergency exercises.

Response

Q2.

Licensee emergency plan is reviewed and accepted as part of the five licence renewal cycle. The province confirms their capability as part of the licence renewal. An inspection of the licensee emergency response is performed at least once during the licence period. The inspection is normally scheduled to coincide with an exercise that includes provincial response.

Czech Republic

Preparedness

Q1.

It is defined in the On-site emergency plan and SONS approves it.

Response

Q2.

Off-site emergency plans for the nuclear installations are elaborated by the respective Fire Rescue Services of regions in accordance with the requirements specified in Act No. 239/2000 Coll., as amended, and by the Ministry of Interior Decree No. 328/2001 Coll., as amended by Decree No. 429/2003 Coll., for the specified emergency planning zone. The off-site emergency plan is developed on the basis of documents handed over by the licence holder and on the basis of partial documents prepared by respective regional authorities, units and municipalities.

Developed off-site emergency plans are discussed with the licence holder and with the respective central administration bodies, i.e. with SÚJB and the Ministry of Interior – General Directorate of Fire Rescue Service of the Czech Republic.

The off-site emergency plans set down targets and methods of ensuring the individual types of protective countermeasures:

- Notification of bodies and organisations.
- Warning of people.
- Sheltering people.
- Evacuation of people, including dosimetric checks and decontamination at the exits from the endangered territory.
- Regulation of people's movements within the endangered territory.
- Health care.

France

Q1.

Pursuant to decree 2007-1557 of 2nd November 2007, a BNI licensee is required to send ASN a file containing the PUI before commissioning the installation.

The PUI must specify the organisational measures, response methods and necessary resources the licensee implements in the event of an emergency situation in order to protect its personnel, the public and the environment and to preserve or restore the safety of the installation.

During the course of 2011, ASN helped draft the texts of the regulations in order to clarify new requirements, in particular concerning the management of an emergency situation.

Germany

Preparedness

Q1.

See also answers above (4.1, 4.2 and 4.3). In the alarm regulation plant-specific emission and emission criteria and technical criteria for early warning or an emergency alert are defined which, when reached, require alerting the disaster control authorities with specification of the respective alert level. Within the accident management manual it is described which measures have to be taken on-site.

In order to enable co-ordination and facilitate information exchange, liaison officers of the supervisory authority participate in the crisis management teams of the operator. Furthermore, liaison officers of the supervisory authority as well as of the operator participate in the crisis management team of the disaster control authorities.

Response

Q2.

In case of an emergency, the operator immediately informs the competent authorities as soon as the specified prerequisites for an alarm are fulfilled. For this purpose, detailed alarm criteria, as part of the operating manual, are available that comply with the specifications of a joint recommendation of the RSK and the SSK. The operator is obliged to make information necessary for averting danger available to the authorities in time and appropriate to the situation, to support the authorities in assessing the situation and to advise and support them in taking decisions on protective actions for the public. In an emergency situation, these analyses and the assessments of the plant condition by means of the fulfilment of the protection goals are submitted to the disaster control authorities within the scope of an early warning and the alarm. The disaster control authorities are supported by member of nuclear supervisory authority and the operator company. The processes are trained in regularly exercises.

Hungary

Preparedness

Q1.

In addition to the written arrangements in the emergency plan of the facilities this is mainly inspected during the annual exercises of the facility.

Response

Q2.

The RB has actual data from facility technology during the event. The site inspector is located in the operator's emergency centre in case of an emergency. The operator responses on event are monitored by RB. Also specific exercises are conducted regularly with the purpose to test operator's emergency classification capabilities.

India

Preparedness

Q1.

This aspect is verified during routine emergency exercises.

Response

Q2.

This functional requirement is specified in the on and offsite emergency plans & is verified during emergency exercises conducted periodically. RB inspectors witness Off-site emergency exercises, which are conducted once in two years at each site.

Japan

Q1.

The government reviews the operator's Nuclear Operator Emergency Action Plan, which was notified to the government based on the Nuclear Emergency Preparedness Act, and confirms the adequacy of the said operator's plan.

Korea

Q1.

KINS reviews the licensee's Radiological Emergency Plan which includes the process for emergency declaration accordance with Article 45 (Entrustment of Duties) of the APPRE.

Mexico

Q1.

See answers to 4.1 and 4.2.

Poland

Preparedness

Q1.

According to the safety analysis for nuclear installation in Otwock-Swierk (NCBJ) the consequences of accident in this facility will not cause the necessity of implementation intervention measures off-site.

The radiation emergency plan for facility is scrutinized and has to be accepted by the RB.

Response**Q2.**

According to the legal requirements RB approves operator's radiation emergency plan. RB has to be notified by operator of any radiation emergency event occurring at its facility. If emergency event cause any hazard for general public then also governor of province has to be promptly notified by operator. Furthermore RB and regional governor are obliged to exchange information about the events and closely cooperate in the case of emergency event on regional level.

Russian Federation

Preparedness**Q1.**

Requirements to the process are established by FRR (NP-005-98). Fulfilment is inspected by RB.

Response**Q2.**

By participation in emergency drills.

Slovak Republic

Preparedness**Q1.**

The RB satisfied itself by inspections and emergency exercises, that the operator has established a proper process. All operator activities are monitored by RB during the exercises.

Response**Q2.**

The RB has actual data from facility technology during the event and also there is the site inspector on site who is in operator's emergency centre. The all operator responses on event are monitored by RB.

Slovenia

Preparedness**Q1.**

By conducting exercises and inspections.

Response**Q2.**

By conducting exercises and inspections.

Spain

Preparedness**Q1.**

The licensee has exclusively the responsibility of activating the onsite emergency plan.

The public Administrations have exclusively the responsibility of activating the offsite emergency plan.

By means of checking in the inspections and evaluations of the site emergency plan carried out by the technical staff that the operator's documents comply with the regulations.

The operation of the offsite emergency plan is checked through the performance of demonstration exercises on site every year (Directive for the drawing up of programmes of exercises and drills in the off-site nuclear emergency plans).

Response

Q2.

The onsite emergency plan of the installations includes the different initiating events that cause all the possible accidents that could affect to this type of installations.

For the response initiated on site, the Spanish Nuclear Safety Council has resident inspectors, members of the technical staff of this organisation living in the province in which the nuclear power plant is located. One of them is in the Technical Support Centre of the plant during the emergency in order to verify the accident situation and the licensee response actions in the installation.

The other resident inspector is the head of the radiological group in the CECOP and they are gathering of nuclear and radiological information in relation to the accident, in permanent contact with the Nuclear Safety Council and the nuclear power plant affected by the accident.

The Nuclear Safety Council's emergency room (SALEM) will be the operations centre of the CSN emergency response organisation and shall be equipped with the following:

- a) The human and material resources required to guarantee its permanent operability.
- b) Voice, data or video signal communications with the operations coordination centres of the off-site response level nuclear emergency plans and other emergency centres contemplated by the ERO.
- c) Communications system having technical characteristics adequate to guarantee communications with the head of the PEN radiological group and with the control room of each nuclear power plant under any circumstances.
- d) Connection to the automatic radiological surveillance networks operating in Spain and with the networks of those countries with which agreements have been signed in this area.
- e) Tools for evaluation of the situation of the nuclear power plant affected by the accident and of the radiological consequences that the accidents foreseeable at each nuclear power plant might have off site.
- f) Tools for the processing and display of all the information received and generated and for its transmission to those operations coordination centres that should be advised.

The state coordination committee (CECO) will be the executive body of the PENCRA. The committee headquarters shall be at the same place as the headquarters of the body of the Ministry of the Interior responsible for civil defence. The committee shall be made up of representatives of several organisations and institutions belonging to the General State Administration, who shall have an administrative level of at least sub-director general. One of these representatives is from the Nuclear Safety Council, which will act as the liaison with this organisation's Emergency Room (SALEM).

Sweden

Q1.

Through drills, supervision according to Ordinance 2008:1 and 2008:15 and follow up from occurred events.

Switzerland

Q1.

The responsibilities for declaring respective notifying of the different levels in emergency management on-site and off-site are defined in the emergency plans and procedures of the NPP: Changes in the emergency

plan have to be approved by the RB. The process of declaring and alerting internal elements and external organisations is assessed within the framework of the RB's inspection of the yearly emergency exercise of the NPP.

United Kingdom

Preparedness

Q1.

Guidance requires that:

- Depending on the severity of the emergency, the plan shall identify key roles within the emergency organisation and their associated levels of responsibility and authority.

The plan should also describe the notification process by which relevant off-site organisations are made aware of the potential for off-site impact.

Response

Q2.

The operator's site emergency plan includes details of the types of possible incidents on the site and describe a strategy, system and response structure for dealing with them.

The plan provides a classification system for the different levels of severity of emergency, providing criteria for the declaration of severity level. It also describes the notification process by which relevant off-site organisations, *e.g.* Local Authorities, police, fire, ambulance, regulators, etc., are made aware of the potential for an off-site impact.

The arrangements for testing off-site preparedness are well established and involve the simulation of a range of accidents which may involve the release of radioactivity and off-site consequences. Exercises provide a thorough test of the off-site plan and show that the arrangements are in a state of readiness should an emergency occur appropriate to the hazard.

Rehearsal by the operator of the arrangements is also a requirement of the Site Licence and compliance in this respect for the major sites is demonstrated through the practice of holding local on-site, off-site and national emergency exercises.

Facilities under the direct control of MOD are exempt from licensing under the Nuclear Installations Act 1965 (as amended). Although such sites are not licensed, they are regulated by the Defence Nuclear Safety Regulator (DNSR) under Authorisation, a regulatory mechanism similar to licensing by the ONR.

The requirements for the preparation and testing of off-site emergency plans are covered by REPPIR. REPPIR requires off-site plans to be produced by the Local Authority in consultation with emergency responders for those sites where a radiation emergency is considered to be reasonably foreseeable. The responsibilities for reviewing and testing off-site emergency plans are also covered in REPPIR.

On-site exercises are held at each nuclear licensed site once a year and concentrate primarily on the operator's actions on and off the site. Local off-site exercises are aimed primarily at demonstrating the adequacy of the arrangements that have been made by the Local Authority to deal with the off-site aspects of the emergency. Organisations with responsibilities or duties are encouraged to exercise their functions.

USA

See 4.1 and 4.2.

- Question 4.5 Identifying, activating and notifying – Responsibilities
1. How does the RB satisfy itself that the responsibilities of response organisations are defined for each class of event?
 2. How does the RB have confidence that the initial response actions of the response organisations are implemented for the classes of event?
-

Belgium

Preparedness

Q1.

Through yearly thematic inspections performed to NPPs + results from peer reviews (OSART, WANO...)

Response

Q2.

Through regular notification of unusual events + exercises & drills.

Canada

Preparedness

Q1.

Review of the operator's emergency plan. Inspection of the emergency exercises.

Regular contact with provincial and federal EMO when revising emergency plans, and during the development and execution of emergency exercises.

Response

Q2.

Licensee emergency plan is reviewed and accepted as part of the five licence renewal cycle. The province confirms their capability as part of the licence renewal. An inspection of the licensee emergency response is performed at least once during the licence period. The inspection is normally scheduled to coincide with an exercise that includes provincial response.

Czech Republic

Preparedness

Q1.

It is defined in the On-site emergency plan and SONS approves it.

Response

Q2.

Off-site emergency plans for the nuclear installations are elaborated by the respective Fire Rescue Services of regions in accordance with the requirements specified in Act No. 239/2000 Coll., as amended, and by the Ministry of Interior Decree No. 328/2001 Coll., as amended by Decree No. 429/2003 Coll., for the specified emergency planning zone. The off-site emergency plan is developed on the basis of documents handed over by the licence holder and on the basis of partial documents prepared by respective regional authorities, units and municipalities.

Developed off-site emergency plans are discussed with the licence holder and with the respective central administration bodies, *i.e.* with SÚJB and the Ministry of Interior – General Directorate of Fire Rescue Service of the Czech Republic.

The off-site emergency plans set down targets and methods of ensuring the individual types of protective countermeasures:

- Notification of bodies and organisations.
- Warning of people.
- Sheltering people.
- Evacuation of people, including dosimetric checks and decontamination at the exits from the endangered territory.
- Regulation of people's movements within the endangered territory.
- Health care.

France

Q1.

The off-site emergency plans identify the general public protective actions such as to limit the consequences of any accident.

The Préfet decides whether or not to deploy these measures on the basis of intervention levels according to the predicted dose that would be received by a person situated in the open air at the time of the accident.

Germany

Preparedness

Q1.

The responsibilities are assigned on the one hand by legislation and/or regulations, and on the other hand within the special disaster control plans for each plant. These focus on the cooperation of the planning of the disaster control authorities and of measures of the plant operator and on the implementation of the measures for protection of the public. Moreover, part of the planning are the measurements required for determining the situation. The decision basis for protective actions is defined by radiological intervention reference levels with recommendations for actions being taken.

Response

Q2.

A decision basis for appropriate initial response actions of the competent disaster control authorities is provided by the Radiological Bases for Decisions on Measures for the Protection of the Population against Accidental Releases of Radionuclides. In particular, the intervention reference levels (as pre-defined planning values) as thresholds for consideration of the implementation of appropriate disaster control measures to reach the objectives mentioned in case of radionuclide release after a nuclear accident. In case of an event, the intervention levels applied are derived from these reference values, taking into account the current boundary conditions and optimisation considerations. Furthermore, the nuclear supervisory authorities and the radiation protection authorities of the *Länder* provide their support.

Hungary

Preparedness

Q1.

There is no a defined tool for that. The only opportunities for that are the annual exercises which are usually participated by the most important stake holder organisation of the national system and are jointly evaluated which provides some chance for interaction for that purpose. But this is rather limited. Forums exist for that (like High Level Working Group) but a comprehensive review of meeting all such requirements by the off-site bodies are only in the phase of planning.

Response

Q2.

The National Nuclear Emergency Response Plan describes the initial response actions of the response organisations are implemented for the classes of event. The RB has no responsibilities to check whether the initial response actions of the response organisations are implemented for the classes of event. Evaluation of regular exercises provides the confidence that the initial response actions of the response organisations are implemented for the classes of event.

India

Preparedness

Q1.

The responsibilities are specified in the emergency preparedness and response plans, which are reviewed by the RB.

Response

Q2.

Required response action for each type of nuclear/radiological emergency is given in the emergency preparedness and response plans. RB verifies these during emergencies exercises.

Japan

Q1.

The responsibilities of response organisations are stipulated in the Nuclear Emergency Preparedness Act. However, according to the construction of the new framework for a nuclear emergency, the specific responsibilities of each organisation along with the event propagation timeline are under consideration.

Korea

Q1.

Through regulatory activities such as review and inspection based upon the laws relating to emergency preparedness and response, and associated regulations and guides, NSSC and the Korea Institute of Nuclear Safety (KINS) ensure that appropriate protective actions can be taken in a rational, effective and timely manner where a nuclear or radiological emergency occurs at a nuclear power plant or other nuclear facilities (research reactor, nuclear fuel cycle facility, radioactive waste management facility, and so on). NSSC is responsible for regulating the licensees' on-site emergency planning and for the offsite planning, as well.

Mexico

Q1.

See answers to 4.1 and 4.2.

Poland

Preparedness

Q1.

Criteria described in the GS-G-2.1 classification are not implemented in polish emergency and response system.

Response**Q2.**

The classification of emergency classes described in the GSG2 is not implemented in Poland. Criteria described in the GSG2 classification are not implemented in Polish emergency and response system. The radiation emergency is classified on basis of range (spatial range) of consequences of emergency, but it differs from GSG2 classification.

The obligations regarding initial response actions for licensee and response organisations are given in Atomic Law and in the Regulation of the Council of Ministers of 18 January 2005 on emergency response plans in case of radiation emergency. According to the legal requirements RB shall be notified by operator or response organisation of any radiation emergency event. During emergency RB shall be informed constantly on actions implemented in order to eliminate or mitigate the hazard. Moreover RB approves facility radiation emergency plan, which must be developed and maintained by any licensee.

Russian Federation

Preparedness**Q1.**

Responsibilities of response organisations are established by FRR.

Response**Q2.**

By participation in emergency drills.

Slovak Republic

Preparedness**Q1.**

RB provides the independent evaluation of event based on source term and follow all activities of response to relevant particular class of event.

Response**Q2.**

The RB has actual data from facility technology and based on technology state RB is able to determine the source term and event class. The all operator's responses to event are monitored by RB and its site inspectors.

Slovenia

Preparedness**Q1.**

By conducting exercises and inspections.

Response**Q2.**

By conducting exercises and inspections.

Spain

Preparedness

Q1.

The onsite emergency plan defines the responsibilities of response organisations belonging to the licensee for each class of event that are developed in internal procedures and instructions.

The evaluation of the site emergency plan carried out by the technical staff of the Nuclear Safety Council is issued in a report. Such reports shall be mandatory in all cases, as well as binding when they be of a negative nature, or deny the authorization for concessions, as well as in terms of the conditions that they establish if they are positive.

The off-site nuclear emergency plan master plans referred to in title IV of the PLABEN, where are defined the responsibilities of response organisations for each class of event, will be approved by the Cabinet in response to a proposal by the Minister of the Interior and on the initiative of their respective directors, following a favourable report by the Nuclear Safety Council and the national Commission for Civil Defence.

Response

Q2.

The Nuclear Safety Council's emergency room (SALEM) has direct and redundant communication with the nuclear power plant to request information, and receives on-line operating data that can be evaluated by the technical staff with tools for evaluation of the situation of the nuclear power plant. Additionally, there is a collection of official documents, procedures and maps from each plant to consult during an emergency.

The emergency workers of the operating groups are in the place of the emergency reporting the emergency to the appropriate head of the group in the CECOP.

Sweden

Q1.

Through drills, supervision according to Ordinance 2008:1 and 2008:15 and follow up from occurred events.

Switzerland

Q1.

The activities of the response organisations of nuclear events with potential and real radiological consequences in the vicinity of nuclear facilities are defined in the Concept for the Emergency Protection in the Vicinity of Nuclear Power Plants (by the ComNBC, Federal Commission for NBC Protection, 2006). The RB is strongly involved in the development of this concept and the legislation mentioned.

The off-site organisations and one NPP are involved at least in the bi-annual General Emergency Exercises. The RB is involved in the planning, preparation and evaluation of these exercises.

United Kingdom

Preparedness

Q1.

LC11 requires the Licensee to consult with any person, local authority or other body that it may require assistance from.

Guidance requires that the operator's plan shall describe the roles of, and interfaces with, the organisations with whom the Licensee has collaborated in drawing up the plan.

NEPLG Consolidated Guidance Chapter 4 (The Roles and Responsibilities of Responding Organisations) provides details of the roles and responsibilities of organisations that form part of the response to a nuclear emergency. The effectiveness of roles is observed as part of the exercising of off-site arrangements during the testing of Off-site plans. The RB carries out an assessment function during the testing of Off-site Plans, and provides feedback to the relevant Local Authority.

Response**Q2.**

The off-site emergency plan provides details of the initial response actions of the response organisations. These actions are regularly tested by means of exercises involving the participation of the response organisations. Exercises are witnessed by the RB, and any improvement activities identified from assessment of exercises are reported to the UK central Nuclear Emergency Planning Group (NEPLG) and followed up either at local or national level.

Exercises include the requirement to test notification arrangements and for organisations with responsibilities under the emergency plans to cooperate with each other, including the testing of those emergency plans.

USA

See 4.1 and 4.2.

- Question 5.1 Taking urgent protective action – Assessment of results and consequence assessment
1. Is there a process in place to urgently determine the impact of environmental and contamination information to decide on protection of the public and work?
 2. How does the RB have confidence that the arrangements for making prompt assessments of the consequence are likely to be effective in an emergency?
-

Belgium

Q1.

Yes through the evaluation cell established by the RD of 17/10/2003 (Nuclear & radiological emergency plan) – see 1.1

Canada

Preparedness

Q1.

Managed through the provincial emergency plan with advice and support from the federal EMO. Further work is being done in this area as a result of the Fukushima event.

Response

Q2.

Licensee emergency plan is reviewed and accepted as part of the five licence renewal cycle. The province confirms their capability as part of the licence renewal. An inspection of the licensee emergency response is performed at least once during the licence period. The inspection is normally scheduled to coincide with an exercise that includes provincial response.

Bear in mind that the CNSC does not have jurisdiction over the provincial EMO. In addition, confidence is obtained through working with the provincial EMO during licence renewals and exercises where the provincial and federal EMO participate.

Czech Republic

Preparedness

Q1.

There is established the Radiation monitoring network to gather radiation data from area of the CR. Part of the RMN is a teledosimetric system in the area of NPP. Data from the RMN are the base for the decision making process to adopt urgent protective actions.

The licensee is obliged i.a.w. Section 18 of the Atomic Act to monitor, measure, evaluate, verify and record values, parameters and facts important for emergency preparedness, to the extent laid down by implementing regulations.

Response

Q2.

There is an established the Radiation monitoring network to gather radiation data from area of the CR. Part of the RMN is a teledosimetric system in the area of NPP. Data from the RMN are the base for the decision making process to adopt urgent protective actions.

Finland

Q1.

On-line monitoring of releases.

On-line connection to plant monitoring data during accidents.

France

Q1.

In case of an accident with fast kinetics and releases, the Prefect can launch his plan in its reflex phase: sheltering and listening to the radio of the population without waiting for dose estimation.

The operator also have a convention with the Prefect in order to activate the prefect's plan sirens to alert the population.

Germany

Preparedness

Q1.

Yes. The determination of the situation is performed at a radiological situation centre with the available information about plant state, meteorological situation and emission situation. First, it is based on prognoses and later increasingly on measurement in the surrounding area.

The radiological situation centres are held available by the radiation protection authorities of the *Länder*. They are staffed immediately after an alarm and are operated by a crisis management team. They provide advice to the local disaster control authorities and recommend protective actions.

The radiological situation nationwide is being assessed by the federal ministry BMU together with its subordinated authority BfS and recommendations for large scale, long term protective actions are given.

Response

Q2.

The prompt assessment of the consequences is performed by a crisis management team at a radiological situation centre with the available information about plant state, meteorological situation and emission situation. First, it is based on prognoses and later increasingly on measurement in the surrounding area.

The radiological situation centres are held available by the radiation protection authorities of the *Länder*. They are staffed immediately after an alarm and are operated by a crisis management team. They provide advice to the local disaster control authorities and recommend protective actions. The operation of the crisis management teams in the radiological situation centre and the decision making are trained and tested in regular exercises.

The radiological situation nationwide is being assessed by the federal ministry BMU together with its subordinated authority BfS and recommendations for large scale, long term protective actions are given.

In detail the process for a prompt assessment may be described as followed:

In the pre-release phase, the radiological situation to be expected in the vicinity of the plant is estimated on the basis of forecast data of the source term and the meteorological situation. Use is made of the decision support system RODOS of the BfS in combination, where appropriate, with the remote monitoring system for NPPs (KFÜ) of the respective *Land*. As an alternative, specific systems are applied by the individual *Länder*. RODOS is able to calculate local and regional consequences of releases as well as the effect of protective actions, thus making available situation information and impact assessment to the authorities as

decision support. Data on the source term are provided by the operator based on his expectation on the situation. Meteorological data required for the systems result from data measured at the site with KFÜ and the numerical weather forecast of the German Meteorological Service, the Deutscher Wetterdienst (DWD).

In the release phase, the plant operator determines the source term, also additional stack monitoring data of the KFÜ may be available. In this phase, there are also off-site data for assessment of the radiological situation available. This data will be obtained from the local dose rate probes of the KFÜ (permanently installed in the vicinity of the plant) and from nation-wide monitoring systems of BfS and DWD, which is collected, displayed and archived in the integrated measuring and information system IMIS; in addition, as the case may be, first data of measuring teams will be available. Here, again, the decision support systems described are applied. As soon as data are available according to the measurement programmes provided, the situation predicted is checked and adapted to the situation determined by measurements.

In the post-release phase, the measurement and sampling services of the plant operator and of the authorities (by independent measurement organisations) provide data for the determination of the radiological situation, in accordance with the requirements of the Guideline on Emission Monitoring, supplemented by simple follow-up measurements of radiation detection teams. The soil contamination in the more distant surroundings of the plant and the identification of areas with increased dose rate (hot spots) is shown by means of aircraft hosted gamma spectrometry. All involved teams performing measurements are led by the radiological situation centre supported by the federal organisation BfS.

The development of the wide-range radiological situation in Germany is determined and presented by means of the IMIS which provides all information used as support in taking decisions on measures of precautionary radiation protection.

Hungary

Preparedness

Q1.

Yes, basically there is a clear process for the prediction and dispersion of contamination in the environment. This is tested and exercised several times yet. In the early phase such assessment and advice shall be provided by the facility, while in the later phase the responsibility is taken over by the national organisations.

Response

Q2.

The RB has independent evaluation means of source terms calculations and consequence prediction and the results are compared and assessed during exercises with the results of codes used by operators. The exercises are the best way to demonstrate and show RB, that the operator's organisation has an effective emergency management.

India

Preparedness

Q1.

Detailed emergency monitoring procedures, monitoring capabilities and technical expertise exist at the Environment Survey Laboratory attached to every NPP site. Meteorological information and model predictions to determine the geographical area likely to be affected by the release of radioactive material is utilised to identify the monitoring and sampling locations. Radiological data required for taking decision on implementation of countermeasures with reference to corresponding intervention levels are generated.

Environmental monitors installed around the nuclear power plant continuously measure and transmit the dose rate in the environment to site/off-site emergency control centre through main control room.

Response**Q2.**

Detailed emergency monitoring procedures, monitoring capabilities and technical expertise exist at the environment survey lab attached to every NPP site. RB inspects these labs during routine inspections.

Japan

Q1.

The Basic Plan for Emergency Preparedness provides the action programs for the on-site monitoring and the prediction of the environmental dose assessment due to the radiological releases estimation etc. In addition to the above programs, the procedures to determine the protective actions of the public and the workers are planning to be provided in the new emergency preparedness guideline, which is under discussion within organs concerned.

Korea

Preparedness**Q1.**

During life-saving response, preventing the occurrence of severe deterministic effects and reasonably reducing the risk of stochastic effects are the priorities. The main requirements for preparedness are associated with the facilitation of these response priorities, requiring that:

- The country adopts national intervention levels for taking urgent protective actions in accordance with the relevant international standards.
- Arrangements are in place for effectively making and implementing decisions on urgent protective actions to be taken off the site.

Arrangements are in place to ensure the safety of all persons on the site in the event of a nuclear or radiological emergency.

Response**Q2.**

KINS operates the national radiation monitoring network which includes 120 monitoring posts around the country and the results of monitored radiations are opened to the public in real time by internet. Arrangements are in place to ensure the safety of all persons on the site in the event of a nuclear or radiological emergency.

Mexico

Q1.

Yes, required by regulation and demonstrated in biennial exercises and periodic drills (during the annual inspection to EP). However, public protective actions are initially based on plant conditions for immediate response. Thereafter, protective actions are based on plant conditions and radiological assessment. Actual evaluation of contamination levels will take place, but will likely be less timely than dose projections and initial field monitoring that is used for decision making with respect to expansion of protective actions. It is generally expected that follow up surveys may reveal hot spots where protective actions have not been implemented and perhaps annual dose limits would be approached. Those areas would also be relocated.

Poland

Preparedness

Q1.

The responsibilities for impact assessment emergency are defined on state, regional and facility level within the legal framework:

- On facility level, it is the responsibility of licensee (Regulation of the Council of Ministers of 18 January 2005 on emergency response plans in case of radiation emergency, Regulation of the Council of Ministers of 20 February 2007 amending regulation on emergency response plans in case of radiation emergency).
- On regional level, it is responsibility of region's governor (Act of Parliament of 29 November 2000 on Atomic Law, Articles 84, 86, 86c, 88, 89, 90, 91, 91a, 92, Regulation of the Council of Ministers of 18 January 2005 on emergency response plans in case of radiation emergency, Regulation of the Council of Ministers of 20 February 2007 amending regulation on emergency response plans in case of radiation emergency).
- On state level it, will be responsibility of RB (Act of Parliament of 29 November 2000 on Atomic Law, Articles 72, 72a, 73, 74, 76, 79, 80, 84, 86c, 88, 89, 90, 91, 91a, 92, Regulation of the Council of Ministers of 18 January 2005 on emergency response plans in case of radiation emergency, Regulation of the Council of Ministers of 17 December 2002 on the stations for early detection of radioactive contamination and on the units conducting measurements of radioactive contamination).

The assessment and prognoses of impact of radiation emergency can be performed by RB with support of applications ARGOS and RODOS.

The assessment of impact of radiation emergency is performed by RB on basis of data obtained from operator, local radiation monitoring system (if there is such around the facility – in case of NCBJ, there is a local radiation monitoring system) and data obtained from stations for early detection of radioactive contamination and on the units conducting measurements of radioactive contamination.

Response

Q2.

Generally: The assessment of consequences of the emergency is one of the obligatory tasks of the licensee, regions governor and RB – during the radiation emergency on facility, regional and national level accordingly.

For nuclear facility: The assessment of potential consequences from a nuclear installation emergency (from NCBJ) is made within the safety analysis for this object. The safety analysis is being scrutinised by the Department of Nuclear Safety NAEA.

Russian Federation

Preparedness

Q1.

Yes, it is requirement of FRR.

Response

Q2.

By participation in emergency drills.

Slovak Republic

Preparedness

Q1.

YES, the operator's organisation and RB have the means for quick evaluation of radiation situation in case of emergency and the measures for public and work are introduced by organisation and checked by RB.

Response

Q2.

The RB has an independent evaluation means of source terms and the results are compared with the results of codes used by operators. The right identification of source terms is the guarantee that the counter measures will be effective. The exercises are the best way to demonstrate and show RB, that the operator's organisation has an effective emergency management.

Slovenia

Preparedness

Q1.

Yes, as set by the national plan.

Response

Q2.

By conducting exercises and inspections.

Spain

Preparedness

Q1.

The Automatic Stations' Network, built by the network of the CSN with 25 stations distributed throughout the Spanish territory and the networks of the communities of Catalonia, Valencia, Extremadura, and Basque Country, that add another 18 stations located in the respective territories. Its objective is to continuously measure the gamma dose rate, radon gas concentration, radioiodine, and alpha and beta emitters in the air.

Additionally, there are around 1 000 stations of the Radioactivity Warning Network of DGPCE for the measure of gamma radiation levels around the entire country.

The Nuclear Safety Council disposes of collaboration agreements with two mobile units of radiological environment characterization, one mobile unit of internal dosimetry and a lab for the measure of environment samples in the event of emergency.

Nuclear power plants have detectors in the discharge lines for monitoring the releases delivered in the normal operation. Additionally, these installations have implemented environmental radiological surveillance networks in their sites.

Response

Q2.

The Nuclear Safety Council's emergency room (SALEM) and the nuclear power plants have the same tools for evaluation of the situation of the nuclear power plant affected by the accident and of the radiological consequences that the accidents foreseeable at each nuclear power plant might have off site. These tools are certificated by international organisations. The technical staff receives regular training in the use of these tools.

The B3CN System of the Emergency Communication System (SICOEM) transmits continuously 200 operational data from each Spanish nuclear power plant to the emergency room (SALEM).

Sweden

Q1.

Yes. The priorities during response are life-saving, preventing the occurrence of severe deterministic effects and reasonably reducing the risk of stochastic effects. The main requirements for preparedness are associated with the facilitation of these response priorities, requiring that:

- The country adopts national intervention levels for taking urgent protective actions in accordance with the relevant international standards.
- Arrangements are in place for effectively making and implementing decisions on urgent protective actions to be taken off the site.
- Arrangements are in place to ensure the safety of all persons on the site in the event of a nuclear or radiological emergency.

SSM is responsible for developing national intervention levels. Other authorities who are directly responsible to take actions are responsible to adopt intervention levels. The county administrative boards are responsible for deciding and adopting the urgent protective actions that are possible considering radiological health risks, possibilities to implement the protective actions and financial cost and benefits as well as social costs and benefits. In this regard, SSM recommends the intervention levels, but these levels are not stated in any legal document.

Switzerland

Q1.

The urgent determination of the radiological consequences of an nuclear event are derived on the following ways:

- The NPP has the obligation to inform the RB of the estimated source term. The RB will carry out dose prognoses on the base of a source term and the current meteorological conditions.
- The dose measurement networks in the vicinity of the NPP operated by the RB and the NEOC.

Following any release from a nuclear facility, the sampling and measurement organisation will be engaged by the NEOC to determine the radiological impact on the environment.

Acceptable doses in exceptional situations are set by the Federal Council according to Radiological Protection Act. The licensee is required by Radiological Protection Ordinance to take preventive, adequate measures to ensure that the personnel mobilized for the accident management is not exposed to doses above 50 mSv within the year following the accident.

The RB is the supervising authority for the protection of workers and the environment in nuclear installations according to Radiological Protection Ordinance. Through Federal Act on the Nuclear Safety Inspectorate the RB participates to the preparation of decrees, laws and ordinances in the nuclear and radiation protection and correspondingly sets dose intervention levels for emergency workers.

As stated above, the licensee has to prepare a so called Post-LOCA Study to demonstrate the feasibility of carrying out accident measurements in compliance with the above mentioned legislation. The RB checks the Post LOCA Study and gives recommendations if needed.

United Kingdom

Preparedness

Q1.

Guidance requires the plan to identify a detailed emergency planning zone (DEPZ) within which appropriate countermeasures are to be implemented, and describe arrangements that are in place for environmental monitoring of the area surrounding the site.

Response

Q2.

The operator's site emergency plan describes the arrangements that are in place for environmental monitoring of the area immediately surrounding the site, and carrying out assessment of the monitoring data.

The off-site plan describes the arrangements in place for undertaking environmental monitoring and assessment further afield.

NEPLG Consolidated Guidance Chapter 13 provides a number of principles that are applied to monitoring coordination arrangements:

- (a) The monitoring co-ordination arrangements should consist of a Monitoring Co-ordination Team, comprising technically qualified staff, which would utilise all available environmental and personal radiation monitoring resources made available to it, in order to meet the monitoring requirements which would arise from issues to be addressed by the Strategic Co-ordinating Group (SCG). Three functional levels would be relevant in the context of monitoring co-ordination:
 1. The SCG, operating at the strategic level and defining the issues requiring action and their priorities.
 2. The Monitoring Co-ordination Team, operating at the tactical level, taking the issues and priorities from the SCG and allocating tasks to.
 3. The Monitoring Organisations, at the operational level, carrying out monitoring related tasks and feeding back to the other levels.
- (b) In an emergency, the best use should be made of available monitoring resources. Monitoring should be carried out in a co-operative and coordinated manner, rather than a command and control environment. Organisations making their resources available would do so voluntarily and in the light of their own sets of constraints, which might include statutory monitoring responsibilities.
- (c) Monitoring co-ordination would operate to supplement or complement radiation monitoring related activities being carried out in support of statutory or other obligations. Organisations undertaking monitoring as part of their statutory responsibilities should wherever possible share information about their strategy and activities with the Monitoring Co-ordination Team so as to maximise the co-operative effort during the emergency.
- (d) Each organisation undertaking monitoring would retain responsibility for ensuring data flow and that the results are clearly presented; they would retain responsibility for their own resources. RIMNET (Radioactive Incident Monitoring Network) would provide the agreed channel for bringing together the results of monitoring. Therefore, each organisation which might be able to contribute to the co-ordinated monitoring programme, should become an approved RIMNET data supplier so that they are able to enter their results directly on the system in the event of an emergency. The arrangements would also make use of the electronic information systems of the nuclear operators which provide a means of disseminating a range of information in a nuclear emergency.
- (e) Each organisation would be responsible for ensuring that its staff were properly trained, and its resources were adequately maintained, for it to be able to respond effectively in the event of the need for monitoring.

- (f) Robust voice and facsimile communications links should be in place between the Monitoring Co-ordinator and the Strategic Co-ordination Centre (SCC), and between the Monitoring Coordinator and the organisations undertaking the monitoring.
- (g) Some degree of preparation will be required by organisations which would be involved in co-ordinated monitoring. Specifically, they should include this aspect of their emergency response in their own response arrangements. They should identify the resources that would be most likely to be made available, and the communications routes by which they would maintain contact with other relevant bodies and the Monitoring Co-ordinator. As with all emergency response plans, those organisations with a specialist role to play should develop and maintain adequate awareness and preparedness.

USA

Q1.

Yes, required by regulation and demonstrated in biennial exercises and periodic drills. However, public protective actions are initially based on plant conditions for immediate response. Thereafter, protective actions are based on plant conditions and radiological assessment. Actual evaluation of contamination levels will take place, but will likely be less timely than dose projections and initial field monitoring that is used for decision making with respect to expansion of protective actions. It is generally expected that follow up surveys may reveal hot spots where protective actions have not been implemented and perhaps annual dose limits would be approached. Those areas would also be relocated. The US protective action regimen differs from that recommended by IAEA in this respect.

- Question 5.2 Taking urgent protective action – Decision making and urgent protective action
1. How does the RB satisfy itself that the communications infrastructure will allow implementation of decisions on urgent protective actions to be taken on and off site?
 2. How does the RB have confidence that the arrangements for taking urgent protective action are likely to be effective in an emergency?
-

Belgium

Q1.

Yes through the evaluation cell established by the RD of 17/10/2003 (Nuclear & radiological emergency plan) – see 1.1.

Canada

Preparedness

Q1.

Inspection of operator performance during emergency exercises.

Regular contact with provincial and federal EMO when revising emergency plans, and during the development and execution of emergency exercises. Participation with the federal and provincial EMO during exercises.

Response

Q2.

Licensee emergency plan is reviewed and accepted as part of the five licence renewal cycle. The province confirms their capability as part of the licence renewal. An inspection of the licensee emergency response is performed at least once during the licence period. The inspection is normally scheduled to coincide with an exercise that includes provincial response.

Installation of sirens around the Pickering NPP is actively being tracked through the licensing process, and at the Commission level.

Czech Republic

Preparedness

Q1.

Government Order No. 11/1999 Coll., stipulates the obligation of licensee to establish the notification system of involved bodies about occurrence or suspected occurrence of a radiation accident and for ensuring the warning system of population in the emergency planning zone.

Response

Q2.

In case of occurrence of extraordinary event of the 3rd degree, for both power plants, the principal measure for protection of the population, after notification transmitted to the relevant Regional Authorities and municipalities with extended competency, is warning of the public within the emergency planning zone. Warning of the public is assured within the emergency planning zone, formed by a territory 20 km around Dukovany NPP and 13 km around Temelín NPP. The public is warned by a signal of sirens with following radio and TV broadcasting (transmissions) of the prepared initial information on the radiation accident occurrence, and on the countermeasures to be taken (sheltering, iodine prophylaxis - taking antidotes) and recommendation on the preparation for evacuation of people within 5 km internal zone around Temelín NPP and within 10 km internal zone around Dukovany NPP.

Iodine prophylaxis (antidotes) is distributed in advance to the population within the emergency planning zone (households, schools, hospitals, and workplaces), when the Regional Authorities have approximately 10% reserve of KI doses, and these preparations are on sale in pharmacies. The antidotes held by the public are regularly exchanged by the licensee before their expiration date. Simultaneously the “Public Protection Manual” is distributed to the public within the emergency planning zone, which includes the basic information on activities of the public in case of radiation accident.

France

Q1.

On-site, ASN checks during inspections that the operator is able to communicate with a satellite phone in case of a loss of all communication systems. Sirens to alert the population should also be operational as they work on battery.

Off-site, mobile ways of communication can be used (loudhailer on truck) but it is out of the competency of ASN to check communication infrastructure (relevant of the Interior Ministry).

Germany

Preparedness

Q1.

In emergency situations, crisis management teams are constituted by the operator as well as within the authorities involved. The communication is then carried out via special secured paths. The necessity to inform a large number of authorities and organisations about the current situation in case of a radiological event at short notice and in an effective manner led to the introduction of internet-based situation display systems, *e.g.* ELAN, by which situation information and additional data and information are provided for the competent authorities and organisations connected to the system through a secured server connection. The communication infrastructure is being tested regularly and is also used and tested during emergency exercises.

Response

Q2.

The protective actions are pre-planned and pre-determined intervention reference levels for these actions were defined for quick decision making.

The disaster control authorities at the *Länder* level and at the regional level regularly perform large-scale disaster control exercises at the nuclear power plant sites, albeit at intervals of several years due to the considerable efforts and expenditure required. In addition to the competent authorities and the technical advisory commissions, the plant operator also participates in the exercises. Active involvement of the potentially affected population is normally not foreseen.

Objectives of these exercises are the improved interaction of the different organisations and authorities involved in emergency management and the assurance of effective co-operation in the disaster control and precautionary radiation protection. Another objective of the exercises is the practical deployment of forces within the framework of measurements and special support services, such as testing of temporarily established emergency care centres, dedicated to decontamination and medical services for the public, and the communication and co-operation of the different authorities and organisations involved.

Hungary

Preparedness

Q1.

As the member of the national nuclear emergency response system the RB uses the infrastructure available for communication in emergency. There are dedicated systems for that purposes that are expected to remain operable after an accident.

Response

Q2.

The RB has no responsibilities to check whether the arrangements for taking urgent protective action are likely to be effective in an emergency. Such a responsibility belongs to the Directorate General for National Disaster Management (DGNDM).

India

Preparedness

Q1.

RB conducts periodic inspections of the nuclear facilities to ensure existence of communication infrastructure for implementation of emergency plans. These are also verified during periodic emergency exercises. RB inspectors participate in off-site emergency exercise, conducted once in two years, for identification and correction of any weakness in the plans, infrastructure or training

Response

Q2.

These are verified during routine off-site emergency exercises conducted at each NPP site once in two years.

Japan

Q1.

The communication systems for the implementation of decisions on urgent protective actions is principally developed by the national government

In the annual drills planned by the national government, local governments and the operators, the communication systems are verified to be workable. And also, the communication systems between the Off-site Centre and each facility are checked periodically.

Moreover, upgrades and diversifications are considered in the view of the potential for anticipated accidents affecting communication systems since the Great East Japan Earthquake.

Korea

Preparedness

Q1.

For emergency communication, dedicated hot lines connecting all the relevant organisations are well prepared and internet is also used for massive information exchange.

In connection with the control of a nuclear or radiological disaster caused by an accident, the OEMC which is led by NSSC has the authority to determine the urgent public protective actions. Article 15 (Standards for Determination of Urgent Public Protective Actions, etc.) and Addendum Table 4 (Standards for

Determining Urgent Public Protective Actions) of the Enforcement Regulation of the APPRE prescribe in detail the decision-making criteria on urgent public protective actions with respect to those aspects such as: sheltering and evacuation depending on the expected dose level, distribution of iodine prophylaxis, temporary relocation logistics and permanent settlement, and so on.

Response

Q2.

In connection with the control of a nuclear or radiological disaster caused by an accident, the OEMC which is led by NSSC has the authority to determine the urgent public protective actions. Article 15 (Standards for Determination of Urgent Public Protective Actions, etc.) and Addendum Table 4 (Standards for Determining Urgent Public Protective Actions) of the Enforcement Regulation of the APPRE prescribe in detail the decision-making criteria on urgent public protective actions such as sheltering, evacuation and distribution of iodine prophylaxis and so on, depending on the expected dose level.

Mexico

Q1.

Demonstrated in biennial exercises and periodic drills (during the annual inspection to EP). Communication systems are periodically tested and diverse communications systems are in place. However, upgrades are being considered in view of the potential for extended loss of power accidents affecting communications systems.

Poland

Preparedness

Q1.

The communication between the licensee and local authorities (regions governor) and relevant services (medical, fire brigades, sanitary inspection) is described within the radiation emergency plan of facility and region. The communication infrastructure is tested during periodic exercises.

Response

Q2.

Arrangements for taking intervention levels (the Regulation of the Council of Ministers of 27 April 2004 on values of intervention levels for particular types of intervention measures and criteria for revoking these measures) are in line with the international standards.

Russian Federation

Preparedness

Q1.

By inspections and participation in emergency drills.

Response

Q2.

By participation in emergency drills.

Slovak Republic

Preparedness

Q1.

The communication is established based on RB and national emergency plan requirements and all communication channels are periodically checked. Around the nuclear installation are people immediately informed by all existing means.

Response

Q2.

The RB has an independent evaluation means for source terms and the results are comparable with the results of codes used by operators and this will ensure that the urgent protective action will be effective. The large scale exercises in which also county authorities responsible for implementation and execution of off-site emergency plan are involved are the best way to persuade RB, that the off-site emergency organisation and structures have an effective emergency management and response capabilities.

Slovenia

Preparedness

Q1.

By conducting exercises and tests.

Response

Q2.

By conducting exercises and inspections.

Spain

Preparedness

Q1.

The emergency room of the CSN (Salem) was kept permanently in operation 24 hours per day every day of the year. There is an emergency room to provide support to the CSN's Emergency Room (Salem), at the Military Emergency Response Unit (UME) head office located in Torrejón de Ardoz (Madrid).

The emergency room has different voice communications systems: Switched telephone network, Internet Protocol network, electric sector network.

The B3CN System of the Emergency Communication System (SICOEM) transmits continuously 200 operational data from each Spanish nuclear power plant to the emergency room (SALEM).

The elements of the emergency communications systems are redundant and regularly updated. Daily communication maintenance tests are made between the Nuclear Safety Council with the nuclear power plants, the PEN operations coordination centres (CECOP) and other emergency organisations.

Response

Q2.

Doing periodic exercises and drills with the operating groups involved in taking urgent protective action.

Sweden

Q1.

Through drills, supervision according to Ordinance 2008:1 and 2008:15. For on-site actions, any changes in the emergency plans regarding safety issues shall applied to the Swedish Radiation Safety Authority will assess and sometimes review the changes.

Switzerland

Q1.

The RB has defined its expectations on the communication infrastructure of the NPP. Technology changes in the communication infrastructure of the NPP have to be approved by the RB. The communication infrastructure is subject of a yearly inspection.

The RB is involved in the definition of the requirements for the communication of the NPP with off-site organisations. The responsibility of defining the requirements on the emergency communication infrastructure on a nationwide basis lies with the FOCP. In the aftermath of Fukushima, the availability of wired systems under the conditions of extreme external events was questioned. The RB has initiated a project for the implementation of an additional non-wired system for the communication between the NPPs and the off-site organisations (RB, cantons, NEOC).

United Kingdom

Preparedness

Q1.

Responsibility for provision of information to the public in the event of a radiation emergency rests with the Local Authority (REPPiR Reg 17). REPPiR Schedule 10 states that such information should include an invitation to tune in to radio or television.

No specific focus on resilience of communications infrastructure.

Response

Q2.

NEPLG Consolidated Guidance Chapter 8 (Early countermeasures within the Detailed Emergency Planning Zone (DEPZ)) describes the principles that are applied in considering early countermeasures within the detailed emergency planning zone in the event of a nuclear emergency.

USA

Q1.

Demonstrated in biennial exercises and periodic drills. Communication systems are periodically tested and diverse communications systems are in place. However, upgrades are being considered in view of the potential for extended loss of power accidents affecting communications systems.

- Question 6.1 Keeping the public informed – Public information
1. How does the RB satisfy itself that the on and off-site agencies have arrangements for providing public information, prior to an emergency?
 2. How does the RB satisfy itself that the on and off-site agencies have arrangements for keeping the public informed during an emergency?
-

Belgium

Q1.

Through yearly thematic inspections performed to NPPs + results from peer reviews (OSART, WANO...) + information campaigns ...

Canada

Preparedness

Q1.

Regular contact with provincial and federal EMO when revising emergency plans, and during the development and execution of emergency exercises. Participation with the federal and provincial EMO during exercises.

Response

Q2.

Licensee emergency plan is reviewed and accepted as part of the five licence renewal cycle. The province confirms their capability as part of the licence renewal. An inspection of the licensee emergency response is performed at least once during the licence period. The inspection is normally scheduled to coincide with an exercise that includes provincial response.

Czech Republic

Preparedness

Q1.

Government Order No. 11/1999 Coll., stipulates the obligation of licensee to ensure the press and information campaign for the population in the emergency planning zone for the cases of radiation accident.

Response

Q2.

According to Act Nr.18/1997 Section 19 Article 1 a licensee shall, to the extent and in the manner determined by the on-site emergency plan approved by the Office:

- a) In accordance with a special legal regulation immediately notify the relevant Municipal Authority of Municipality with extended competence, the Office and other relevant bodies specified in the on-site emergency plan of the occurrence or suspected occurrence of a radiation accident.
- b) In the event of a radiation accident, ensure that a warning is issued to the public within the emergency planning zone.
- c) Inform relevant bodies, especially of monitoring results, factual and anticipated development of the situation, interventions taken to protect employees and the public, and interventions taken to deal with the radiation incident, and also of factual and anticipated exposure of people.

France

Q1.

ASN has no competency to ensure that public, essentially next to fixed nuclear installation is well informed prior to an accident. However, the operator organises campaign of information around each site.

Germany

Preparedness

Q1.

The requirements regarding the information of the public in case of a radiation emergency have been incorporated in Sections 51 and 53 of the Radiation Protection Ordinance. Concerning the necessary information to the public in advance prior to an emergency, it is required that the public in the vicinity of a plant has to be informed at least every five years about, among others,

- The basic terminology and related explanation on radioactivity and its impacts on humans and the environment.
- The radiological emergencies and their consequences for the public and the environment, including planned rescue and protective actions.
- How the affected persons will be alerted and how they will be continually updated on the development of the situation.
- How the affected persons should behave and what they should do.

This information is realised by means of a brochure, financed by the plant operators, which is posted to the public living in the vicinity of a nuclear facility in coordination with the disaster control authorities.

Response

Q2.

In case of an emergency, the competent authorities inform the potentially affected public without any delay according to Section 51 (2) of the Radiation Protection Ordinance and give information on how to behave including specifications on health protection measures to be taken, including, among others, the

- Type and characteristics of the event, in particular origin, dispersion and expected development of the situation.
- Protection instructions and measures for certain groups of the population.
- Designation of the authorities responsible for disaster control.

The Guideline for the Information of the Public in Case of Nuclear Accident, published by the SSK, contains suggestions for a concept for further specification. In addition to regulations concerning responsibilities, it contains procedures according to which the different institutions involved coordinate the contents of their information. Furthermore, it specifies how the citizens are enabled to contact the authorities responsible for disaster control and the media via which the public will be informed. Sample texts on this are laid down in the Basic Recommendations for Emergency Preparedness in the Environment of Nuclear Facilities. The suitability of the prepared measures to inform the public is reviewed in the exercises.

Hungary

Preparedness

Q1.

The national nuclear emergency response plan does have chapter titled Public Information Plan. There is a separate law about the roles and responsibilities of the various organisations in this respect which is taken into account by the plan. Since the maintenance of the plan is led by the RB, a direct possibility is to interfere with the arrangement of the agencies in that respect.

Response

Q2.

Duty to inform public during current operation as well as in case of an emergency situation is set down by the Atomic Act No 116 of 1996 and the Governmental Decree 165 of 2003. Arrangements concerning public information by on-site organisations are also subject of RB inspections.

Around the Paks NPP, sirens have been settled for notification of the public as well as broadcasting for public information is assured.

The organisation performs periodically exercises in this area.

India

Preparedness

Q1.

The responsibility of providing information to the public is specified in the emergency preparedness and response plans. Plans envisage periodic surveillance on the communication hardware. District authorities get trained on the aspect during emergency exercises.

Response

Q2.

The responsibility and means of providing information to the public is specified in the emergency preparedness and response plans. This aspect is verified during periodic emergency exercises.

Japan

Q1.

Arrangements for providing public information are described in each emergency action plan of the National Government's, local governments' and the operators' and this capability is demonstrated in each annual drill. And also, prior to the drills, public information brochures are distributed and the detailed information about the said drills are notified through the local information system such as the local cable TV, etc., to confirm the public relation actions.

Korea

Preparedness

Q1.

Pursuant to Articles 28 (3) and 28 (4) of the APPRE, NSSC provides useful, timely, truthful, consistent and appropriate information to the public and mass media through the "Joint Public Information Centre" of the OEMC. Joint Public Information Centre provides information on the radiological emergency to the public and mass media on a periodic basis.

Response

Q2.

The real time values of the monitored radiation level around the country are open to the public by internet.

Mexico

Q1.

On and offsite plans are approved by CNSNS and this capability is demonstrated in biennial exercises, public information brochures are distributed annually.

Poland

Preparedness

Q1.

It is regulated by the of Act of parliament of 29 November 2000 “Atomic Law” (Articles 80, 81 and 92), Regulation of the Council of Ministers of 20 February 2007 on the emergency plans for radiation emergency and the Regulation of the Council of Ministers of 27 April 2004 on prior information to the general public in the event of a radiation emergency and Act of parliament of 26 April 2007 on Crisis Management.

In the case of radiation emergency there must be provided information for population that may receive ionizing radiation dose exceeding the dose limit in result of radiation emergency.

During the radiation emergency on a regional scale the regional governor is responsible for public information (information prepared together with the regional state sanitary inspector). If the emergency was caused by the licensee, the project of information for public is prepared by the licensee and transferred to the regions governor. The NAEA President can provide assistance for the regions governor on request.

In the case of radiation emergency event on facility level, the licensee shall notify the regional governor of emergency event, including the content and range of the emergency information, which should be communicated to the local community if the emergency scenario may lead to a threat with impact reaching beyond the organisational entity’s site. The NAEA President provides assistance for the regions governor on the request.

During the emergency is on the national scale responsibility for public information lays on the NAEA President together with the Minister of Interior. The draft of information is developed by the NAEA President and provided to the Minister of Interior for further dissemination.

Requirements regarding the content of public information are given in the Regulation of the Council of Ministers of 20 February 2007 on the emergency plans for radiation emergency and it should include: data on the emergency (type, location, time, description, actual and anticipated emergency development with actual and anticipated emergency consequences); indication of population’s actions designed to avoid the emergency consequences (recommendations to restrict the consumption of some foods, simple rules for the hygiene and decontamination of humans, recommendations related to sheltering, information on the distribution of stable iodine products, organisational arrangements related to the evacuation); warning related to the possibility of implementation of intervention measures; basic data related to the ionizing radiation and to the consequences of its interaction on humans and environment; appeal to listen to the radio and TV broadcasts; directions for people responsible for kindergartens, schools, hospitals, welfare homes, hotels, penal institutions and other entities occupied by larger groups of people; directions for professional groups, which may play a helpful role in the event of radiation threat.

In case of radiation emergency on national scale, the information policy would be coordinated by the Government Centre for Security (RCB).

In addition there is also prior information (information prepared before emergency) that is prepared for inhabitants of specified areas, by the licensees or the President of NAEA. The scope of this information includes: basic data on ionizing radiation and its effect on human beings and the environment, the type of radiation emergency and its possible development scenario, that could lead to a radiation event which causes a threat, including a description of the type and scope of the potential threat for the general public and the environment; indication of emergency measures envisaged to alert, protect and assist the general public, including appropriate information on the means of protection, as indicated in the licensee's and regional radiation emergency plan. Nevertheless the preparation of this information (prior information) by the licensees is not verified by the National Atomic Energy Agency. The legal basis for prior information is the Regulation of the Council of Ministers of 27 April 2004 on prior information to the general public in the event of a radiation emergency.

Response

Q2.

This issue is defined in the of Act of parliament of 29 November 2000 "Atomic Law" (Articles 80, 81 and 92), Regulation of the Council of Ministers of 20 February 2007 on the emergency plans for radiation emergency and the Regulation of the Council of Ministers of 27 April 2004 on prior information to the general public in the event of a radiation emergency and Act of parliament of 26 April 2007 on Crisis Management.

Information for public shall be prepared and promptly provided to population that may receive ionizing radiation dose exceeding the dose limit in result of radiation emergency.

In the case of emergency event on regional scale the regional governor is responsible for public information (regional governor prepares the information in cooperation with the regional state sanitary inspector).

In the case of radiation emergency event on facility level the licensee shall notify the regional governor of emergency event, including the content and range of the emergency information, which should be communicated to the local community if the emergency scenario may lead to a threat with impact reaching beyond the organisational entity's site. The NAEA President provides assistance for the regions governor on the request.

During the emergency is on the national scale responsibility for public information lays on the NAEA President together with the Minister of Interior. The draft of information is developed by the NAEA President and provided to the Minister of Interior for further dissemination.

Requirements regarding the content of public information are given in the Regulation of the Council of Ministers of 20 February 2007 on the emergency plans for radiation emergency. It should include: data on the emergency (type, location, time, description, actual and anticipated emergency development with actual and anticipated emergency consequences); indication of population's actions designed to avoid the emergency consequences (recommendations to restrict the consumption of some foods, simple rules for the hygiene and decontamination of humans, recommendations related to sheltering, information on the distribution of stable iodine products, organisational arrangements related to the evacuation); warning related to the possibility of implementation of intervention measures; basic data related to the ionizing radiation and to the consequences of its interaction on humans and environment; appeal to listen to the radio and TV broadcasts; directions for people responsible for kindergartens, schools, hospitals, welfare homes, hotels, penal institutions and other entities occupied by larger groups of people; directions for professional groups, which may play a helpful role in the event of radiation threat.

In addition there is also prior information (information prepared before emergency) that is prepared for inhabitants of specified areas, by the licensees or the President of NAEA. The scope of this information includes: basic data on ionizing radiation and its effect on human beings and the environment, the type of radiation emergency and its possible development scenario, that could lead to a radiation event which causes a threat, including a description of the type and scope of the potential threat for the general public

and the environment; indication of emergency measures envisaged to alert, protect and assist the general public, including appropriate information on the means of protection, as indicated in the licensee's and regional radiation emergency plan. The legal basis for prior information is the Regulation of the Council of Ministers of 27 April 2004 on prior information to the general public in the event of a radiation emergency.

Russian Federation

Preparedness

Q1.

By inspections and participation in emergency drills.

Response

Q2.

By inspections and participation in emergency drills.

Slovak Republic

Preparedness

Q1.

All activities concerning public in the case of emergency are organised by civil protection and local authorities. The coordinated exercises are performed to confirm that the public protection is ensured. The information on event is disseminated by operator's organisation to all response participants according to approved list.

Response

Q2.

Duty to inform public during current operation as well as in case of an emergency situation is set down by the Atomic Act and subordinated decree on emergency planning. Arrangements concerning public information are also subject of inspection.

Around the nuclear installations sirens for population notification are installed as well as broadcasting for public information is assured.

The organisation performs periodically exercises in this area.

Slovenia

Preparedness

Q1.

By conducting exercises and inspections.

Response

Q2.

By conducting exercises and inspections.

Spain

Preparedness

Q1.

The Nuclear Safety Council has in process collaboration agreements with the Ministry of Internal Affairs and the nuclear power plants for providing public information.

The Agreement by the Cabinet on 1 October 1999, describes the public information on applicable health measures and the way to proceed in the event of a radiological emergency. Directive of previous public information in the off-site nuclear emergency plans.

Response

Q2.

The Resolution of 20 October 1999, providing for the publication of the Agreement reached by the Cabinet on 1 October 1999 in relation to public information on applicable health protection measures and the way to proceed in the event of a radiological emergency.

The Directive of previous information to the public in the Nuclear Emergency Plans, approved by the Resolution of 7 June 2005.

Doing periodic exercises and drills.

Sweden

Q1.

The emergency organisation at SSM includes a separate function for public information with the goal to make sure that the information is prompt, correct, and understandable. SSM will have close cooperation with the Swedish Civil Contingencies Agency (MSB) to issue information to the public. SSM also has around 15 persons with media training to be spokespersons during an emergency. Information is also provided through different web sites from authorities who have responsibilities according to the national regulation.

Switzerland

Q1.

Article 74 of the Nuclear Energy Act states that the relevant authorities shall regularly inform the general public about the condition of nuclear installations and any matters pertaining to nuclear goods and radioactive waste and that the relevant authorities shall inform the general public of any special occurrences. The RB is permanently issuing information on events in the facilities for the public in all contemporary media.

The cantons are responsible for the information of the public prior to an emergency. The FOCP is assigned the coordination of this task by the ordinance on Protection in the Case of an Emergency. In 2011, a new common information brochure for the population in the emergency planning zones 1 and 2 was issued in all affected cantons.

United Kingdom

Preparedness

Q1.

REPPIR Reg 16 places a duty on Operators to supply prior information to the public. The RB assesses how the operator achieves this by examining the content of the information produced and checking the method by which the operator supplies the information.

REPPIR Schedule 9 provides details of what information shall be included.

Information is produced in a number of forms, including stand-alone leaflets, or integration into a calendar that is distributed annually to all residences within the DEPZ

Response

Q2.

REPPIR Reg 17 places a duty on the Local Authority to supply, in the event of a radiation emergency, information and facts of the emergency, of the steps to be taken and, as appropriate, of health protection measures applicable.

REPPIR Schedule 10 provides details of the type and content of information to be made available.

USA

Q1.

On and offsite plans are approved (offsite by FEMA) and this capability is demonstrated in biennial exercises, public information brochures are distributed annually (FEMA verifies)

- Question 7.1 Managing the medical response – Treating casualties
1. How does the RB satisfy itself that the appropriate Government Department has discharged its responsibilities to ensure that arrangements are implemented to treat people who have been exposed or contaminated?
 2. How does the RB satisfy itself that the on and off-site agencies have arrangements for treating people who have been exposed or contaminated?
-

Belgium

Preparedness

Q1.

Contamination control and external decontamination of the population is assigned to the civil protection. Medical follow-up and treatment of exposed or contaminated persons is assigned to the ministry of public health, with the support and expertise of the RB.

Response

Q2.

On-site: arrangements with off-site hospitals checked through yearly dedicated thematic inspection (see answers on preparedness) + exercises.

Off-site: see answers on preparedness.

Canada

Preparedness

Q1.

Regular contact with provincial and federal EMO when revising emergency plans, and during the development and execution of emergency exercises. Participation with the federal and provincial EMO during exercises. Further work is being done in this area as a result of the Fukushima event.

Response

Q2.

Licensee emergency plan is reviewed and accepted as part of the five licence renewal cycle. The province confirms their capability as part of the licence renewal. An inspection of the licensee emergency response is performed at least once during the licence period. The inspection is normally scheduled to coincide with an exercise that includes provincial response.

Currently the responsibility of provincial EMO. We are exploring this area further as part of our post Fukushima response.

Czech Republic

Preparedness

Q1.

Act No. 18/1997, Section 46 stipulates the obligation of some ministries to participate in providing for the emergency preparedness,

Response

Q2.

Both on and off site emergency plans include plans for contamination regulation and parts of these plans are decontamination and medical care plans.

France

Q1.

This point is out of the competency of ASN. The Health Ministry has to ensure it.

Germany

Q1.

The managing of the medical response is part of the disaster control plans of the competent disaster control authorities. For initial medical care and decontamination of the public and task personnel affected by a release, emergency care centres are to be provided. The regulations on the design and operation of these emergency care centres and a list of medical doctors willing to provide their services in these centres are to be included in the special disaster control plans. To this end, the SSK recommendations on medical measures in case of radiological accidents and, in particular, on medical measures in case of NPP accidents are available.

There are also exercises carried out for setting up these emergency care centres and bringing them in operation.

Hungary

Preparedness

Q1.

The RB has only the opportunity to include these tasks in the emergency plan as it is required by the Act on Atomic Energy. There is no effective opportunity for the RB to verify if the arrangements are really complied with.

Response

Q2.

The RB has no responsibilities to check whether the on and off-site agencies have arrangements for treating people who have been exposed or contaminated. These capabilities of on- and off-site emergency response organisations are checked regularly during specific exercises.

India

Preparedness

Q1.

The medical facilities for treatment of public exposed to radiation are developed and maintained by the public authorities. The list of such facilities is included in the off-site emergency manuals.

Limited facilities for decontamination and to treat people exposed to radiation/ contamination are also available at hospitals managed by NPP authorities.

Response**Q2.**

The injured and affected site personnel will be treated as necessary in the radiation emergency treatment wards in the hospitals managed by NPPs. The responsibility for treatment of affected persons in the public domain rests with the district health authorities.

These aspects are covered in the emergency plans and are checked during routine inspections and emergency exercises.

Japan

Q1.

The Nuclear Emergency Preparedness Act stipulates the emergency response measures and responsibilities of the relevant authorities for their implementation. Each relevant authority is requested to implement the salvage, rescue of disaster victims and other matters relating to their protection pursuant to the provisions of laws and regulations, a disaster prevention plan or a nuclear operator emergency action plan.

However, these action items are not the approved matters by the RB.

Korea

Q1.

In order to coordinate and manage medical services in case of radiological emergency, the Government has established a national radiological emergency medical system, which consists of the emergency medical centre of the Korea Institute of Radiological and Medical Sciences (KIRAMS), and the primary and secondary emergency medical institutions assigned by region, all over the country. KIRAMS is to establish the Radiological Emergency Medical Service Centre (REMSC) and operate a national radiological emergency medical system, in the event of a radiological disaster.

Mexico

Q1.

CNSNS approves offsite plans and this capability is demonstrated biennially.

Poland

Q1.

There are specialised hospitals prepared for treating people who have been exposed or contaminated. According to legal requirements regional governors and ministry of home affairs shall prepare and ensure the functioning of health service entities in the mode appropriate for the developing situation. Poland as a part of Convention on Assistance in the case of a Nuclear Accident or Radiological Emergency could request international assistance if national capabilities would be insufficient.

Russian Federation

Preparedness**Q1.**

By participation in emergency drills.

Response

Q2.

By inspections and participation in emergency drills.

Slovak Republic

Preparedness

Q1.

The RB is only a cooperation organisation, the whole responsibility for evaluation of governmental organisation and their activities during emergency have the National emergency headquarters.

Response

Q2.

Treatment arrangement concerning injured and contaminated staff members and people is a part of both on- and off-site plans.

The off-site plans determine gathering places, where the contaminated people are collected, examined and treated. These plans are also reviewed by RB.

Slovenia

Preparedness

Q1.

By conducting exercises and inspections.

Response

Q2.

By conducting exercises and inspections.

Spain

Preparedness

Q1.

The Basic Nuclear Emergency Plan establishes that each off-site nuclear emergency plan must have different classification and decontamination stations (CDSs) for the characterisation and treatment of people who have been exposed or contaminated.

In Spain, Gregorio Marañón hospital is the medical centre of level 2 specialized in the treatment of irradiated and contaminated people. If necessary, for severe irradiations or contaminations is planned the transfer to a medical centre of level 3 in Paris (France).

Response

Q2.

The technical staff of the Nuclear Safety Council in their visits at the nuclear power plants inspect the training received by the plant staff in charge of treating people who have been exposed or contaminated, and verify the available equipment to carry out the treatment.

Periodically, the operating groups carry out drills of classification and treating people who have been exposed or contaminated in the different CDSs established for each off-site nuclear emergency plan. These drills are evaluated by people of each operating group and the results are shared.

Sweden

Q1.

The national medical expert team (N-MEG) is responsible for giving medical advice. In Sweden this ability is maintained by the National Board of Health and Welfare. The medical expert group belongs to the Swedish National Board of Health and Welfare and provides advice and information on radiation medical issues and takes part in the analysis of the situation made by SSM. The medical expert group has a workplace in the Emergency Response Centre.

At the national level, to provide initial treatment of people who have been exposed or contaminated, the regional medical centres will be activated to start giving these treatments according the County Administration Board's emergency plans. The Karolinska Institute has specially trained medical experts for difficult cases.

Switzerland

Q1.

The handling of workers exposed with high doses is defined in the Medical Emergency Plan for radiologically injured persons. The duties of the licensees, the Swiss national Accident Insurance Fund SUVA and the university clinic of Zurich are agreed by contracts. The university clinic of Zurich is responsible for the medical treatment of patients with dose exposures beyond 1 Gy. In the aftermath of Fukushima the Plan will be verified to ensure compliance with international standards (WHO-REMPAN).

The evaluation of small dose exposures or contamination in great numbers of people of the public will be realized in the so called contact locations, operated by the cantons and supported by federal sources.

United Kingdom

Preparedness

Q1.

NEPLG Consolidated Guidance Chapter 4 (The Roles & Responsibilities of Responding Organisations) provides details of Health Service (and Primary Care Trust (PCT) responsibilities.

Department of Health Planning Guidance 2005 provides further detail on the requirements and responsibilities placed on the Health Service, including treatment of contaminated & irradiated casualties and monitoring of people who may, or who think they may have become contaminated by radioactivity.

The RB monitors the development of arrangements at the local level by liaising with multi-agencies, reviewing off-site emergency plans and assessing the outcomes of off-site emergency exercises.

Response

Q2.

NEPLG Consolidated Guidance identifies responsibilities within the Health Service. These include (via the Primary Care Trusts, PCTs) responsibility for the provision for health care; advice to health professionals and the public; radiation monitoring for people exposed or possibly exposed to radiation.

Additionally, PCTs are required to designate hospitals prepared to receive radiation casualties and ensure that appropriate facilities are available in hospitals for both contaminated casualties and for persons suffering from significant radiation injury.

USA

Q1.

FEMA approves offsite plans and this capability is demonstrated biennially.

- Question 8.1 Infrastructure – Equipment
1. Does the RB have a programme to inspect additional equipment held in reserve for emergencies? *e.g.* pumps filters etc.
 2. Does the RB inspect the use of additional equipment during demonstration exercises?
-

Belgium

Preparedness

Q1.

Through yearly thematic inspections performed to NPPs + results from peer reviews (OSART, WANO...)

Response

Q2.

Yes, in function of the scope.

Canada

Preparedness

Q1.

On site equipment would be covered through the existing inspection programme. Some off site equipment is inspected during exercises. Licensee improvements in offsite reserve equipment are currently being managed by post Fukushima actions. The CNSC inspection programme will have to be modified accordingly.

Response

Q2.

Not in any detail in the past. We are enhancing our inspection activities in this area as part of the post Fukushima response.

Czech Republic

Preparedness

Q1.

Yes, the RB has an inspection programme and based on Act No. 18/1997 Coll., SÚJB inspects function of technical means, systems and devices necessary to manage and implement interventions.

Response

Q2.

Yes, RB (SÚJB) inspects among others also use of additional equipment during the emergency exercises.

France

Q1.

There is no additional equipment held off site that could be needed to assist in accident management except the equipment of the GIE-Intra (inter-company group made of EDF, AREVA and CEA) that is held on Chinon EDF site, but ASN has no competency to inspect it.

Germany

Preparedness

Q1.

Yes. The inspection programmes of the supervisory authorities cover the operators' additional equipment that is needed to assist in an emergency. The equipment is checked *e.g.* within the inspection of accident management issues or during emergency exercises. Usually, it is held available on the site area, but separated from the power plant buildings. After Fukushima, further additional equipment (*e.g.* mobile power generators, mobile pumps, excavators etc.) has been installed, which is also located on the site area.

In addition, assistance is provided by the crisis management team of the plant manufacturer and by the Kerntechnischer Hilfsdienst GmbH (a permanent organisation jointly installed by the operators of German nuclear power plants). These organisations are located "off-site" and are themselves not subject to regulatory supervision. However, the contracts with these organisations are part of the inspection plans.

The crisis management team of the manufacturer advises the plant operator in technical questions of situation assessment and restoration of safe plant condition, while the Kerntechnischer Hilfsdienst with its manipulators and measurement equipment may be employed at the site inside and outside the plant. In addition, contractual agreements exist between the plant operators on mutual support.

Response

Q2.

Yes. In Germany, this equipment is usually held available on the site area, but separated from the power plant buildings. After Fukushima, further additional equipment (*e.g.* mobile power generators, mobile pumps, excavators etc.) has been installed, which is also located on the site area. The inspections focus on the availability and applicability of this equipment, but the use of it is also tested during emergency exercises.

Hungary

Preparedness

Q1.

After the EU stress tests of the NPPs, a national action plan is being developed which includes the development of such a programme. At the same time, the annual inspection plan contains the arrangement decided upon the stress test results, which also provide for the possibility of such an inspection.

Response

Q2.

Yes, the RB inspects the capabilities of using all additional equipment during an exercise.

India

Preparedness

Q1.

The equipments stored off-site for management of emergency in public domain are maintained by public authorities. RB inspects equipments maintained by nuclear facilities and it includes equipments for emergency purposes.

Response

Q2.

Yes.

Japan

Q1.

No. The additional equipments are not going to be inspected, but the performances of the installed equipments at off-site will be confirmed through the on-site drill for SA condition.

Korea

Preparedness

Q1.

NSSC requires reliable quality assurance for emergency response facilities and equipment those are needed to carry out in National Radiological Emergency Plan, radiological emergency plans of nuclear licensees, local governments and emergency-related organisations. Moreover, quality assurance programme for emergency response facilities and equipment is established and operated the Emergency Response Field Manual of the Radiological Emergency Technical Advisory Centre (RETAC). KINS establishes and implements the Quality Management System Manual (QMS) which describes matters on emergency response and information disclosure.

Response

Q2.

During exercises, KINS inspects the:

- 1) Conditions of the facilities and the equipment.
- 2) Arrangements for using the facilities and equipment.
- 3) Training and experience of the staff.

Mexico

Q1.

Yes, equipment is inspected during the annual inspection to the Emergency Plan, and in addition its use is demonstrated biennially and during periodic drills.

Poland

Preparedness

Q1.

No.

Response

Q2.

RB does not inspect the use of additional equipment on regular basis (no legal obligation for such inspection). Demonstration exercises with participation of RB are not obligatory for licensees or region's governors. Involvement of RB in exercise depends on the exercise scenario.

Russian Federation

Preparedness

Q1.

Yes.

Response**Q2.**

Yes.

Slovak Republic

Preparedness**Q1.**

The RB has power to inspect the nuclear installations and there are no restrictions. The systems, components are also subject of inspection.

Response**Q2.**

Yes, RB inspects all equipment during exercise.

Slovenia

Q1.

IRRS mission in 2011 suggested performing inspection of additional equipment (pumps, AC generators, compressors). Those inspections are now in the annual inspection plan. RB carried out such inspections.

Spain

Preparedness**Q1.**

The technical staff of the Nuclear Safety Council inspects every safety system and emergency equipment from the nuclear power plant, and the maintenance programs carried out by the operators in these systems. In addition, inspectors verify the equipment disposed by the licensee in the emergency management centers of the nuclear power plants, for example, the communication systems, emergency documents, transports, medical equipment, personal protection equipment, mobile units for radiation monitoring.

Every operating group of the Nuclear Emergency Plans (PEN) have different material to act in the event of an accident in the classification and decontamination stations, the control of accesses and the different operations coordination centres. Nuclear Safety Council is responsible of the verification of the equipment belonging to the radiological group.

Derived from the study of the Fukushima accident, is planned to create an Emergency Support Centre (ESC) – common for all plants – which shall be equipped with human and material means so as to capable of intervening at any of the plants within 24 hours at the most.

Response**Q2.**

From the results of the drills or demonstration exercises carried out, the radiological group, that is responsibility of the Regulatory Body, tries to improve its performance purchasing additional equipment, that in future exercises will be evaluated.

Sweden

Q1.

Yes partly through drills, supervision according to Ordinance 2008:1 and 2008:15 and follow up from occurred events.

Switzerland

Q1.

All NPP licensees have implemented SAMG programs in the last 10 years to meet requirements of the RB. In the framework of the SAMG programs the licensees have defined, purchased and stored SAM equipment. The use of the equipment had to be demonstrated in emergency exercises inspected by the RB. As a consequence of the Fukushima event, the operators have verified and improved the protection of the SAM equipment in case of external events. A regular inspection programme for SAM equipment does not yet exist. Following a suggestion from an IRRS mission at the end of 2011, the RB plans to extend the current inspection scope of emergency and response equipment at the plants.

On requirement of the RB in the aftermath of Fukushima one flood-proof and earthquake-resistant external storage facility at Reitnau has been in place since June 2011, containing various operational resources for emergencies that can readily be called up. These resources notably include mobile motor-driven pumps, mobile emergency power generators, hoses and cables, radiation protection suits, tools, diesel fuel and boration agents. For a situation where transport (from Reitnau) to the power plant by road is prevented, there is the option of air transportation via military helicopter. The storage facility was inspected in July 2011.

United Kingdom

Preparedness

Q1.

Activities carried out as a result of the ENSREG stress test work and follow-up from the UK post-Fukushima review (Chief Inspector's Report recommendation IR-8: off-site infrastructure resilience) include the provision of additional remotely-held equipment to be used to assist severe accidents.

Response

Q2.

The RB undertakes a programme of assessment activities that support confirmation of the adequacy of the operator's emergency arrangements. This includes routine and non-routine inspections of facilities, equipment, procedures. Any additional equipment required to form part of the operator's emergency response is subject to this programme.

The RB adopts a number of methods to review the adequacy of emergency facilities (including ECCs), including:

- Reviewing emergency plans to assess adequacy of descriptions of facilities and arrangements for bringing them into operation.
- Inspection of facilities and activation procedures as part of programmed inspection activities.
- Assessing the effectiveness of activation arrangements and adequacy of facilities during emergency exercises (local plant exercises and site exercises).

USA

Q1.

No, equipment is no longer inspected, but its use is demonstrated biennially and during periodic drills.

- Question 8.2 Infrastructure – Response centres
1. Does the RB inspect the ECC facilities and the arrangements for bringing it into operation?
 2. Does the RB inspect the ECC facilities and its performance during exercises?
-

Belgium

Preparedness

Q1.

Through yearly thematic inspections performed to NPPs + results from peer reviews (OSART, WANO...).

Response

Q2.

Yes through observation and/or real participation as representative of RB on-site.

Canada

Preparedness

Q1.

Done as part of emergency exercise inspections.

Response

Q2.

Yes, typically during the tri-annual exercise; that includes provincial and federal response.

Czech Republic

Preparedness

Q1.

Based on Act No. 18/1997 Coll., SÚJB inspects function of technical means, systems and devices necessary to manage and implement interventions

Response

Q2.

Based on Act No. 18/1997 Coll., Office inspects function of technical means, systems and devices necessary to manage and implement interventions. The Office inspects all elements which means the conditions of the facilities and the equipment, arrangements for using the facilities and equipment and training and experience of the staff as well.

Finland

Q1.

Yes, inspection AND during the exercise.

France

Q1.

Yes, ASN inspects the ECC facilities during specific inspections dedicated to emergency situations preparedness topic.

Germany

Preparedness

Q1.

The requirements for the configurations of on-site ECC are covered by the Basic Recommendations for the Planning of Emergency Control Measures by the Licensees of NPPs. The implementation is checked within the regular inspection programme of the supervisory authority, and the arrangements for bringing it into operation during emergency exercises.

Response

Q2.

Yes.

See above.

Hungary

Preparedness

Q1.

Yes. During the regular inspections and the annual emergency exercises.

Response

Q2.

Yes, the RB inspects both the main and the reserve ECC according to the RB annual inspection programme and also its performance during emergency exercises.

India

Preparedness

Q1.

Yes. ECC is checked during periodic regulatory inspections.

Response

Q2.

Yes.

Japan

Q1.

The performances and the arrangements of those facilities etc. will be confirmed through the on-site drill for SA condition.

Korea

Preparedness

Q1.

KINS inspects the ECC facilities and the arrangements for bringing it into operation in accordance with Article 45 (Entrustment of Duties) of the APPRE.

Response

Q2.

During exercises, KINS inspects the ECC facilities in accordance with Article 45 (Entrustment of Duties) of the APPRE.

Mexico

Q1.

Yes, ECC is inspected during the annual inspection to the Emergency Plan, and in addition its use is demonstrated biennially and during periodic drills.

Poland

Q1.

RB does inspect ECC of NCBJ being operator of research reactor Maria.

Russian Federation

Preparedness

Q1.

Yes.

Response

Q2.

Yes.

Slovak Republic

Preparedness

Q1.

The RB has power to inspect the nuclear installations and there are no restrictions. The ECCs of operator is also subject of inspection.

Response

Q2.

Yes, RB inspects ECC according to the RG inspection plan and also its performance during the emergency exercises.

Slovenia

Q1.

Yes.

Spain

Preparedness

Q1.

Each nuclear power plant carries out a general exercise on site every year. The inspectors follow the performance of these exercises from the Technical Support Centre, where the emergency is managed by the operators staff.

Additionally, the technical staff of the Nuclear Safety Council visits the External Emergency Centre during their annual inspections to the onsite emergency plan. This Centre is out of the plant site to coordinate some emergency actions.

The inspectors make specific inspections to the External Support Centre that is in the headquarters of the nuclear power plant owner to carry out support emergency actions.

Response

Q2.

Inspectors follow the exercises from the Control Room and the Technical Support Centre, to evaluate the management of the emergency by the Emergency Direction of the nuclear power plant. Sometimes, inspectors go to the External Emergency Centre to verify that has been appropriately activated and constituted.

During the exercise, inspectors verify the communications between the Control Room, the Technical Support Centre, the External Emergency Centre and the External Support Centre.

During the inspection, inspectors verify the equipment of these emergency centres.

Sweden

Q1.

Yes partly through drills, supervision according to Ordinance 2008:1 and 2008:15 and follow up from occurred events.

Switzerland

Q1.

The requirements on equipment of Emergency Control Centre (ECC) facilities are briefly defined in a RB guideline. Regular inspections of ECC equipment were focused on communication devices in the past. Moreover, the yearly emergency exercises identify problems concerning the ECC equipment.

The RB will, driven by the results of the Fukushima event, perform an inspection programme for the ECC and the equipment in the next months.

United Kingdom

Preparedness

Q1.

The RB adopts a number of methods to review the adequacy of emergency facilities (including Emergency Control Centres (ECCs)), including:

- Reviewing emergency plans to assess adequacy of descriptions of facilities and arrangements for bringing them into operation.

- Inspection of facilities and activation procedures as part of programmed inspection activities.
- Assessing the effectiveness of activation arrangements and adequacy of facilities during emergency exercises (local plant exercises and site exercises).

Response

Q2.

The RB undertakes a programme of assessment activities that support confirmation of the adequacy of the operator's emergency arrangements. This includes routine and non-routine inspections of facilities, equipment, procedures. Operators' emergency facilities – including Emergency Control Centres (ECCs) – are inspected as part of the programme of assessments.

USA

Q1.

Demonstrated biennially and during periodic drills.

- Question 9.1 On site Plans
Facilities and equipment
Drills and exercise
Feedback and improvements
Changes to facilities and plans
1. Does the RB approve the plan?
 2. Does the RB inspect against the plan?
 3. Does the RB inspect the condition of the facilities and the equipment, arrangements for using the facilities and equipment and training and experience of the staff?
 4. Does the RB inspect the operator's programme of drills?
 5. Does the RB inspect the licensee's performance during exercises on-and off site?
 6. What elements of the demonstration exercise does the RB inspect? (*e.g.* notification, rescue, contamination etc.)
 7. How does the RB provide feedback of their assessment of the performance of the participating agencies both on and off site?
 8. How does the RB deal with changes to the plan, the organisation, or facilities and equipment?
-

Belgium

Preparedness

Plans

Q1, Q2.

According to the initial Safety Analysis Report, the licensee shall have an internal emergency plan. The RB has approved this initial Safety Analysis Report within the NPP licensing process.

RB receives updates of the internal emergency plan and associated documents (instructions...). RB witnesses at least one exercise per year and performs a dedicated inspection each year.

Facilities and equipment

Q3.

Through yearly thematic inspections performed to NPPs + exercises.

Drills and exercise

Q4, Q6.

Through yearly thematic inspections performed to NPPs + exercises

Depending on exercise scope defined by the licensee of the Ministry of Internal Affairs depending of the exercise

Observation or real participation (as representative of RB on-site).

Feedback and improvements

Q7.

Through yearly thematic inspections performed to NPPs + exercises.

Changes to facilities and plans

Q8.

Through yearly thematic inspections performed to NPPs + exercises.

Response**Exercise****Q5.**

Yes through observation and/or real participation as representative of RB on-site.

Feedback and improvements**Q7.**

Yes through exercise report(s).

Canada

Preparedness**Plans****Q1, Q2.**

The CNSC approves the operator's plans and inspects against the plans.

Offsite response is the jurisdiction of the provincial EMO. The CNSC advises and supports the province, But does not approve or inspect.

Facilities and equipment**Q3.**

Done as part of routine inspections and in particular during inspections of emergency exercises.

Drills and exercise**Q4.**

Some inspections of the operator's drills are conducted. Fire, chemical, medical, and radiological drills are included in the inspections.

Drill completion rates are included as a performance indicator reported to the CNSC quarterly.

Feedback and improvements**Q7.**

Debriefings during the post exercise period.

Changes to facilities and plans**Q8.**

Changes to the operator's emergency plans are submitted for review and approval. The CNSC inspection programme can be adjusted based on the changes, i.e. a significant change could trigger an inspection before the regular exercise inspection.

Response**Exercise****Q5.**

Yes

Feedback and improvements**Q7.**

A formal inspection report is issued for the licensee performance. Provincial and federal agency response is reviewed during the post exercise debriefing.

Czech Republic

Preparedness

Plans

Q1, Q2.

The response system of competent authorities for an extraordinary event is defined in the legislation of the Czech Republic (the Act no. 240/2000 Coll., the Act no. 18/1997 Coll. and the Act no. 239/2000 Coll.). This legislation specifies documents to be provided at each level for extraordinary events preparedness and response. These documents include:

On-Site Emergency Plans

- Developed by the Licensee approved and inspected by the RB
- Crisis Plans prepared at all levels (Government, Central Administration Offices, Self-Administration Offices)

Off-Site Emergency Plans

- Developed by the Regional Authorities for Emergency Planning Zones approved by Governor of region.
- Joint Standard Operating Procedures of the Integrated Rescue System.

Each competent authority will then complement these basic documents by their own internal rules, instructions, guidance, checklists, Intervention Procedures, and Intervention Instructions.

Facilities and equipment

Q3.

Yes. It does. But only in scope of operator's responsibilities.

Drills and exercise

Q4.

Yes. It does.

Q6.

The RB inspects the whole scope of elements of the demonstration exercise.

Feedback and improvements

Q7.

On-site

- The RB based on the Decree No.318/2002 Coll, receives a summary evaluation of concluded emergency exercises Based on the shortcomings found during an exercise, NPP shall make adjustments in technical-organisational and personnel conditions and in the on-site emergency plan
- SÚJB performs inspections pointed on the implementation of findings gathered during the exercises.

Off-site:

- The RB as a participant in the off-site exercises which contain the radiation accident topic, i. e. it participates in the preparing, planning, executing and evaluating process. Final output of every exercise is an Exercise evaluation containing the good practices, deficiencies and the tasks for the remedy with the terms of execution.

Changes to facilities and plans

Q8.

No changes in the organisation, facilities or equipment are allowed to be done without changes made in the on-site emergency plan. Each change in the on-site emergency plan must be approved by the RB (SÚJB).

Changes made in Off-site emergency plans, crisis plans and Joint Standard Operating Procedures of the Integrated Rescue System are implemented in cooperation with all organisation participating in emergency preparedness and response; these changes must be re-approved by the relevant responsible person.

Response

Exercise

Q5.

Yes, the RB inspects the exercises conducted by the licensee, *i.e.* it controls if the performed activities are in compliance with the on-site plan and/or intervention instruction

Feedback and improvements

Q7.

On-site:

- The RB based on the Decree No.318/2002 Coll, receives a summary evaluation of concluded emergency exercises Based on the shortcomings found during an exercise, NPP shall make adjustments in technical-organisational and personnel conditions and in the on-site emergency plan,
- SUJB performs inspections pointed on the implementation of findings gathered during the exercises.

Off-site:

- The RB as a participant in the off-site exercises which contain the radiation accident topic, *i.e.* it participates in the preparing, planning, executing and evaluating process. Final output of every exercise is an exercise evaluation containing the good practices, deficiencies and the tasks for the remedy with the terms of execution.

Finland

Plans

Q1, Q2

Yes.

Facilities and equipment

Q3.

Yes to all.

France

Plans

Q1, Q2

After being instructed by ASN (with the help of its expert IRSN), each plan is approved by ASN who authorises the site to implement it. The implementation of the plan is then verified during emergency preparedness inspections.

Facilities and equipment

Q3.

All these aspects are controlled during emergency preparedness inspections:

- 1) Condition of the facilities and the equipment is checked through visits during the inspection and by checking periodical test reports;
- 2) Arrangements for using the facilities and equipment have to be defined in procedures that can be tested thanks to drills during an inspection;

- 3) Training and experience needed of the staff is defined in the plan. Participation of the staff to trainings and exercises is checked during inspections.

Drills and exercise

Q4.

Operator's programme of drills is defined in the plan. ASN checks during inspections that it is correctly achieved.

Q6.

ASN does not inspect exercises realised on site by the operator in order to train its staff. Yet, ASN can prepare with the help of IRSN a scenario of an exercise that the operator will have to play during an emergency preparedness inspection. Every aspect of the demonstration is then verified.

Feedback and improvements

Q7.

When a national exercise is played, ASN organises a general feedback meeting with every participant (ASN, IRSN, operator, Préfecture, Interior Ministry, Météo France) but it is more about the offsite organisation: dealing with the information coming from the operator and the work of the experts in order to protect the population).

On-site, ASN send a follow-up letter to the operator after each inspection on this topic, making demands to improve some points, and asking for a plan of actions if needed.

Off-site, this point is not of the competency of ASN but of the Interior Ministry.

Changes to facilities and plans

Q8.

The operator has to notify ASN of each modification of its plan, its organisation or facilities and equipment (art 26 of the decree n°2007-1557 of the 2nd of November 2007). ASN instructs the changes, with the help of its expert IRSN, before approving the changes and can make demands if the changes are considered as no acceptable.

Germany

Preparedness

Plans

Q1, Q2.

The structure of the plans is given in the Basic Recommendations for Emergency Preparedness in the Environment of Nuclear Facilities. On-site emergency planning is a duty of the operator of a nuclear installation, whereas Off-site emergency planning falls within the competence of the authorities of the *Länder* and the Federation. The responsible disaster control authorities prepare special disaster control plans for the vicinity of the plants. The supervisory authority is involved in developing these plans, but do not approve the plans or inspect against them. The on-site emergency planning of the operator is part of the safety specifications of the operating manuals and therefore part of the inspection programme of the supervisory authority.

Facilities and equipment

Q3.

All parts are subject to inspection and are included in the inspection programmes of the supervisory authorities:

- 1) The condition of the facilities and the equipment are covered by the inspection plans and are inspected periodically.

- 2) Arrangements for using the facilities and equipment are part of the operation procedures, which are subject to regulatory supervision. The documentation is inspected periodically and changes have to be approved by the supervisory authority and its authorized experts. Additionally, the suitability of additional equipment or procedures for their use, e.g. the connection of mobile power generators or mobile pumps has to be proven with practical test.
- 3) The operators have to report periodically about the training of their staff. The experience of the staff is inspected in the course of emergency exercises.

Drills and exercise

Q4.

Yes. This topic is an independent area of inspection and comprises, among other things, the control of the preparation, execution and evaluation of emergency exercises of the operators and is thus regularly reviewed by the competent supervisory authorities.

Q6.

The inspections of the exercises cover all elements, depending on the design of the exercise. Great importance is attached to on-site and off-site training of task personnel. This applies, in particular, to the preparation of the plant personnel and especially of the responsible shift personnel for coping with an emergency at the plant. Such inspections are carried out at least once a year.

This is achieved, among others, by

- Inspecting on-site exercises of the operators (as a matter of principle, the authorities are informed about on-site exercises and often inspect them with / participate as observers on the ground).
- Exercises planned by the supervisory authority and its authorised experts and supervised with a large inspection team, and by joining the exercise with the emergency organisation of the supervisory authority, thus testing the communication and the interfaces.

Feedback and improvements

Q7.

Feed-back for on-site agencies

- When inspectors inspect the exercises of the plant operator, they provide direct feedback following the exercises. If deviations or deficiencies are determined they are also reported in a letter to the operator, requesting improvement measures.
- For exercises performed, planned and inspected under participation of the supervisory authority and its authorized experts, feedback is usually provided in a final report, naming areas for improvement, if necessary.

Feed-back for off-site agencies

- Exercises involving off-site agencies are usually planned and prepared by a team of representatives of all parties involved, with a focus and special objectives. This team monitors the exercise and acts as a review team to provide feedback, especially regarding the focus and the objectives of the exercise. Open points and areas of improvement are then followed-up by the responsible organisations.

Changes to facilities and plans

Q8.

Changes to on-site agencies

- Changes on the operator's side are subject to regulatory review. Planned changes have to be notified to and approved by the supervisory authority.

Changes to off-site agencies:

- Changes to the plans for emergency preparedness are agreed between all the parties involved, including the supervisory authority.

Response

Exercise

Q5.

Yes. This topic is an independent area of inspection and comprises, among other things, the control of the preparation, execution and evaluation of emergency exercises of the operators and is thus regularly reviewed by the competent supervisory authorities.

As a matter of principle, the authorities are informed about on-site exercises and often inspect them with / participate as observers on the ground. In addition, on site exercises are planned by the supervisory authority and its authorised experts and are supervised with a large inspection team.

Feedback and improvements

Q7.

As above.

Hungary

Preparedness

Plans

Q1, Q2.

Yes, RB approves the operator's emergency plan and consequently RB inspects implementation of this plan.

Facilities and equipment

Q3.

Each of these topics (1-3) is included in the areas of emergency preparedness inspection programme of the RB. There is a separate internal procedure of the RB which denominates the areas for regulatory oversight of emergency preparedness, and all of these are covered in that list.

Drills and exercise

Q4.

It is required by the RB from all the nuclear facilities to submit their annual emergency training and exercise programme to the RB and the evaluation of the programme at the end of the given year. Moreover, the most important exercises and some training activities are also witnessed by the regulatory body.

Q6.

Notification, assessment, information of off-site authorities and the public, severe accident management performance, field activities (assembly and evacuation of personnel, rescue, etc.).

This is achieved by team inspections.

Feedback and improvements

Q7.

The exercises have joint evaluation according to which all the bodies that participated, the exercise shall perform an evaluation. In this process it is possible to give feedback. However the RB has little chance (in terms of resources) to witness the activities of other organisations because of its own tasks (inspection of plant and performance of national level tasks).

Changes to facilities and plans**Q8.**

Any change in the emergency plan shall be subject of regulatory approval. The plans are constructed such a way that the more frequently changing information are in lower lever documents that avoid unnecessary revision of the emergency plans. The plans shall be revised every two years as a minimum.

Response**Exercise****Q5.**

The RB inspects and evaluate the operator's performance during an exercise. The RB has no responsibilities to inspect the performance of off-site organisations during an exercise.

Feedback and improvements**Q7.**

The RB sends its observations to the operator through official means. In case of necessity (*e.g.* significant findings were identified during the exercise) the RB issues resolution requiring the operator to manage deficiencies with predefined deadline.

India

Preparedness**Plans****Q1, Q2.**

Yes. The emergency plans of NPPs are reviewed and approved by AERB. The RB inspects against the approved plan.

Facilities and equipment**Q3.**

Yes.

Drills and exercise**Q4.**

Yes

Q6.

RB inspects all elements of the emergency exercise as per standard format.

The plant, site and off-site exercises are conducted by NPP periodically. These are conducted in the presence of AERB inspectors. The report of the plant and site emergency exercises is submitted to AERB by the utility. This report gives the deficiencies observed during the exercise and the corrective actions taken by the facility.

Feedback and improvements**Q7.**

RB gives feedback in the form of observations made during off-site emergency exercise. The emergency preparedness of the nuclear facilities is also checked during the routine inspections carried out by RB and any deficiencies noticed during the inspection are brought out in the inspection report.

Changes to facilities and plans

Q8.

The emergency plans are required to be reviewed and updated once in five years to reflect changes in the plan, infrastructure etc. The revised emergency plans need to be approved by the RB.

Response

Exercise

Q5.

Yes

Feedback and improvements

Q7.

RB witnesses the off-site emergency exercises. At the end of the exercise, RB provides the feedback on every aspect of the exercise. The feedback given by RB and other participating agencies is included in the emergency exercise report.

Japan

Plans

Q1, Q2.

The Nuclear Emergency Preparedness Act provides the specific initial events and nuclear emergency.

The RB may, when the RB finds the Nuclear Operator Emergency Action Plan of a nuclear operator to be insufficient to prevent the occurrence or progression (expansion) of a nuclear disaster pertaining to the relevant nuclear site, order the nuclear operator to revise its Nuclear Operator Emergency Action Plan. But currently, the RB does not inspect this operator's plan.

Facilities and equipment

Q3.

No. In the near future, the regulatory body will introduce such inspections.

Drills and exercise

Q4.

No. In the near future, the regulatory body will introduce the inspections of the operator's activities for the nuclear emergency drill.

Feedback and improvements

Q7.

Such activities will be our future challenges in the construction of a new framework of the nuclear emergency preparedness.

Changes to facilities and plans

Q8.

Such activities will be our future challenges in the construction of a new framework of the nuclear emergency preparedness.

Korea

Preparedness

Plans

Q1, Q2.

KINS reviews the licensee's Radiological Emergency Plan and inspects against the plan in accordance with Article 45 (Entrustment of Duties) of the APPRE.

Detailed standards for establishing the Radiological Emergency Plan are described in the MEST Notice – Notice on Radiological Emergency Preparedness for Nuclear Licensee, NSSC – and include the following items:

- Radiological emergency planning zone and general guidelines.
- Emergency organisation and its duties.
- Radiological emergency declaration criteria.
- Radiological disaster response facilities.
- Emergency response activities.
- Accident recovery and readmission.
- Radiological emergency education and training.
- Public education and information release to the public.
- Maintenance, management, and improvement of radiological emergency plan.

Facilities and equipment

Q3.

KINS inspects the:

- 1) Condition of the facilities and the equipment.
- 2) Arrangements for using the facilities and equipment.
- 3) Training and experience of the staff.

Drills and exercise

Q4, Q6.

Emergency preparedness and response exercises are conducted in accordance with Article 37 (Radiological Emergency Exercise) of the APPRE as below:

- Unified radiological emergency exercise of all relevant parties together with central government: every five years.
- Integrated radiological emergency exercise led by local government: at each site more than once in four years.
- On-site radiological emergency exercise of all emergency-related organisations of a nuclear licensee: more than once a year for every two units of nuclear power plants.
- Drills of relevant emergency-related organisations of a nuclear licensee: more than once a quarter for every two units of nuclear power plants.
- Initial exercise for new nuclear facilities.

The Regulatory Body takes part in the exercises as evaluator, mediator, and/or participant.

The Regulatory Body evaluates the on and off site emergency response organisations including operator based on licensee's emergency plan and National Emergency Plan which describes notification, rescue and, contamination etc.

Feedback and improvements

Q7.

The Regulatory Body takes part in the exercises as evaluator, mediator, and/or participant. On and off site response organisations are supposed to report the exercise evaluation reports which includes the implementation plan for the recommendation and suggestion to the Regulatory Body.

Changes to facilities and plans

Q8.

KINS reviews the licensee's Radiological Emergency Plan and inspects, which describes the feedback of exercise in accordance with Article 45 (Entrustment of Duties) of the APPRE.

Response

Exercise

Q5.

Same as Q7.

Feedback and improvements

Q7.

KINS reviews and inspects the licensee's Radiological Emergency Plan which describes the feedback of exercise in accordance with Article 45 (Entrustment of Duties) of the APPRE.

Mexico

Preparedness

Plans

Q1, Q2.

Yes, both are approve and inspect EP

Facilities and equipment

Q3.

Yes, these areas are inspected during the annual inspection to the Emergency Plan and the training is evaluated during the periodic drills, and also during the biennial exercises.

Drills and exercise

Q4.

Yes, for the onsite programme, drill and exercise performance contributes data to a performance indicator system. Periodic drills are sampled for inspection as are drill and exercise critique reports on annual bases. Exercises are inspected biennially.

Q6.

Classification, notification, protective action recommendation development, and radiological assessment are given the highest priority on site, but other areas are also inspected during periodic drills and biennial exercises such as decontamination of personnel and vehicles, dose evaluation, immediate reparations, items supplies, transportation for external personnel, evacuate time of the onsite personnel.

During annual inspection, biennial exercises and periodic drills. Review of critiques and the corrective action system.

Feedback and improvements

Q7.

Onsite and offsite, through inspection reports.

Changes to facilities and plans**Q8.**

Onsite, through periodic review of plan changes which must be made in accordance with regulations (10 CFR 50.54(q)). Offsite all plan changes must be submitted to the CNSNS for review and approval.

Poland

Preparedness**Plans****Q1, Q2.**

Requirements regarding response to radiation emergency events on facility, regional and national level are given in the Atomic Law (Chapter XI) and Regulation of the Council of Ministers of 20 February 2007 amending regulation on emergency response plans in case of radiation emergency.

Cooperation between facility and regional level is defined in the legal regulation.

The Radiation emergency plan on facility level is one of relevant document required for authorisation of the activity. Regulatory Body approves the site radiation emergency plan within the process of authorisation.

Regulatory Body does not approved radiation emergency plans on regional level.

Regulatory Body participates in reviewing the National Crisis Management Plan according to the Act of Crisis Management. One part of the National Crisis Management Plan is devoted to response to radiation emergency event.

Facilities and equipment**Q3.**

Yes.

Drills and exercise**Q4**

No

Feedback and improvements**Q7.**

No.

Changes to facilities and plans**Q8.**

Changes in the radiation emergency plan of NCBJ must be approved by the Regulatory Body.

Response**Exercise****Q5.**

RB does not inspect the licensee's performance during exercises on-and off site on regular basis (no legal obligation for such inspection). Involvement of RB in exercise depends on the exercise scenario.

Feedback and improvements**Q7.**

In case of exercise organised by RB, the RB provides feedback to all participating institutions.

In case the exercise is organised by other institution, it depends on the organiser's decision.

Russian Federation

Preparedness

Plans

Q1, Q2.

Yes.

Facilities and equipment

Q3.

Yes.

Drills and exercise

Q4.

Yes.

Q6.

Every element is inspected.

By inspections and participation in emergency drills.

**Feedback
and improvements**

Q7.

By inspection reports.

Changes to facilities and plans

Q8.

By approving of changes of licence conditions.

Response

Exercise

Q5.

Yes.

Feedback and improvements

Q7.

By inspection reports.

Slovak Republic

Preparedness

Plans

Q1, Q2.

Yes, RB approves the operator's emergency plan and consequently RB inspects implementation of this plan.

Facilities and equipment

Q3.

Yes to all.

Drills and exercise**Q4.**

Yes, RB inspects the operator's drills programmes.

Q6.

RB organises the team inspections and during the exercise this team inspects notification, rescue, emergency organisation and work of operator emergency centre, communication with all authorities.

This is achieved by team inspections.

Feedback and improvements**Q7.**

Each exercise has an evaluation part, where all invited organisations, local authorities and state authorities give their feedback on exercises. The regulatory body also imposes through protocols and finding the corrective measures which are to be taken by the operator's organisation.

Changes to facilities and plans**Q8.**

All changes of plans have to be submitted to RB for review and the new decision is issued by RB.

Response**Exercise****Q5.**

Yes, the inspection team is established during the exercise and inspectors are inspecting operator activities on site and in case of large scale exercise RG inspectors are inspecting also arrangements and activities of f-site.

Feedback and improvements**Q7.**

Each exercise has an evaluation part, where all invited organisations, local authorities and state offices give their feedback on exercises. The regulatory body also imposes through the inspection protocols and finding the corrective measures to be fulfilled by operator's organisation.

Slovenia

Preparedness**Plans****Q1,**

No

Q2.

No

Facilities and equipment**Q3.**

Yes to all.

Drills and exercise**Q4.**

Yes

Q6.

Use and operation of high head pumps, fire protection pumps, AC generators, air compressors, special vehicles, emergency connection pieces, fire brigade activities exercise and training and qualification programme.

Three inspections per year are dedicated to inspect STORE Equipment (Safety Terms of Reference).

**Feedback
and improvements**

Q7.

By communicating it through mutual dialogue, dedicated meetings etc.

Changes to facilities and plans

Q8.

By taking it into account.

Response

Feedback and improvements

Q7.

By communicating it through mutual dialogue, dedicated meetings etc.

Spain

Preparedness

Plans

Q1, Q2.

One of the functions of The Spanish Nuclear Safety Council is:

- To issue reports to the Ministry of Industry and Energy, on nuclear safety, radiological protection, and physical protection issues, prior to the adoption of the resolutions that this body may approve on matters related to the award of authorisations for nuclear and radioactive installations, transport of nuclear substances or radioactive materials, the manufacture and official approval of pieces of equipment comprising radioactive sources or generating ionizing radiation, the exploitation, restoration or closure of uranium mines, and in general, all activities related to the manipulation, processing, storage and transportation of nuclear and radioactive substances.
- To issue reports, prior to the resolutions of the Ministry of Industry and Energy, regarding the authorization for vendor companies and those that provide technical assistance for X-ray equipment and installations for medical diagnosis, and other equipment destined to radioactive installations, and to carry out the tasks of inspection and control.
- To issue reports prior to the resolutions for exceptional cases and circumstances which are enacted by the Ministry of Industry and Energy, on its own initiative or upon request by the Nuclear Safety Council, in relation to the removal and safe management of radioactive materials.

Such reports shall be mandatory in all cases, as well as binding when they be of a negative nature, or deny the authorisation for concessions, as well as in terms of the conditions that they establish if they are positive.

Facilities and equipment

Q3.

In emergency aspects, the technical staff of the Nuclear Safety Council conducts annually an inspection to verify the operability of the onsite emergency plan of the installations and to evaluate the periodic onsite emergency drills. In this inspection, the emergency equipment, the emergency procedures and reports, the structure of the emergency response organisation and the training and experience of the organisation staff, are checked.

Drills and exercise**Q4, Q6.**

In the inspections, the technical staff verifies the performance of the following drills included in the operator's programme of drills:

1. Identification and evaluation of initiating events. Identification and declaration of the emergency category.
2. Communication and notification.
3. Fire fighting.
4. Radiological monitoring.
5. Procedures of accident sampling.
6. First aid, rescue and decontamination exercises.
7. Localization of the personnel, evacuation of zones, head counting and Control of accesses.
8. Coordination between emergency and support centres.
9. Application of the severe accident guidelines.

During a general exercise, the inspectors evaluate how the licensee response organisation performs the emergency notifications, the evacuation and head-counting of the personnel, the activation of the emergency and support centres, medical care, decontamination, the identification and evaluation of initiating events, the identification and declaration of the emergency category, protective measures and corrective actions.

This evaluation is carried out by following the emergency management in the technical support centre.

Feedback and improvements**Q7.**

The results of inspecting a nuclear power plant during an exercise are collected in the record files of inspections that are sent to the licensee for information. Additionally, after the exercise, inspectors have with the licensee a post – exercise meeting to communicate the first results from their monitoring of the exercise.

In a post – exercise meeting, all the parts involved in the exercise, the licensee, the PEN Direction, CECO and SALEM, talk about the results of the exercise on and off-site, and suggest possible improvements.

From the drills carry out periodically by the operating groups, the evaluators of the Nuclear Safety Council elaborate an evaluation report, which results are communicated to the other operating groups. In a post – drill meeting, all the groups involved in the drill, talk about the results of the exercise on and off-site, and suggest possible improvements.

The radiological recommendations arising from the drill performance are incorporated to the training courses that the technical staff of the Nuclear Safety Council provides to the others operating groups.

Changes to facilities and plans**Q8.**

Changes to the onsite emergency plan (organisation, facilities, equipment, etc.) involve a review of the plan that is requested to the Nuclear Safety Council by the licensee. The regulatory body evaluates the onsite emergency plan of the nuclear installations and issues the evaluation report to the corresponding Ministry for approval.

Such reports shall be mandatory in all cases, as well as binding when they be of a negative nature, or deny the authorization for concessions, as well as in terms of the conditions that they establish if they are positive.

The Basic Nuclear Emergency Plan may be reviewed whenever any of the following circumstances occur:

- a) Review of the international standards whose contents affect the Basic Nuclear Emergency Plan.
- b) Review of the national standards whose contents affect the Basic Nuclear Emergency Plan.

- c) Modifications established by the Nuclear Safety Council regarding criteria of a nuclear or radiological nature contained therein.
- d) In response to proposals by the competent authorities and public Administration organisations concerned, as identified in the Basic Plan, in view of the experience acquired in application of the off-site nuclear emergency plans.

Response

Exercise

Q5.

Inspectors evaluate from the Control Room and the Technical Support Centre the management of the emergency by the Emergency Direction of the nuclear power plant.

From the Nuclear Safety Council's emergency room (SALEM), technical staff evaluate the licensee's performance during exercises on and off-site, and communicates the results to the licensee in a post – exercise meeting.

Feedback and improvements

Q7.

The results of inspecting a nuclear power plant during an exercise are collected in the record files of inspections that are sent to the licensee for information. Additionally, after the exercise, inspectors have with the licensee a post – exercise meeting to communicate the first results from their monitoring of the exercise.

In a post – exercise meeting, all the parts involved in the exercise, the licensee, the PEN Direction, CECO and SALEM, talk about the results of the exercise on and off-site, and suggest possible improvements.

From the drills carry out periodically by the operating groups, the evaluators of the Nuclear Safety Council elaborate an evaluation report, which results are communicated to the other operating groups. In a post – drill meeting, all the groups involved in the drill, talk about the results of the exercise on and off-site, and suggest possible improvements.

The radiological recommendations arising from the drill performance are incorporated to the training courses that the technical staff of the Nuclear Safety Council provides to the others operating groups.

Sweden

Plans

Q1,

No

Q2.

Yes

Facilities and equipment

Q3.

Partly through drills, supervision according to Ordinance 2008:1 and 2008:15 and follow up from occurred events.

Drills and exercise

Q4.

Yes partly through drills, supervision according to Ordinance 2008:1 and 2008:15 and follow up from occurred events.

Q6.

Mostly elements regarding notification and the emergency preparedness and response organisation.

Through supervision and inspection reports or through evaluation reports.

Feedback and improvements**Q7.**

Mostly through evaluation reports.

Changes to facilities and plans**Q8.**

For on-site actions, any changes in the emergency plans regarding safety issues shall applied to the Swedish Radiation Safety Authority will assess and sometimes review the changes.

Switzerland

Plans**Q1, Q2.**

Emergency plans exist at all levels and are assessed within the framework of emergency exercises. Following an IRRS suggestion, it is planned to develop a comprehensive national radiation emergency response plan. The RB will contribute to the development of such a plan.

Facilities and equipment**Q3.**

The RB is only responsible for the nuclear facilities and its own emergency facility and organisation. The other off-site organisations are responsible for their own equipment and organisations.

The condition of the facilities and the equipment is inspected implicitly by the inspected emergency exercises of the operators. The arrangements for use of facilities and equipment are so far not inspected. The programme for knowledge maintenance of the engineers on duty and the responsible shift personnel is inspected by the RB. Following a suggestion from an IRRS mission at the end of 2011, the RB plans to extend the current inspection scope of emergency and response equipment.

Drills and exercise**Q4, Q6.**

The operator is required by a guideline to perform drills for all elements of the emergency organisation not been considered in the yearly exercise. The operators have to report on the drills in the monthly and annual reports.

The inspected elements during the annual emergency exercises are:

- Identification of the event.
- Declaration of the emergency.
- Alerting of internal and external forces.
- Urgent measures.
- Emergency and accident management.
- Performance of the emergency staff.
- Internal Communication.
- Notification of off-site organisations.
- Information of the public.

The inspection team of the RB covers all affected technical fields.

Feedback and improvements

Q7.

The RB gives a preliminary brief statement immediately after the exercise during the feedback meeting on the site. The detailed analysis of the exercise is documented in a RB inspection report. The report may contain recommendations and requirements. The operator has to demonstrate the realisation of the requirements.

The RB is involved in the planning committee of General Emergency Exercises and the analysis of the results. Each involved organisation can provide feedback in the final meeting of the exercise.

Changes to facilities and plans

Q8.

Changes in the emergency plan and in the emergency organisation of the operators have to be approved by the RB. Changes in the operator's facilities and equipment have to be approved too, if it is either considered in the emergency plan or classified safety equipment.

United Kingdom

Preparedness

Plans

Q1, Q2.

The requirement for an on-site plan arises from two key areas of legislation:

1. Licence Condition 11(1) requiring the licensee to make and implement adequate arrangements.
2. REPPIR Reg 7 requiring the operator to produce a plan.

The RB approves the on-site emergency plan under LC11(2). There is no formal requirement to approve the plan under REPPIR, though the operator has a duty to supply the plan to HSE/ONR upon request (superfluous for nuclear site licensees but relevant for other areas of HSE).

Inspection activities are undertaken against the plan and other associated documentation, procedures etc.

Facilities and equipment

Q3.

Condition of facilities & equipment, arrangements for using the facilities & equipment and training & experience of staff are all inspected by ONR as part of programmed inspection activities, specific inspections and assessment of exercises.

The RB inspects the training and experience of staff against the roles, profiles and training/experience requirements specified in the operator's plan.

Drills and exercise

Q4, Q6.

The operator puts together a programme of planned exercises for the year, which includes local drills (plant, shift) and site demonstration exercises. The programme is discussed with the RB as part of the site's annual review discussions.

The programme identifies the planned areas where specific attention will be focused (*e.g.* notification, rescue contamination etc.).

The RB determines from the programme any specific activities which it wishes to inspect, and may observe local drills.

The RB undertakes a formal assessment of the site demonstration exercise, using a team of 4-8 inspectors.

Feedback and improvements

Q7.

The RB provides feedback of its assessment of site demonstration exercises at a number of stages:

Initial feedback is provided on the day of the exercise as part of the debriefing process. The initial feedback provides a summary view of whether the RB considers the exercise to be an adequate demonstration of the operator's arrangements.

Formal feedback is provided within approximately one month of the exercise. This comprises a covering letter summarising performance and any specific actions required in the event that any aspects of the exercise gave rise to the need for remedial action, and an Annex containing the detailed observations made by the ONR Assessment Team members. The letter also requests the submission of the operator's exercise report.

Changes to facilities and plans

Q8.

The RB assesses changes in the operator's arrangements on the basis of the significance of the impact of the changes.

Any proposed changes to the operator's on-site emergency plan must be submitted to the RB formally. The RB will assess the submission and if deemed adequate will approve the revised on-site emergency plan.

Other changes to arrangements (*e.g.* revision of emergency handbook, procedures, equipment) will be assessed according to the impact on the arrangements.

Operators are required to assess the significance of the proposed revision and categorise the proposed change according to the potential impact on the emergency arrangements. Changes of potential high significance will be submitted to the RB for formal assessment. Changes of lower significance will be incorporated under the operator's own change control and local approval arrangements, but will be subject to inspection as part of the RB's programmed (or specific) inspection activities.

Response

Exercise

Q5.

As part of the RB's programme of assessment, inspection of the licensee's performance forms an integral part of the programme. This involves the formal assessment of an annual demonstration of the licensee's arrangements on-site, and a demonstration of the licensee's (and others') arrangements off-site at a frequency not exceeding three years.

Feedback and improvements

Q7.

The RB provides formal feedback:

- To licensees during demonstration of on-site arrangements, at a number of levels including:
 - Immediate feedback as part of the post-exercise debriefing process. This feedback provides an initial view on adequacy of the licensee's arrangements beside on initial findings, and enables any significant shortcomings to be highlighted and regulatory activity to be undertaken as necessary.
 - Formal correspondence following the exercise, which confirms the RB's view on adequacy of the licensee's arrangements on the basis of assessment of the exercise.
- To licensees and other agencies during demonstration of off-site arrangements: by:
 - Chairing the immediate post-exercise debrief and providing an overall regulatory view of the adequacy of the off-site plan as demonstrated during the exercise.

Providing formal feedback to the subsequent 'cold debrief' which forms an input to the final exercise report.

USA

Plans

Q1, Q2.

Yes, both NRC and FEMA.

Facilities and equipment

Q3.

Yes, these areas are inspected through a performance based process in which they are used in biennial exercises and periodic drills.

Drills and exercise

Q4, Q6.

Yes, for the onsite programme, drill and exercise performance contributes data to a performance indicator system. Periodic drills are sampled for inspection as are drill and exercise critique reports. Exercises are inspected biennially. Classification, notification, protective action recommendation development and radiological assessment are given the highest priority on site, but other areas are also inspected during periodic drills and biennial exercises. FEMA directly inspects response offsite.

Direct inspection during biennial exercises and periodic drills. Review of critiques and the corrective action system.

Feedback

and improvements

Q7.

Onsite and offsite, through inspection reports.

Changes to facilities and plans

Q8.

Onsite, through periodic review of plan changes which must be made in accordance with regulations (10 CFR 50.54(q)) Offsite all plan changes must be submitted to FEMA for review and approval.