

## EPREV REPORT



Emergency  
Preparedness  
Review

EPREV

# PEER APPRAISAL OF ARRANGEMENTS IN THE REPUBLIC OF BELARUS FOR PREPAREDNESS AND RESPONSE FOR A NUCLEAR OR RADIOLOGICAL EMERGENCY



2018-10-08 to 2018-10-17  
Minsk, Belarus

International Atomic Energy Agency

## **FOREWORD**

Within the United Nations system, the International Atomic Energy Agency (IAEA) has the statutory functions of establishing standards of safety for the protection of health against exposure to ionizing radiation, and of providing for the application of these standards. In addition, under the Convention on Assistance in the Case of a Nuclear Accident or Radiological Emergency (Assistance Convention) the IAEA has a function, if requested, to assist Member States in preparing emergency arrangements for responding to nuclear accidents and radiological emergencies.

In response to a request from the Government of Belarus, the IAEA fielded an Emergency Preparedness Review (EPREV) mission to conduct, in accordance with Article III of the IAEA Statute, a peer review of Belarus's radiation emergency preparedness and response arrangements vis-à-vis the relevant IAEA standards.

The number of recommendations, suggestions and good practices is in no way a measure of the status of the emergency preparedness and response system. Comparisons of such numbers between EPREV reports from different countries should not be attempted.

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## Executive Summary

This report provides the results of the Emergency Preparedness Review (EPREV) mission to Belarus, 08–17 October 2018. The mission was undertaken by the International Atomic Energy Agency (IAEA) based on a request from the Government of Belarus through the Ministry of Emergency Situations. EPREV missions are designed to provide a peer review of emergency preparedness and response (EPR) arrangements in a country based on the IAEA Safety Standards. The mission was focused on preparedness to emergencies stemming from events at Emergency Preparedness Category I Facilities, as defined in the IAEA Safety Standards Series No. GSR Part 7, Preparedness and Response for a Nuclear or Radiological Emergency [1], which includes emergencies taking place at Nuclear Power Plants (NPP). The team for the EPREV mission consisted of international EPR experts from IAEA Member States as well as a team coordinator and deputy team coordinator from the IAEA Secretariat.

This report includes recommendations and suggestions for improvements based on the IAEA Safety Standards as well as good practices that are considered as models for other Member States. In some cases, improvements in line with the detailed findings are already being undertaken. In other cases, the Government of Belarus should adopt an action plan to implement the recommendations and suggestions.

The Government of Belarus is to be commended for dedicating significant resources for EPR across all levels of government, under the coordination of the Ministry of Emergency Situations.

The construction of the first NPP in the country (the Belarusian NPP) is still ongoing, and the first Unit is expected to be commissioned in 2019. At this stage, response arrangements at the different levels have been developed and the majority of response organizations have developed comprehensive arrangements to fulfil their assigned roles and responsibilities. IAEA Safety Standards have been widely used as a reference in the development of those arrangements. In many cases, arrangements have been tested through different drills and exercises, which have provided valuable insights for the improvement of emergency arrangements.

The EPREV team noted some areas where improvements could be made. In particular, it was noted that improving the description of the processes in the state system for emergency management and the operational guidance for their implementation to facilitate better understanding and implementation of the system by all stakeholders involved. Also based on the observations made, the team included findings related to the periodic revision of the hazard assessment, use of emergency classification system and implementation of Urgent Protective and Other Response Actions. Some other recommendations and suggestions have been raised as well regarding the implementation of guidance recently developed by the IAEA, like protection Strategy, termination of a nuclear or radiological emergency and management of radioactive waste generated during an emergency.

The team also noted a number of specific commendable practices. These good practices refer to aspects that go beyond the expectations set in safety standards. Among these, the EPREV Team identified the availability of robust installations and capabilities, such as the ones in place for the treatment of contaminated or overexposed individuals, on-site emergency facilities at the Belarusian NPP and institutions for provision of training to responders. Also, how the developments made based on the experience gleaned in managing the long-term non-radiological consequences of a nuclear or radiological emergency, based on the actions

implemented to mitigate consequences of the Chernobyl accident, has been highlighted as a good practice. Other good practice refers to the fact that Belarus has developed a comprehensive set of arrangements with different countries, regarding cooperation, assistance and exchange of information on emergencies, including nuclear or radiological emergencies. Finally, the team noted the integration to an important extent with the all hazard emergency management system of the arrangements for nuclear or radiological emergencies.

This report serves as the final record of the EPREV mission. The IAEA will continue to work with Belarus to improve EPR arrangements. It is expected that Belarus will develop an Action Plan to implement the recommendations and suggestions in the report, and will invite the IAEA for an EPREV Follow-Up Mission to review the implementation.

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## 1. Introduction

### 1.1. Objective and Scope

The Government of Belarus (Host Country) requested an IAEA Emergency Preparedness Review (EPREV) on 31 March 2016 to review the arrangements related to the nuclear power programme in Belarus. The IAEA responded positively to the request. The EPREV mission took place between 8th and 17th October 2018 in Minsk.

The EPREV mission focused on the arrangements for nuclear or radiological emergencies at Emergency Preparedness Category I<sup>1</sup> facilities. It was aimed at reviewing Emergency Preparedness and Response (EPR) arrangements against the requirements set forth in IAEA Safety Standards Series No. GSR Part 7, “Preparedness and Response for a Nuclear or Radiological Emergency, Safety Requirements”[1], in light of the nuclear power programme in Belarus and, in particular of the Belarusian Nuclear Power Plant (NPP) currently under construction.

The review examined emergency arrangements and capabilities at the local and national levels in all areas covered by General, Functional and Infrastructure requirements contained in GSR Part 7.

It is expected that the EPREV mission will facilitate improvements in the Belarusian emergency preparedness and response arrangements, as well as in other Member States. The knowledge gained and experiences shared between Belarus and the EPREV team and through the evaluation of the effectiveness of the Belarusian arrangements and capabilities should provide for these improvements.

The key objectives of the EPREV were:

- Providing Belarus an objective assessment of the arrangements and capabilities to respond to nuclear or radiological emergencies regardless of the cause with respect to IAEA safety standards and guidelines;
- Assessing the condition in which Belarus resides with regard to international standards for emergency preparedness and response;
- Assisting Belarus in providing a basis upon which it can develop a longer term programme to enhance its ability to respond;
- Providing Recommendations, Suggestions and Good Practices to Belarus regarding emergency preparedness and response to radiation emergencies, to be used in the action plan to address areas for further improvement.

Additionally, the mission provided the participating Belarusian staff a good opportunity to discuss their practices with reviewers who have experience with different practices in the same field and contributed to the harmonization of emergency preparedness and response approaches among IAEA Member States.

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<sup>1</sup> Facilities, such as nuclear power plants, for which on-site events (including those not considered in the design) are postulated that could give rise to severe deterministic effects off the site that would warrant precautionary urgent protective actions, urgent protective actions or early protective actions, and other response actions to achieve the goals of emergency response in accordance with international standards, or for which such events have occurred in similar facilities.



## **1.2. Preparatory Work and Review Team**

At the request of the Government of Belarus, a preparatory meeting for the EPREV was conducted from 25 to 26 January 2017. The preparatory meeting was carried out by the appointed Team Leader Ms. Marina Nizamska and IAEA Coordinator Mr. M. Breitingner.

The EPREV preparatory team had discussions regarding EPR (and policy issues) with Mr. Leonid Dedul (Ministry of Emergencies of the Republic of Belarus), the Liaison Officer Ms. Svetlana Shotskaya (Ministry of Emergencies of the Republic of Belarus) and with key organisations in the host country. The discussions resulted in agreement on the scope of the EPREV mission described in Section 1.1.

Mr. Dedul made presentations on the national context, the current status of EPR in Belarus and the self-assessment results to that date.

IAEA staff presented the EPREV principles, process and methodology. This was followed by a discussion on the tentative work plan for the implementation of the EPREV Mission in Belarus.

The proposed EPREV team composition (experts from Member States to be involved in the review) was discussed, and the size of this EPREV team was tentatively confirmed. Logistics including meeting and work space, counterparts and Liaison Officer identification, proposed site visits, lodging and transportation arrangements were also addressed. All relevant aspects were included in the agreed Terms of Reference (ToR).

The Liaison Officer for the preparatory meeting and the EPREV mission was Ms. Svetlana Shotskaya. For the mission, Mr. Ramon De la Vega was EPREV team Coordinator and Mr. Philip Vilar Welter was Deputy team Coordinator.

Ms. Shotskaya provided IAEA (and the review team) the Advance Reference Material for the review in different submissions between July and the end of August 2018, including the revised self-assessment against GSR Part 7 uploaded to the Emergency Preparedness and Response Manangement System (EPRIMS) platform. In preparation for the mission, the EPREV team members conducted a review of the Advance Reference Material and provided their initial review comments to the EPREV team Coordinator prior to the commencement of the EPREV mission.

## **1.3 References for the Review**

IAEA Safety Standards Series No. GSR Part 7 (Preparedness and Response for a Nuclear or Radiological Emergency) [1], No. GSG-2 (Criteria for Use in Preparedness and Response for a Nuclear or Radiological Emergency) [2], No. GS-G-2.1 (Arrangements for Preparedness for a Nuclear or Radiological Emergency) [3] and No. GSG-11 (Arrangements for the termination of a Nuclear or Radiological Emergency) [4].

The terms used in this report are consistent with those found in the IAEA safety standards referenced in the above paragraph.

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## 2. DETAILED FINDINGS ON GENERAL REQUIREMENTS

### 2.1. The Emergency Management System

Belarus has a robust overall emergency management organization (the State System for Prevention and Elimination of Emergency Situations, SSES). The scope of the SSES includes national, territorial, local and facility-level entities. However, some additional aspects would be needed to allow this organization to be considered a comprehensive Emergency Management System in the meaning of GSR Part 7<sup>2</sup>. In particular, more clear definition of processes and development of organizational culture would be helpful. In this regard, better description of processes and authorities for decision making and provision of advice would improve the system. This also impacts the description of authorities, as addressed in Section 4.1

The emergency response organization can be activated both bottom-up and top-down. The explanations received about operation of some aspects of Emergency Management System sometimes showed existence of not fully consistent views among different organizations regarding specific activities to be implemented. In particular, counterparts provided not fully consistent views regarding decision making process and provision of advice at the different levels. Because the Belarusian NPP is not yet operational, relevant practical experience with the operation of the emergency management system in preparedness or response to a nuclear or radiological emergency related to this facility is not yet available.

The overall emergency management system of Belarus is described in the Law of the Republic of Belarus No. 141-Z and Resolution of the Council of Ministers of the Republic of Belarus No. 495. Maintenance of the SSES takes place under the responsibility of the Commission of Emergency Situations under the Council of Ministers of the Republic of Belarus. The previously existing all-hazards emergency management system encompassed a robust organization and arrangements for preparedness and response. The activities to prepare and respond to nuclear and radiological emergencies (in particular, for those taken place at Emergency Preparedness Category I facilities) were integrated into this existing system, and specific changes were made commensurate with the emergencies identified in the hazard assessment (Resolution No. 58).

The SSES addresses consistency of national arrangements with relevant international emergency arrangements, in particular with the Conventions on Early Notification and Assistance in case of nuclear or radiological emergency. The Belarus Government has signed mutual assistance arrangements with several countries, including the neighbouring country Lithuania. Belarus has drafted and proposed to Lithuania, the closest country to the Belarus NPP, a ministry-level agreement that focuses on emergencies related to that facility. These matters are discussed further in Section 3.12 of this report.

<b>Suggestion 1</b>
<b>Observation:</b> Descriptions of some processes, such as provision of advice and decision making, are not sufficiently clear in the SSES to allow full common understanding of them.
<b>Basis for suggestion:</b> GSR Part 7 paragraph 4.1 states: “The government shall ensure that an emergency management system <sup>2</sup> is established and maintained on the territories...”
<b>Suggestion:</b> The Government should consider further developing the description of the processes in the SSES and the operational guidance for their implementation to facilitate better understanding of the System.

<b>Good Practice 1</b>
<b>Observation:</b> The pre-existing all-hazards approach to emergency preparedness and response was used extensively in the SSES, the emergency management system that will address potential nuclear or radiological emergencies associated with the Belarusian NPP.
<b>Basis for good practice:</b> GSR Part 7 paragraph 4.3 states: “The emergency management system shall be integrated, to the extent practicable, into an all-hazards emergency management system.”
<b>Good Practice:</b> The emergency management system for nuclear or radiological emergencies is well integrated in the all-hazards approach, benefiting from many organizational arrangements and tools previously developed under this approach.

## 2.2. Roles and Responsibilities in Emergency Preparedness and Response

The roles and responsibilities of organizations are defined in the SSES (as discussed in Section 2.1), as designated by regulation of the Belarus Council of Ministers. This system is intended to require and bring about coordination among all the entities involved in emergency preparedness and response. It responds to natural and man-made emergencies, including a range of hazards both nuclear and non-nuclear. The SSES specifies coordinating bodies (committees) at the national, regional, local, and facility levels. The SSES documents state that regulations on the committees on emergency situations, the working body of these committees, and their composition are confirmed by the decisions of managers of these organizations with the approval of local government bodies on emergency situations.

The Government has put in place a coordinated training and exercise program to validate effectiveness of emergency response. Two exercises have been conducted in association with the new NPP, one in October 2017 and another in October 2018. A Gosatomnadzor report on results of the latest exercise is being developed. (See Section 4.6. for additional discussion on this subject.) Regulation dated 2 August 2006 designates the Ministry for Emergency Situations (MES) and the Ministry of Natural Resources and Environmental Protection as responsible for monitoring and responding to nuclear or radiological emergencies. The MES is the designated competent authority for managing all emergency situations. Regulation dated 27 August 2010 places responsibility for developing separate emergency plans to respond to nuclear or radiological emergencies coming from sources in Belarus or abroad. Lead responsibility rests with MES, with the participation of the Ministry of Natural Resources and Environmental Protection, the Ministry of Health, the Ministry of Internal Affairs, the State Security Committee, and local authorities. The plans are to protect life and health of citizens, and to provide environmental and property protection, associated with the use of nuclear energy. Regulations dated 10 April 2001 describe in detail the responsibilities of various ministries with

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<sup>2</sup> According definition of management system as per GSR Part 7, it encompasses “a set of interrelated or interacting elements (system) for establishing policies and objectives in an efficient and effective manner”

roles in emergency planning. These expectations are translated into practice through the Onsite and Offsite Emergency Plans and, in some but not all cases, through detailed instructions that implement the plans. The status of development of these detailed instructions is addressed in Section 4.4 of this report.

The SSES regulations state that activities on prevention of emergency situations, logistical security of activities on the performance of accident rescue and other urgent operations on elimination of hazard to life and health of people, rendering of financial support to entities and persons property of which was damaged as a result of emergency situations, and other expenses connected with their elimination are funded by organizations situated in the area of emergency situations, republican bodies of state administration, and republican and local funds, safety funds, and other resources. The SSES regulations state that payment of expenses of organizations engaged in emergency recovery is performed in accordance with established procedures from various funding sources. In the absence or insufficiency of funds, regulations state that sources of funding of necessary activities are determined according to the law. The regulations state that reserves of material resources on emergency recovery are created in the order determined by the Council of Ministers of the Republic of Belarus.

The Belarus government has validated through exercises that each entity with a role in emergency preparedness and response has necessary resources to perform its designated role. The Ministry of Emergency Situations through regulation dated 20 November 1998 is required to coordinate creation, placement, storage, refreshment, use and replenishment of reserves of material resources for the liquidation of emergency situations. The regulations state that financing of expenses for the creation and placement of reserves of material resources for the liquidation of emergency situations, storage, refreshment and replenishment of these resources is carried out at the expense of the republican and local budgets, budgets of republican government bodies, other state organizations subordinate to the Government of the Republic of Belarus, local executive and administrative bodies, as well as at the expense of the organizations that created these reserves.

The government validates through exercises, drills, and training that appropriate leadership in emergency preparedness is demonstrated. Ministries report twice yearly on readiness for emergencies. The most recent such report includes readiness for response to a nuclear emergency at the Belarus NPP, as required by the Offsite Emergency Plan. However, there is not a universal understanding at all levels of leadership regarding the importance of planning for an event at the NPP involving offsite release, even recognizing its very low probability.

The government ensures coordination between emergency arrangements and security plans. The government informed the EPREV team that potential impact of a security event on emergency response capabilities is addressed in appropriate procedures. The restricted nature of these documents prevented the EPREV team from reviewing them.

Gosatomnadzor, as the regulator for the Belarus NPP, ensures the operator's compliance with national requirements for emergency preparedness. Gosatomnadzor has authority to enforce regulation in the event of violation by the NPP operator (e.g., monetary fines and administrative sanctions). The Ministry of Emergency Situations relies on exercise evaluations to verify the effectiveness of offsite response entities and their compliance with applicable regulations.

The government will ensure that emergency preparedness and response capabilities and processes will be in place prior to fuel load and operation of the Belarus NPP through review of all aspects of emergency preparedness and response prior to issuance of a license to the NPP

operator. This review will include checks of operator performance in an emergency, as well as reviews of the results of drills and exercises. Suggestion 1 above addresses the timing of a full-scope graded exercise relative to the expected beginning of power operation at the NPP.

The government expects that the NPP operator has sufficient authority to take protective actions onsite for any condition that could lead to a release of radioactive materials offsite by the nature of its license, should one be issued. However, there is no provision that empowers the operator to take prompt emergency response actions in unexpected situations. This provision would specifically empower the operator to take necessary actions for conditions not envisioned in the licensing of the plant, but for which immediate action is needed to protect public health and safety. In addition, the operator is fully responsible for NPP safety.

Discussions with some key participants in emergency planning and response indicated that some may believe that a severe emergency with significant off-site consequences at the Belarus NPP will not happen. The Government will consider further reinforcing the value and need for emergency planning to address an event, however unlikely, at the Belarusian NPP that could involve offsite release of radioactivity.

<b>Suggestion 2</b>
<p><b>Observation:</b> Exercises involving large number of participants and different onsite and offsite organizations were implemented in the preparation of the onsite and offsite plans. These exercises may be combined into a comprehensive full scope exercise involving all relevant onsite and offsite organizations, whose purpose in part would be to validate effective coordination among all entities. This is particularly important to Belarus because the government places great reliance on exercises to demonstrate effectiveness and efficiency of many aspects of emergency preparedness and response, including coordination among entities</p>
<p><b>Basis for suggestion:</b> GSR Part 7 paragraph 4.10 states: “The government shall establish a national coordinating mechanism to be functional at the preparedness stage, consistent with its emergency management system.”</p>
<p><b>Suggestion:</b> The government should consider in the next planned exercise to conduct an integrated full-scope comprehensive exercise using approved plans and procedures to verify that coordination of functions at all levels is effective.</p>

<b>Suggestion 3</b>
<p><b>Observation:</b> Though the government has set aside funding to compensate victims of a nuclear emergency at the Belarus NPP and has taken out an insurance policy to provide additional funding for compensation if needed, it has not yet put in place a mechanism for making claims, and for allocating funding and prioritizing claims for compensation. The government expects these mechanisms to be in place in 2020, subsequent to current expected start of operations at the Belarus NPP.</p>
<p><b>Basis for suggestion:</b> GSR Part 7 paragraph 4.6 states: “The government shall ensure that arrangements are in place for effectively governing the provision of prompt and adequate compensation of victims for damage due to a nuclear or radiological emergency.”</p>
<p><b>Suggestion:</b> Although funds are available, the government should consider further improvement of existing mechanism for making compensation claims, and for allocating funding and prioritizing claims for compensation, prior to beginning power operations at the Belarus NPP.</p>

<b>Suggestion 4</b>
<b>Observation:</b> The operator is fully responsible for NPP safety; however the government has not added a provision to the relevant document that the operator has the specific authority to take prompt emergency response actions in unexpected situations.
<b>Basis for suggestion:</b> GSR Part 7 paragraph 4.15 states: “The regulatory body shall ensure that the operating organization is given sufficient authority to promptly take necessary protective actions on the site in response to a nuclear or radiological emergency that could result in off-site consequences.”
<b>Suggestion:</b> The government should consider adding a provision in the relevant documents, to clarify that, in addition to existing responsibilities of the operator for the Belarus NPP, the operator has clearly defined authority to take necessary onsite emergency response actions in the event of a nuclear or radiological emergency that could result in offsite consequences.

### 2.3 Hazard Assessment

Rules and regulations for nuclear and radiological safety entitled “Requirements of Emergency Planning Categorization in the Event of a Nuclear or Radiological Accident” establish the requirements of planning categories, to establish commensurate emergency preparedness or response measures to respond to a nuclear or radiological accident taking into account the potential hazards. For planning purposes, facilities and practices involving use of radioactive materials are categorized into five categories that are in line with GSR Part 7. Based on this categorization, the Belarusian NPP is categorized as Emergency Preparedness Category I. The operator of the NPP is responsible for the onsite hazard assessment. The hazard assessment for Belarusian NPP is included in its Onsite Emergency plan. It is based on consideration of a very low-probability event i.e., a severe beyond-design-basis accident, natural hazards, severe weather conditions, aircraft crashes, and security threats. Emergency planning zones, and precautionary and urgent protective actions, are defined on the basis of hazard assessment.

<b>Suggestion 5</b>
<b>Observation:</b> Arrangements for a periodic review of the hazard assessment are not included in the Onsite Emergency Plan. General planning system for protection of public and territories in case of emergencies (including nuclear or radiological emergencies) ensures that the review of the hazard assessment is performed annually. Based on the results of such review, relevant plans at the facility, district, regional and republican level are amended.
<b>Basis for suggestion:</b> GSR Part 7 Paragraph 4.25 states: “The government shall ensure that a review of the hazard assessment is performed periodically with the aims of: (a) ensuring that all facilities and activities, onsite areas, off-site areas and locations where events could occur that would necessitate protective actions and other response actions are identified, and (b) taking into account any changes in the hazards within the State and beyond its borders, any changes in assessments of threats for nuclear security purposes, the experience and lessons from research, operation and emergency exercises, and technological developments (see paras 6.30, 6.36 and 6.38). The results of this review shall be used to revise the emergency arrangements as necessary.”
<b>Suggestion:</b> The Government should consider ensuring that the emergency response arrangements are duly amended based on the results of the hazard assessment review.

## 2.4 Protection Strategy for a Nuclear or Radiological Emergency

The Radiation Protection Strategy in Case of Nuclear or Radiation Accident (hereinafter Strategy) was approved by the Minister of Emergency Situations on 06 August 2018. The Strategy describes the actions to be taken to avoid or minimize severe deterministic effects and to reduce the risk of stochastic effects. The residual dose of 100 mSv is set as a reference level for acute or annual exposure. The national generic criteria for taking protective actions and other response actions (projected dose or dose that has been received) are defined in the document. If the projected dose or received dose is exceeded, protective actions and other response actions, both individually or in combination are defined in the strategy. The Strategy also defines operational intervention levels (OILs) for initiating the different parts of an emergency plan and for taking protective actions and other response actions.

Some aspects of the strategy could be further improved. In particular, the Strategy does not fully address all pre-established operational criteria such as conditions on the site and emergency action levels (EALs) defined in the Onsite Emergency Plan. The Strategy does not fully address the requirements in paragraphs 4.27-4.30 of GSR Part 7, for example arrangements established in advance to revise the operational criteria, justification and optimization of protective actions in the context of the Strategy and justification of the Strategy itself. Also, some interested parties such as Ministry of Health and other relevant government entities were not involved in the development of the Strategy. The Strategy does not address radioactive waste that may arise during an emergency from protective actions and other response actions.

Operational interventional levels (OILs) have been derived and calculated based on national prevailing conditions with due account to IAEA guidance.

<b>Suggestion 6</b>
<p><b>Observation:</b> The Protection Strategy includes some of the pre-established operational criteria but does not fully address other relevant aspects such as references to emergency action levels, justification and optimization of the Strategy, and a communication strategy. Also, some interested parties such as the Ministry of Health and other Government and nongovernmental entities, were not involved in the development of the Strategy.</p>
<p><b>Basis for suggestion:</b> GSR Part 7 paragraph 4.27 states: “The government shall ensure that, on the basis of the hazards identified and the potential consequences of a nuclear or radiological emergency, protection strategies are developed, justified and optimized at the preparedness stage for taking protective actions and other response actions effectively in a nuclear or radiological emergency to achieve the goals of emergency response.”</p>
<p><b>Suggestion:</b> The Government should consider revising the Protection Strategy, involving all potentially interested parties, including governmental and non-governmental organizations as appropriate, in the development of the revision. The Government should consider including in the revised Strategy appropriate emergency action levels, justification and optimization of the Strategy, and a communication strategy.</p>

### **3. DETAILED FINDINGS ON FUNCTIONAL REQUIREMENTS**

#### **3.1. Managing Operations in an Emergency Response**

As discussed in Sections 2.1 and 2.2, the Republic of Belarus has created the SSES to manage emergency response operations and decision-making. The hierarchy of policy and implementation begins at a high level of the government, such as edicts from the President, resolutions of the Council of Ministers, and resolutions of ministries. These documents typically promulgate and give effect to the next tier of document, generally a plan or regulation. MES issues most such regulations applicable to emergency planning and response. Key to the planning and execution of emergency response are the Onsite and Offsite Emergency Plans, which provide a limited level of detail in describing the roles of the various entities that participate in information sharing or decision making. These plans are in turn implemented through detailed instructions, though, as discussed in Section 4.4 of this report, in some cases the instructions have yet to be implemented.

Decisions regarding protective measures and responses are made at one of four levels, depending on the significance and impact of the event. From least to most serious, these are the facility, district, region, and Republican levels. For events that have offsite impacts, response decisions are made by leaders of Executive Committees, starting at the District level. If the event affects more than one government entity at a given level, decision making passes to the next higher level. The Executive Committees are standing committees who are advised during emergencies by Commissions for Emergency Situations at each level that are mobilized for emergency situations, and plan for emergency on regular basis. The Commissions decide on protective measures and recommend them to the Executive Committees.

This decision-making process is supported by the Information and Management System, that evaluates inputs and information and makes recommendations. This system provides for information exchange at all levels with an emergency response function. The NPP operator provides information and notifications regarding a nuclear emergency to the cognizant district Department for Emergency Situations, to Gosatomnadzor, to the Ministry of Energy, and to the Republican Emergency Management and Response Centre (REMRC) in the Ministry of Emergency Situations. The REMRC in turn informs the Ministry of Health and the Ministry of Natural Resources and Environmental Protection. The Ministry of Energy assists in evaluating the progress of the accident onsite and independently reviews the operator's source term. The Ministry of Natural Resources and Environmental Protection evaluates meteorological conditions and plume dispersal calculations. The Ministry of Health uses this information to forecast doses. Actions in response to a NPP emergency at most but not all these information exchanges are contained in instructions, as discussed in Section 4.4 of this report. The Government plans to develop and implement those instructions not yet in place prior to operation of the Belarus NPP.

The Belarusian NPP operator ensures that effective response to an emergency is executed onsite without impairing safe operation of the plant. The onsite organization is staffed and procedures guide its operation such that the shift operating crew is allowed to continue to focus on safe operation while other personnel address the emergency.

The Belarusian NPP procedures provide for managing emergency response at both units if both are subject to an emergency condition simultaneously. These procedures minimize the impact of plant conditions on ability of offsite and onsite emergency personnel to respond. The



government has tested these procedures using an exercise involving a common-cause weather-related scenario.

The Belarusian NPP security systems would remain functional in a nuclear or radiological emergency, whether caused by a nuclear security event or another event that results in a radioactive release. Description of these measures is a sensitive matter so is not further discussed here. Onsite emergency response procedures include entry into the emergency response plan for security events.

Nuclear emergency response activities and procedures at the local, regional, and Republican levels are integrated with activities related to response to conventional and security events in the SSES, as is discussed in Sections 2.1 and 2.2 of this report.

Because some territory of Lithuania is within the Belarus NPP emergency planning distances, the Belarus Ministry of Emergency Situations has proposed to further extend bilateral agreement with Lithuania to coordinate response measures to a nuclear or radiological emergency at the Belarusian NPP. Should parties be not able to conclude an agreement, the Belarus Government plans to maintain existing communication channels, taking advantage of an existing (2003) bilateral agreement with Lithuania on prevention and elimination of emergencies. The Government will also make appropriate notifications under the Convention on Early Notification of a Nuclear Accident.

### **3.2. Identifying and notifying a Nuclear or Radiological Emergency and Activating an Emergency Response**

The Belarussian NPP has two classes of emergency classification, “Emergency Preparedness” and “Emergency Situation,” according to the Onsite Emergency Plan. Based on discussions about the Onsite Emergency Plan, it was explained to the team that entry into “Emergency Situation” can be decided by the NPP shift head based on NPP procedures. After the notification of “Emergency Situation” has been made, different district, regional and national committees are activated. However, the EPREV team could not verify that an operational decision-making process that would ensure rapid and coordinated public protective actions, fully consistent with GSR Part 7, is in place.

MES regulation #52 of 02.10.2018 establishes 3 classes of emergency situations (General emergency, Site area emergency, Alert), which should be implemented in emergency plans. The Belarussian NPP Duty Shift Head is tasked to inform the on-duty dispatcher of the Ostrovets District Emergency Control Center, among many other persons, of a possible accident situation taking place. Via MES Situational Crisis Centers this notification is then distributed further to different levels of the SSES. Based on the notification from the Belarussian NPP, the appropriate situational Crisis Centers activate their response according to the received information. In particular, the REMRC is the National Warning Point. It provides capabilities to receive notifications at all times and it has capabilities to inform other states and IAEA when needed.

<b>Recommendation 1</b>
<p><b>Observation:</b> The Belarus NPP operating organization currently does not make use of an emergency classification system consistent with that described in para. 5.14 of GSR Part 7. Instead, they classify the emergency into two modes or classes: “Emergency Preparedness” and “Emergency Situation.” These modes are processed later by MES into emergency classes as described in the Offsite plan. But response to protect the public consistent with GSR Part 7 is not derived from this notification of an emergency situation. In October 2018 the resolution of the MES was adopted in which 3 classes of emergency situations (General emergency, Site area emergency, Alert) were established.</p>
<p><b>Basis for recommendation:</b> GSR Part 7 paragraph 5.14, states: “The operating organization of a facility or activity in category I, II, III or IV shall make arrangements for promptly classifying, on the basis of the hazard assessment, a nuclear or radiological emergency warranting protective actions and other response actions to protect workers, emergency workers, members of the public and, as relevant, patients and helpers in an emergency, in accordance with the protection strategy (see Requirement 5). This shall include a system for classifying all types of nuclear or radiological emergency as follows:</p> <ul style="list-style-type: none"> <li>a) General emergency [...]</li> <li>b) Site area emergency [...]</li> <li>c) Facility emergency [...]</li> <li>d) Alert...”</li> </ul>
<p><b>Recommendation:</b> The Government should revise the Onsite and Offsite Emergency Plans to ensure that the Belarussian NPP reviews and revises its onsite emergency classification system to be in line with the classification system described in GSR Part 7.</p>

### 3.3. Taking mitigatory actions

The Government has approved the Belarussian NPP Onsite Emergency Plan. The Belarussian NPP Onsite Plan gives guidance for how the operator organization should respond to an emergency. Local authority under MES has established a new rescue station near the NPP with special staff for responding to a nuclear emergency. Local police authority has developed arrangements for access control in and around the Urgent Protective Action Planning Zone (UPZ). Malicious acts are addressed in the Onsite & Offsite Emergency Plans, special troops and the armed forces are tasked with the protection of the NPP against such hazards. The NPP has extensive sheltering capabilities to protect the staff during a possible accident. (See section 4.5.)

### 3.4. Taking urgent protective actions and other response actions

Some specific hazards are addressed in the Onsite Emergency Plan, which has helped prepare a good response system to possible events.

Emergency planning zones and distances (EPZ/Ds) are established, as well as the actions necessary during an emergency. EPZ/Ds for the Belarus NPP include the Precautionary Action Zone (PAZ) with a radius of 3 km, the UPZ with a radius of 15 km, the Extended Planning Distance (EPD) with a radius of 100 km, and the Ingestion and Commodities Planning Distance (ICPD) with a radius of 300 km. The Plans describe required activities for all EPZs. The Offsite Plan and the Public Protection Plan describe a public alert system in the NPP surroundings by using sirens with a single signal complemented by a verbal reports/news. These plans generally

describe the system of communication among individual organizations and coordination of activities.

In the case of a nuclear emergency, decisions are taken at all levels (i.e. facility, district, regional and state level), assisted by communications among all these levels and with the NPP. There are protective measures in the plan such as sheltering, evacuation, iodine prophylaxis or their combination; partially based on Operational Intervention Levels (OILs). According to the NPP information, iodine prophylaxis must be available before commissioning of the NPP. In a 3-km radius around the NPP, pills will be pre-distributed. Within 15 km of the NPP, pills will be available to the public in numerous specified places. According to the information given by the MES representative, sufficient reserves will also be available for use if needed in the relevant sectors of the EPD.

There is a very well-established monitoring system in Belarus, including sampling and evaluation of data, which makes it possible to make effective decisions on the measures and their possible correction if necessary.

The intervention personnel (whether from the MES, the Ministry of Environment, or the NPP level), are educated, trained and well equipped with protective aids and dosimeters for activities in contaminated areas or rooms.

The process described in the protection strategy and defined in the MES documents include a communication system among individual components and organizations as well as with the organizations and components of the operator. The Onsite Plan determines the communication and coordination of the activities of its own units onsite as well as communication with offsite emergency units and authorities. In the event of sheltering or evacuation, plans exist for registration of the affected members of the public, provision of first aid, transportation of affected persons, and their decontamination if needed. Decontamination will be provided by local resources and, as needed, with the help of a nearby MES fire brigade.

<b>Recommendation 2</b>
<p><b>Observation:</b> Areas where urgent response actions are required are determined using analytical tools and are based on assessment and prognosis on the basis of information provided by the NPP. These actions are not initiated based on the conditions of the facility through the use of operational criteria such as EALs and observables.</p>
<p><b>Basis for recommendation:</b> GSR Part 7 paragraph 5.34 states that: “These arrangements as stated in para. 5.32 shall include the use of pre-established operational criteria in accordance with the protection strategy (see para. 4.28(4)) and provision for access to instruments displaying or measuring those parameters that can readily be measured or observed in a nuclear or radiological emergency. In these arrangements, the expected response of instrumentation and of structures, systems and components at the facility under emergency conditions shall be taken into account.”</p> <p>GSR Part 7 paragraph 6.21. states: “Procedures and analytical tools shall be tested under simulated emergency conditions and shall be validated prior to initial use. Any arrangements for the use of analytical tools early in an emergency response for supporting decision making on protective actions and other response actions shall be made in due recognition of the limitations of such analytical tools and in a way, that would not reduce the effectiveness of response actions. These limitations shall be made clear to, and shall be recognized by, those responsible for decision making.”</p>

## **Recommendation 2**

**Recommendation:** The Government should review and revise the emergency planning arrangements to ensure urgent response actions are implemented based on existing operational criteria (i.e. EALs and observables) in all emergency planning zones and distances (i.e. PAZ, UPZ, EPD, ICPD), in line with GSR Part 7.

### **3.5. Providing instructions, warnings and relevant information to the public for emergency preparedness and response**

Arrangements are in place to provide the public affected or potentially affected by nuclear or radiological emergencies information that is necessary for their protection, to warn them promptly and to instruct them on actions to be taken.

The Information Centre of the Ministry of Education and the NPP provide the potentially affected public information that is necessary to be prepared for a nuclear or radiological emergency. For this purpose, in 2008 two information centres opened their doors to the public. One in the vicinity of the NPP is operated by the NPP, and one in Minsk is operated by the Ministry of Education. The public can visit these centres for information, leaflets and brochures. The centre in the Ostrovets district (the location of the Belarusian NPP) mainly provides information on the safety, construction, important milestones and planning regarding the NPP. During the emergency response exercise in October 2017, local members of the public received a leaflet with information on the nature of the hazards involved related to the NPP, and on how they will be notified and warned promptly. The actions to take in such an emergency are included in the leaflet. Special population groups are identified and registered, and special arrangements for these groups (for example, special transport) are in place and were tested during the October 2017 exercise.

In case of an emergency, the decision to notify the public in Belarus about the event and what to do can be taken at the Republican, regional, local, and facility levels. Notification of the public is required by the Resolution of the Council of Ministers of the Republic of Belarus no. 1280 of 23 August 2001. According to this document, the public will receive an alert by the Automated System according to a notification scheme. MES will decide which means of notification (loudspeakers, text message, internet etc.) will actually be used. The Republican Civil Protection Service will transmit and disseminate the information.

The Belarus government has signed assistance and communication agreements with numerous foreign countries, including the neighbouring country Lithuania. These agreements are further discussed in Section 3.12.

### **3.6. Protecting emergency workers and helpers in an emergency**

The Ministry of Health supervises implementation of sanitary rules and regulatory requirements, considering doses and protection of workers, in response to a nuclear or radiological emergency. The NPP operator is responsible to take all necessary measures to protect its emergency workers, to record radiation doses of emergency workers, and to limit the exposure of emergency workers. These practices are consistent with GSR Part 7. The doses of emergency workers are restricted to ten times the annual dose limit (50 mSv). Increased exposure of emergency workers above the established dose limit of 50 mSv is not allowed, except to save lives or prevent serious injury. Plans address implementation of actions aimed at preventing the occurrence of serious deterministic effects, actions aimed at preventing the

emergence of catastrophic conditions that may have a significant impact on people and the environment, and actions aimed at preventing a high collective effective dose. Workers' prior voluntary consent is required for any higher exposure. Response organizations are responsible for the protection of their workers. The necessary protective and dosimetry equipment is provided, and record of doses is maintained. The workers who receive radiation doses in emergency are usually not excluded from work related to further occupational exposure. However, if an exposure dose exceeds 200 mSv, or if so requested by the worker prior to the commencement of work related to further radiation exposure, a doctor's opinion will be sought. The NPP has established arrangements for recruitment and protection of workers not designated in advance. The radiation workers are subject to health surveillance at the time of recruitment and to an annual health surveillance program throughout the job. Planning has not occurred to address protection of volunteer helpers potentially assisting response in a radiation environment. Although the emergency response system limits access of helpers to radioactive contamination zone, the possibility of inadvertent exposure or contamination should be considered.

<b>Suggestion 7</b>
<p><b>Observation:</b> Planning has not occurred for involvement of volunteer helpers who may incur radiation exposure during possible accident conditions. Given the possibility of severe offsite consequences from a NPP event, working conditions for helpers may not remain free of radiation. A lesson from the Fukushima experience is that people volunteer to help in radiation emergencies.</p>
<p><b>Basis for suggestion</b> GSR Part 7 paragraph 5.52 states: “The operating organization and response organizations shall ensure that arrangements are in place for the protection of emergency workers and protection of helpers in an emergency for the range of anticipated hazardous conditions in which they might have to perform response functions.”</p>
<p><b>Suggestion:</b> The Government should consider establishing arrangements for radiological monitoring, protection and other adequate provisions to protect helpers<sup>3</sup> in a possible nuclear or radiological emergency.</p>

### **3.7. Managing the Medical response in a Nuclear or Radiological Emergency**

Belarus maintains a state system of medical care. There are some private medical hospitals, but they are not part of the response plans for a nuclear or radiological emergency. The medical response is organised in four levels – First aid, urgent medical aid, specialised medical aid, and high-technology medical aid. The first aid is in the form of self-assistance provided by non-medical individuals where the injury occurs. Other medical response is delivered by medical doctors. The Law of Health requires that each potentially hazardous facility should have a medical staff and treatment premises on the site. In emergency the first aid and urgent medical aid is provided simultaneously immediately on the site. Specialised or high-technology medical aid is provided in hospitals, the choice of which for treatment depends on the condition of affected persons.

The Ministry of Health, as a leading organization in medical response in a nuclear or radiological emergency, has established a Situational Crisis Center as part of the SSSES. The

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<sup>3</sup> Refer to GSR Part 7 definition of “helpers in an emergency”

Situational Crisis Center consists of three groups (operational group, expert-analytical group and scientific and methodological group) and operates in three modes: daily routine mode, high alert mode and emergency mode. Within the framework of the SSES the Ministry of Health provides arrangements for sanitary treatment of affected persons at including first aid, estimation of doses, medical transport, and initial medical treatment in predesignated medical facilities.

The EPREV team visited the National Centre for surgery, transpantology and haematology. The hospital has processes and facilities in place to register and treat contaminated patients, as well as facilities (tents) to isolate them and those to prevent further deterioration of their health condition. The hospital can organize clean and contaminated areas; and it has procedures/instructions for handling radioactive contaminated cloths and goods, radiation monitoring, etc.

In a visit to the hospital in Ostrovets, the EPREV team was informed about the procedures to register and treat patients in case of any kind of events, including those affected by a nuclear or radiological event. The hospital does not have a specifically designated “nuclear department,” and even in the new hospital under construction such a facility is not foreseen. Possible reception of contaminated and/or irradiated patients would be provided by adaptation of some facilities and departments. Such an approach is non-standard, as a high number of such patients could occur in a severe nuclear emergency. Hospital staff are educated in this area, trained regularly and equipped with protective measures. The new hospital under construction contains rooms for sheltering. In case of necessity, seriously exposed persons would be transported to Minsk or to regional facilities.

Potassium iodide (KI) will be pre-distributed within 3 km of the NPP, and available up to 15 km at specially dedicated distribution points. People outside the 3-km radius choosing to take KI pills will be provided with the pills free of charge in the distribution points It would be desirable to pre-distribute KI within 15 km of the NPP. Such a practice would require a change of regulations in the Ministry of Health and MES.

The hospital runs a branch unit onsite at the NPP. In case of an accident this unit is designated to provide first aid onsite. If needed they have support from special brigades on the regional level. All the activities are carried out on the basis of "procedures" (i.e. the ministerial decisions, standards, the MES decisions and the emergency commissions on the district level). A beneficial practice is that all people must have a regular medical check-up, and as a result accurate medical records exist for all the people in the area within EPZ. Services of psychologists are also available.

<b>Good practice 2</b>
<b>Observation:</b> Outstanding installations are available in Minsk for the treatment of contaminated or overexposed individuals.
<b>Basis for good practice:</b> GSR Part 7 paragraph 5.65 states: “For facilities in categories I, II and III, arrangements shall be made to manage an adequate number of any individuals with contamination or of any individuals who have been overexposed to radiation, including arrangements for first aid, the estimation of doses, medical transport and initial medical treatment in predesignated medical facilities.”
<b>Good practice:</b> The facilities of the Centre for surgery, transpantology and haematology provide excellent resources for the treatment of contaminated or overexposed individuals.

### **3.8. Communicating with the public throughout a nuclear or radiological emergency**

Arrangements are in place for communication with the public throughout a nuclear or radiological emergency.

The strategy for communication with the public in the vicinity of the NPP is captured in an annex of the Onsite Emergency Plan. This strategy describes responsibilities for media communications, with the role of operating organizations defined and coordinated. This process is based on prompt, accurate and open information. The communication methods are effective in all anticipated emergency conditions. At the local (district) level a designated telephone network is available for information exchange during emergencies.

In addition, there is a Belarussian law on communication and a decree on working with mass media that regulate the role of spokespersons including the spokesperson of MES. The MES spokesperson will handle communication with the public throughout an emergency. An expert in the Information and Analytical Centre (IAC) of Gosatomnadzor will prepare a draft statement for this purpose and send this to MES. A direct connection with IAEA is in place to keep the international community informed.

For coordination of information given to the public, the MES spokesperson will work together with spokespersons of other Ministries involved in the Belarussian Telegraph Agency (BelTA). The communication is in plain language, and it puts health hazards of the scenario of the emergency situation in perspective.

The communication strategy is not included in the Protection Strategy. This is addressed in section 2.4 of this report.

Within the SSES, a structure exists for advice by knowledgeable entities such as the Information and Analytical Centre (IAC) of Gosatomnadzor, the Ministry of Health (for dose), and Belhydromet (for the plume) to decisionmakers is in place at Republic level. This capability helps put radiological health hazards in perspective for decision makers and the public in a radiological emergency.

The MES spokesperson will explain changes in the response actions as needed, and will monitor and control rumours and public concerns. Communications to implement these objectives are provided to BelTA. MES has provisions and a system in place to respond to inquiries from the public, media and international organizations. Television, internet, social media are used for communication with the public.

### **3.9. Taking early protective actions and other response actions**

The Offsite Emergency Plan includes early protective actions and other response actions in all emergency planning zones and distances to diminish impacts of radiation, to control access to these areas, to introduce measures concerning relocation, and to restrict consumption of commodities that might be or are contaminated. The Offsite Emergency Plan and other documents also contain procedures for police interventions with regard to area closure and protection of police members. The points of relocation for public as well as for EPDs are established precisely. Relevant procedures address monitoring of the area, arrangements for movement in the area, monitoring and control of different types of foodstuffs in the ICPD

framework, the purpose of various forces and resources of MES, and (if needed) use of army resources. Also, arrangements exist concerning measures for evaluating the exposure of individuals. There are procedures for rotation of people who execute defined work in the area.

A specialized section at the MES has a strategy for methods and procedures for decontamination. Belarus has substantial experience in this regard from the experience of the Chernobyl accident. This capability includes retrospective exposure assessment.

### 3.10. Managing radioactive waste in an emergency

Belarus has experience in management of the large amount of radioactive waste (RAW) arising from liquidation of the consequences from Chernobyl accident. A Division for RAW Management exists in MES.

The Offsite Emergency Plan states that the radioactive waste that may arise from protective actions and other response actions that are to be taken in nuclear emergency are to be managed as defined in the national strategy for radioactive waste management. –Provisions for the development of such a strategy are included in the draft of Law of the Republic of Belarus “On Radiation Safety”, which is submitted to the Parliament of the Republic of Belarus and adopted on first reading. Currently, the draft law is being prepared for the second reading. The preparation of the strategy for the management of radioactive waste will be carried out by relevant Republican authorities within implementation of Action plan for this Law.

The experience and capabilities in managing radioactive waste in Belarus from the decontamination activities after Chernobyl accident will be taken into account.

The existing regulatory documents of the Republic of Belarus do not include management of contaminated human and animal remains. Therefore, appropriate procedures for managing such type of emergency waste is an additional subject for consideration in the development of the national strategy.

The Belarus NPP has developed a strategy for management of the RAW for the entire period of operation of the NPP. The onsite RAW management strategy addresses management the RAW arising from emergency situations but does not address the generation of big amount of RAW that may arise during a possible severe accident.

<b>Suggestion 8</b>
<b>Observation:</b> There is no defined strategy for the management of radioactive waste produced during a nuclear emergency, although activities are in progress in this area.
<b>Basis for suggestion:</b> GSR Part 7 paragraph 5.84 states: “The national policy and strategy for radioactive waste management shall apply for radioactive waste generated in a nuclear or radiological emergency, with account taken of paras 5.85 to 5.88.”
<b>Suggestion:</b> The Government should consider ensuring that the national strategy for RAW currently planned includes measures for managing radioactive waste generated in a nuclear or radiological emergency. The Government should consider including all relevant Government and non-governmental stakeholders in developing this strategy.



### 3.11. Mitigating non-radiological consequences of a nuclear or radiological emergency and of an emergency response

Belarus has experience in mitigating the non-radiological consequences of a nuclear or radiological emergency and emergency response as a result of the Chernobyl NPP accident. A division on management of the consequences from the Chernobyl NPP accident was created within MES. Four international programs were developed between Belarus and Russia for overcoming the consequences of the Chernobyl accident in the fields of safe livestock breeding, safe use of agricultural lands contaminated from the accident, social assistance (financial and prioritized social help – education, house building, etc.) to the people relocated from the Gomel and Mageliov region, and environmental protection and health care. Additionally, Belarus is assisting Japan in overcoming the consequences of the Fukushima accident. From a country receiving assistance, they have become a country providing assistance on liquidation of the consequences. More than 60 Japanese delegations have visited Belarus for exchange of experience and knowledge.

Belarus has implemented, jointly with the United Nations, about 20 projects for improving quality of life of the affected population in the Chernobyl-contaminated areas, such as creating new jobs, and medical assistance to and rationalizing farm production. Farm management is considered an important factor for economic rehabilitation. In 2016 (30 years after the Chernobyl NPP accident), the United Nations adopted a new resolution on cooperation and partnership in achieving sustainable economic development in contaminated areas.

To provide psychological assistance to the population in an emergency, the Center of Crisis Psychological Assistance was established in the state educational institution “University of Civil Protection of the Ministry of Emergency Situations.”. Psychological support is carried out on the basis of the methods and techniques authorized for use by the Ministry of Health and the Ministry of Education. In case of insufficiency of capacity, it is possible to involve medical psychologists and specialists from the Ministry of Education and Ministry of Health. Plans exist in the Offsite Emergency Plan for providing emergency psychological assistance in the event of a nuclear emergency and support in ensuring minimum living conditions. Plans also exist for hotlines, individual interviews, and group meetings.

<b>Good practice 3</b>
<p><b>Observation:</b> The experience gained from the Chernobyl accident has provided Belarus relevant expertise in addressing non-radiological consequences of nuclear emergencies, and specific arrangements and institutions are in place for these purposes.</p>
<p><b>Basis for good practice:</b> GSR Part 7 paragraph 5.90 states: “Arrangements shall be made for mitigating the non-radiological consequences of an emergency and those of an emergency response and for responding to public concern in a nuclear or radiological emergency. These arrangements shall include arrangements for providing the people affected with:</p> <ul style="list-style-type: none"> <li>(a) Information on any associated health hazards and clear instructions on any actions to be taken (see Requirement 10 and Requirement 13);</li> <li>(b) Medical and psychological counselling, as appropriate;</li> <li>(c) Adequate social support, as appropriate.”</li> </ul>

### Good practice 3

**Good practice:** The Government has substantial experience in addressing long-term non-radiological consequences of a nuclear or radiological emergency, and has reflected that experience in planning for a potential nuclear emergency at the Belarus NPP.

#### 3.12. Requesting, providing and receiving international assistance for emergency preparedness and response

The point of contact for international requests for assistance is the Republican Emergency Management and Response Centre of the Ministry of Emergency Situations. The Republic of Belarus has signed international and bilateral agreements, through which mechanisms and mandates for assistance in preparedness and response for an emergency (including a nuclear emergency, as applicable) are implemented. The applicable nuclear conventions include the Convention on Assistance in Case of a Nuclear Accident or Radiological Emergency, and the Convention on Early Notification of a Nuclear Accident. The Assistance Convention sets out an international framework for co-operation among States Parties and with the IAEA to facilitate prompt assistance and support to accident State in the event of nuclear accidents or radiological emergencies.

Belarus has signed 49 bilateral assistance and/or information exchange/notification agreements, including with neighboring countries (the Republic of Latvia, the Republic of Lithuania, the Republic of Poland, the Russian Federation, the Ukraine). These agreements are intended to provide some pre-considered arrangements for prompt assistance in matters (including nuclear) on request by either party to each agreement. Also, the exchange of information is normally addressed in these agreements

Belarus recently registered its national assistance capabilities in the IAEA Response and Assistance Network (RANET), which has been set up by the IAEA in the frame on the Assistance Convention. State Parties can partially fulfil their obligations under the Assistance Convention by registering their capabilities to assist in RANET.

The Belarusian NPP operator has signed an agreement on cooperation with the Regional Crisis Center of the World Association of Nuclear Operators, Moscow Center. The task of the Regional Crisis Center is to provide expert (advisory) and engineering support in case of an accident within the industrial site of a NPP, a general accident at a NPP with a reactor facility (VVER, the type of reactor under construction in Belarus), as well as dissemination among its members of information on events at NPPs connected with safety issues.

Depending on the severity of a situation at a NPP, the agreement specifies providing frequent information on the emergency situation to the Regional Crisis Center by e-mail and, if necessary, is confirmed by phone. The agreement also involves the capability to request expert assistance and/or technical support, which must be provided in full.

### Good practice 4

**Observation:** The government has signed 49 bilateral assistance and exchange of information agreements, including with all neighboring countries, whose purpose is to put in place pre-developed processes for seeking and providing assistance in the event of emergencies, including nuclear events.

**Basis for good practice:** GSR Part 7 paragraph 5.93 states: “Governments and international organizations shall put in place and shall maintain arrangements to respond in a timely manner to a request made by a State, in accordance with established mechanisms

and respective mandates, for assistance in preparedness and response for a nuclear or radiological emergency.”

**Good practice:** The government has established an outstanding number of international agreements whose purpose is, in part, to provide assistance in a nuclear emergency.

### 3.13. Terminating a nuclear or radiological emergency

The NPP instructions describe three modes of operation: Day-to-day activities mode, Emergency preparedness mode, and Emergency situation mode. Paragraph 6.5 of the Onsite Emergency Plan states: “After elimination of the violation and the achievement of normal operating conditions at the NPP, (ERS) Emergency Response Supervisor decides on partial or complete termination of “Internal emergency response plan” and cancellation of the state of Emergency preparedness (“Emergency Situation”).” Response criteria and OILs are described in the Onsite Plan. The termination of the protective actions is determined when the dose rate declines to the criteria established for the particular protective action to be initiated. The Offsite Plan states that termination of that plan is effected after the transfer of the SSES (State Emergency Prevention and Response System) to the daily mode of operation in the manner prescribed by the law. The implementation of the plan in whole or in part can be canceled by the decision of the Commission for Emergency Situations under the Council of Ministers of the Republic of Belarus. Significant changes in the operational situation require a full review. Changes in the composition and procedure for using forces and means, as well as a response mechanism to an emergency situation not envisaged by the plan, require similar reviews. After termination, plans require, for areas with residual radioactive contamination from long-lived radionuclides and where residence and renewal of economic activity is allowed, that radiation monitoring of the environment and population exposure dose assessment be performed on continuous basis.

The mechanism for terminating nuclear or radiological is incorporated to the draft Law “On Radiation Safety”. Decision to terminate a nuclear or radiological emergency is determined by the On-Site and Off-Site Emergency Plans.

#### Recommendation 3

**Observation:** A mechanism for involvement of interested Government and nongovernmental parties in consideration of formal decisions for termination of nuclear or radiological emergencies, and for reviving social and economic activities in affected areas, has not yet been established.

**Basis for recommendation:** GSR Part 7 paragraph 5.97 states: “The termination of a nuclear or radiological emergency shall be based on a formal decision that is made public and shall include prior consultation with interested parties, as appropriate.

5.98. Both radiological consequences and non-radiological consequences shall be considered in deciding on the termination of an emergency as well as in the justification and optimization of further protection strategies as necessary.

5.100. The government shall ensure that, as part of its emergency preparedness, arrangements are in place for the termination of a nuclear or radiological emergency. The arrangements shall take into account that the termination of an emergency might be at different times in different geographical areas. The planning process shall include as appropriate:

(a) The roles and functions of organizations;

### **Recommendation 3**

- (b) Methods of transferring information;
- (c) Means for assessing radiological consequences and non-radiological consequences;
- (d) Conditions, criteria and objectives to be met for enabling the termination of a nuclear or radiological emergency (see Appendix II);
- (e) A review of the hazard assessment and of the emergency arrangements;
- (f) Establishment of national guidelines for the termination of an emergency;
- (g) Arrangements for continued communication with the public, and for monitoring of public opinion and the reaction in the news media;”

**Recommendation:** The Government should establish a formal process for termination of nuclear or radiological emergencies in consultation with all interested Government and nongovernmental parties. The decision-making process should take into consideration radiological and non-radiological consequences, and should include a process for justifying and optimizing decisions. National guidance documents on termination of nuclear emergencies should be prepared containing all the necessary components relevant to termination of emergencies in order to have a common understanding of the termination process among all relevant organizations and interested parties.

#### **3.14. Analysing the nuclear or radiological emergency and the emergency response**

There are legislative provisions for different levels of national organizations to establish investigative commissions in the event of a nuclear accident. The Resolution of the MES no. 80 establishes the framework for accident investigations. A unified all-hazard approach under MES provides opportunities to analyse other man-made accidents and the relevant decision-making processes involved. This experience from other type of accidents can be used also in the context of analysing nuclear emergency exercises.

## **4. DETAILED FINDINGS ON REQUIREMENTS FOR INFRASTRUCTURE**

### **4.1. Authorities for emergency preparedness and response**

As discussed further in Sections 2.1, 2.2, and 3.1 of this report, numerous government entities are provided some level of authority to carry out tasks related to emergency preparedness and response. The overarching authorities regarding emergency planning and response are defined in the Offsite Emergency Plan, approved by the Council of Ministers on March 22, 2018. This document is further based on the Law of the Republic of Belarus dated 30 July 2008 "On the Use of Atomic Energy." The issuing document states that activities of the plan are subject to unconditional implementation. It further states that “Plans to protect the population and territories from emergency situations of natural and man-kind nature of the sectoral, territorial and local levels, as well as object plans for preventing and eliminating emergencies cannot contradict the measures envisaged in the plan, they should be detailed and supplemented taking into account the specific nature of the relevant administrative territorial units and economic sectors.” The detail and supplementation envisioned in the Plan are in some cases implemented in documents variously titled as “plans” and “instructions,” typically issued by government ministries. Some ministries with key responsibilities in emergency response have not yet fully

implemented instructions to provide step-by-step direction to key staff with duties important to emergency response. This situation is addressed in Section 4.4 of this report.

The Offsite Emergency Plan provides descriptions of authorities for the entities involved in decision-making related to a nuclear emergency. Some authorities are vague. For example, multiple entities are stated to “participate” in various activities. The nature or extent of the participation is not clearly defined. This topic is further addressed in Section 2.1

The Offsite Emergency Plan defines authority for communicating with the public in an emergency via local mass media as resting with the local Executive Committees. Other entities are indicated as participating in communication with the public. For example, the Ministry of the Interior assists “republican bodies of state administration” in communicating with the public. This communication is at a local level (for instance through special vehicles with loudspeakers etc.).

The onsite organization is staffed and organized such that a staff member (or members) is assigned to be in charge and responsible for onsite emergency response actions and notifications. The assigned person(s) are not assigned other duties that would interfere with prompt performance of their emergency response duties.

<b>Recommendation 4</b>
<b>Observation:</b> Some authorities and responsibilities important to emergency response and within the scope of the Offsite Emergency Plan are not clearly defined (e.g., limited definition for what “participation” means for some participating organizations).
<b>Basis for recommendation:</b> GSR Part 7 paragraph 6.3 states: “All of the functions specified in Section 5 shall be assigned to the appropriate operating organizations and to local, regional and national response organizations. The involvement of all these organizations in the performance of these functions, or in support of their performance, shall be documented. The documentation shall specify their roles, functions, authorities and responsibilities in emergency preparedness and response and shall assent to the authorities, roles and responsibilities of other response organizations. Conflicting or potentially conflicting and overlapping roles and responsibilities shall be identified and conflicts shall be resolved at the preparedness stage through the national coordinating mechanism (see para. 4.10).”
<b>Recommendation:</b> The government should review the Offsite Emergency Plan and revise it as appropriate to clearly define the authorities of all key government entities involved in emergency preparedness and response.

#### **4.2. Organization and staffing for emergency preparedness and response**

The Government has ensured that overall organization for preparedness and response for a nuclear or radiological emergency is clearly specified and staffed with sufficient personnel who are qualified and are assessed for their fitness for their intended duties.

Interfaces between response organizations are defined but not completely clear to all involved. Different explanations of the interfaces among the managing and coordinating organizations were provided to the EPREV team.

The positions responsible within each operating organization and response organization for performance of the response functions have been assigned in emergency plans, instructions and so-called algorithms.

The MES, Ministry of Education, and Ministry of Energy are responsible for staffing. This means they are responsible for recruitment, training, and retraining, as well as for maintenance of appropriate qualifications, for a sufficient number of staff to support prolonged 24/7 operation during a nuclear emergency. The legal basis for this is the resolution of the Cabinet of the Republic of Belarus no. 250 of 28 March 2016, Resolution of the Ministry of Emergency Situations no. 158 of 27 June 2016, Resolution of the Ministry of Education no.106-a of 24 August 2012, and the Law of the Republic of Belarus no. 183-Z of 27 November 2006.

Gosatomnadzor, in oversight of the NPP operator, is responsible for regulatory control of preparedness of the NPP staff to respond to an emergency; and evaluates the effectiveness of training, retraining and maintenance of appropriate qualifications of the NPP staff. During October 3 and 4 2018, an exercise was conducted and evaluated at the NPP. The general impression of Gosatomnadzor was that it was effective, taking into consideration that there is always room for improvement.

The minimum staffing is defined in an order of MES that results in staffing tables and force plans for relevant state bodies and organizations. An addendum to this order addresses staffing for chemical and nuclear emergencies. Required timing to attaining specified staffing levels is defined and tested. A shift system is in place at the NPP and for the emergency response staff of the Government, taking into account multi-unit emergencies at the NPP. For the staff of the NPP this is a 3-shift system.

Although the district level is the decision-making authority regarding public protective actions on local level this analysis is performed by the local operational control center.

<b>Suggestion 9</b>
<b>Observation:</b> There is no clear description of some interfaces among the organizations participating in response to a nuclear emergency.
<b>Basis for suggestion:</b> GSR Part 7 paragraph 6.7 states: “The organizational relationships for preparedness and response for a nuclear or radiological emergency and interfaces between all the response organizations shall be established.”
<b>Suggestion:</b> The government should consider reviewing the Offsite Emergency Plan and revising it as appropriate to clearly define the interfaces among all key government entities involved in emergency preparedness and response.

### **4.3. Coordination of emergency preparedness and response**

The coordination of a large number of competent organizations is documented in a number of documents and on multiple levels for the area of emergency preparedness and also for an emergency response. The Offsite Plan is the basis for this coordination. There are two parallel ways of notification and communications in the system, starting from the NPP via district, region, up to the Republican level. Activation can work from the bottom up and vice versa. Procedures are generally in place for public protection. Section 4.4 of this report further addresses procedures.

There are also many bilateral and multilateral communication and assistance agreements in place with neighbouring states. MES communicates with neighbouring states in case of emergencies. Data are shared, measures are mutually coordinated, and in general an intensive cooperation exists in this area. Coordination with neighbouring countries is addressed in section 3.12 of this report.

#### 4.4. Plans and procedures for emergency response

As discussed in Sections 2.2 and 3.1 of this report, the SSES based on all-hazards approach from natural and man-made emergency situations is established by the Ministry of Emergency Situations. This approach includes plans for protection from radiological accidents. The operator has established Onsite Emergency Plan which is approved after agreement with MES, the Ministry of Natural Resources and Environmental Protection, the Ministry of Health, the Ministry of Interior, and the State Security Committee. This plan will be revised and amended every 3 years. The Offsite Plan is prepared by Ministry of Emergency Situations and approved by the relevant authorities. The security plan of the NPP site is established and is coordinated with the Onsite Emergency Response Plan. The Ministry of Internal Affairs is responsible for the security plan. The Ministry of Health has established plans for dosage and distribution of the KI thyroid blocking agent.

Although there are substantial plans for emergency preparedness and response at all levels, establishment of all the supporting procedures to the plans is not complete. Those procedures that are in use are developed in the form of step-by-step instructions and algorithms. However, many available instructions are mainly applicable to conventional (non-nuclear) emergencies. Onsite procedures relevant to NPP operation are available and were tested during the demonstration in exercise of the Onsite Plan.

<b>Recommendation 5</b>
<b>Observation:</b> The supporting instructions/procedures for implementation of plans relevant to nuclear or radiological emergencies are not available for all organizations and functions important to response to such emergencies.
<b>Basis for recommendation:</b> GSR Part 7 paragraph 6.20 states: “The operating organization and response organizations shall develop the necessary procedures and analytical tools to be able to perform the functions specified in Section 5 for the goals of emergency response to be achieved and for the emergency response to be effective.”
<b>Recommendation:</b> The Government should develop a complete set of step-by-step instructions/procedures for the implementation of the emergency plans.

#### 4.5. Logistical support and facilities for emergency response

Belarus has in place a system of reserves of material resources for the liquidation of emergency situations, which includes: Republican reserve - the reserve of the Government of the Republic of Belarus; branch reserves - reserves of the Republican government bodies, and state organizations; regional and local reserves - reserves of local executive and administrative

bodies; and facility reserves - reserves of local and operating organizations. Facility, regional and local reserves of material resources are used to liquidate the consequences of local and facility emergencies.

Reserves of material resources for the liquidation of emergencies include reserves of food and raw materials, medical devices and medicines, building materials, personal protective equipment and other material resources necessary for the implementation of measures to eliminate emergencies and provide life support for the affected population. If reserves are insufficient, decisions on the use of sectoral and Republican reserves are made by emergency commissions of relevant level.

All equipment, materials, communication systems, technical means, and information for population and territory protection of the Republic of Belarus from natural and man-made emergency situations, and plans of corresponding levels (regional, local, facility, branch), are specified in planning documents.

To involve necessary forces and means of emergency response, plans of involvement of forces and resources at the regional and local levels were developed (in each region and each district).

In addition, in accordance with the Budget Code of Belarus, it is envisaged that reserve funds of the Council of Ministers of Belarus and local executive and administrative bodies will be expended to prevent and eliminate the consequences of emergency situations.

The Information Management System which unites REMRC, information management and operations control centers of different levels and organizations are equipped with relevant telecommunication equipment and connected with direct communication lines. Centers are equipped with uninterruptable power supplies and reserve diesel generators in order to provide operation without the need for offsite electricity supplies.

At all levels the Analytical Information Centers are equipped with the necessary equipment, communication and resources.

The Belarus NPP constructed a special Emergency Response Centre in a shelter with habitability provisions in severe accidents for 100 people and shelter capabilities for 1200 people in a separate shelter next to unit 1, and for 600 people next to unit 2. Another shelter exists outside but near the NPP, for the fire brigade. Capabilities exist for 5-day sheltering.

<b>Good practice 5</b>
<b>Observation:</b> Extensive provisions for onsite sheltering capabilities are in place.
<b>Basis for good practice:</b> GSR Part 7 paragraph 6.24 states: “Emergency response facilities or locations to support an emergency response under the full range of postulated hazardous conditions shall be designated ....”.
<b>Good practice:</b> Onsite shelters provided for large numbers of NPP emergency workers will enhance the operator’s ability to implement mitigatory and response actions onsite.

#### **4.6. Training, drills and exercises for emergency preparedness and response**

Training of the NPP staff and other response units is organized regularly, and there are requirements for the training and qualifications for various roles for staff. A MES detachment located in the vicinity of the NPP site has a special unit for reconnaissance of radioactivity. This



unit is trained every three months in a special training facility in Minsk, and field training is organized in the area where Chernobyl fallout has been severe.

Belarus maintains a separate training & educational institute. This organization is part of MES, and it provides training and qualifications for the MES staff. Quality management for the training is evaluated by 3<sup>rd</sup> party evaluators. The training facility is actively engaged in international cooperation, and it has a large outdoor training field for different kinds of exercise scenarios.

In 2017 a nuclear emergency exercise was organized, in which more than 6000 persons and a large amount of emergency equipment took part. In this exercise a hypothetical transboundary emergency taking place in Russia also affected Belarus. During this exercise several drills were organized for those organizations designated to respond to potential radiological and nuclear accidents associated with the Belarus NPP. An evacuation drill of the 3-km zone was also organized, involving temporary accommodation of evacuees and practice on personal decontamination.

An additional exercise was held in October 2018 during which the Belorussian NPP practiced their onsite arrangements for an emergency.

Based on the experience from the 2017 emergency response exercise, the final draft of the Offsite plan was developed. These kinds of exercises are particularly important at this stage to test the Offsite Emergency Plan and interactions among all involved response organizations. For any exercise the appropriate and pre-established evaluation mechanism is an essential part to identify any improvements. Appropriate corrective and improvement actions are determined based on the evaluation of the exercises. These actions need to take into account the time needed for their execution and for possible training for the staff on these improvements. Section .2.2 of this report further discusses exercises.

<b>Good practice 6</b>
<b>Observation:</b> The International Rescuers Training Centre provides high-quality training for responders involved in different types of emergencies (e.g. firefighting, rescue, etc.)
<b>Basis for good practice:</b> GSR Part 7 paragraph 6.28 states: “The operating organization and response organizations shall identify the knowledge, skills and abilities necessary to perform the functions specified in Section 5. The operating organization and response organizations shall make arrangements for the selection of personnel and for training to ensure that the personnel selected have the requisite knowledge, skills and abilities to perform their assigned response functions. The arrangements shall include arrangements for continuing refresher training on an appropriate schedule and arrangements for ensuring that personnel assigned to positions with responsibilities in an emergency response undergo the specified training.”
<b>Good practice:</b> The International Training Centre is highly valuable to support realistic training at the national and international level for responders to nuclear emergencies, as well as for response to other types of emergencies.

#### **4.7. Quality management programme for emergency preparedness and response**

A quality management program exists for activities related to training and education for emergency preparedness and response. To ensure the quality of staff, the University of Civil

Protection responsible for educating and training Emergency Response staff needs a license from the Ministry of Education. The next level in ensuring quality is ISO-9001 (quality management) certification of the services. Internal and external auditing is included in this system. Arrangements for tests and calibrations are defined by the Law of the Republic of Belarus no. 3848-XII of 05 September 1995. Tests and calibration requirements are established by the State Committee on Standardization. Expert institutes like Scientific Practical Centre of Hygiene, the Belarusian State Institute of Metrology have quality certifications. The quality management system for the Scientific Technical Centre for Nuclear and Radiological Safety is under development. According to the documents provided they perform tests of means of measurement used during radiation control together with the Scientific Research Institute of Fire Safety and Emergencies. From documents the EPREV team verified that arrangements for test and calibrations of means are defined by the law of the Republic of Belarus no. 3848-XII of 05.09.1995

The National System for confirmation of compliance ensures the quality of equipment, systems and plans. However, some parts of the emergency preparedness and response system (supplies, equipment, communication systems, procedures and facilities) are not part of the quality program.

This EPREV mission is the first independent appraisal of the complete EPR quality assurance system.

The Offsite Emergency Plan will be reviewed and updated yearly. Arrangements are made to review and update plans and incorporate lessons learned.

The operating and response organization has made arrangements to maintain some records associated with nuclear emergency preparedness and response activities.

Arrangements are made to review and evaluate exercises to achieve continuous improvement.

<b>Suggestion 10</b>
<b>Observation:</b> Supplies, equipment, communication systems, procedures and facilities are not fully included in the quality management program for emergency preparedness and response.
<b>Basis for suggestion:</b> GSR Part 7 paragraph 6.34 states: “The operating organization, as part of its management system (see Ref. [14]), and response organizations, as part of their emergency management system, shall establish a programme to ensure the availability and reliability of all supplies, equipment, communication systems and facilities, plans, procedures and other arrangements necessary to perform functions in a nuclear or radiological emergency as specified in Section 5 (see para. 6.22). The programme shall include arrangements for inventories, resupply, tests and calibrations, to ensure that these are continuously available and are functional for use in a nuclear or radiological emergency.”
<b>Suggestion:</b> The Government should consider ensuring that response organizations have all EPR arrangements covered by the existing quality management program.

### Appendix I: Mission Team Composition

No.	Name and LAST NAME	Position	Organization, Country
1.	Marina Nizamska	EPREV Team Leader	Bulgaria
2.	Ramon de la Vega	EPREV Team Coordinator	IAEA
3.	Phillip Vilar Welter	EPREV Deputy Team Coordinator	IAEA
4.	Mareille Konijn	EPREV Team Member	Netherlands
5.	Jukka Kupila	EPREV Team Member	Finland
6.	Eduard Metke	EPREV Team Member	Slovakia
7.	Bushra Nasim	EPREV Team Member	Pakistan
8.	Michael Scott	EPREV Team Member	USA

## Appendix II: Mission Schedule

### IAEA EPREV MISSION TO BELARUS 8-17 OCTOBER 2018 PROGRAMME

Day	Team A	Team B	
Monday	am	<ul style="list-style-type: none"> <li>▪ Introductions</li> <li>▪ Presentation by Host Country overall national framework for EPR</li> <li>▪ Presentation by Host Country of self-assessment</li> <li>▪ Presentation by IAEA of EPREV objectives and process</li> </ul>	
	pm	Meeting with National Counterparts (Republican Emergency Management and Response Centre): <ul style="list-style-type: none"> <li>▪ Regulator</li> <li>▪ State System</li> <li>▪ Dept of Rescue Services and Liquidation of Emergency Situations</li> <li>▪ «Republican Center for Emergency Management and Response of the Ministry of Emergency Situations of the Republic of Belarus» (Information Centre, Control Point)</li> </ul>	
Team splits Tuesday	am	1 <sup>st</sup> part of the team <ul style="list-style-type: none"> <li>▪ Meeting with Regulator</li> </ul>	2 <sup>nd</sup> part of the team (Depart to Ostrovets at 7 a.m.) <ul style="list-style-type: none"> <li>▪ Information Centre (Control Point) in Ostrovets</li> </ul>
	pm	<ul style="list-style-type: none"> <li>▪ Meeting with Regulator</li> <li>▪ Visit to the Information and Analytical Center of the Department for nuclear and radiation safety of the Ministry for emergency situations of the Republic of Belarus (Gosatomnadzor)</li> </ul>	<ul style="list-style-type: none"> <li>▪ Ostrovets Regional Centre (district unit) for emergency situations of the Grodno regional department of the Ministry for Emergency Situations of the Republic of Belarus</li> </ul> The following representatives are planned: <ul style="list-style-type: none"> <li>• the Deputy Head of the Grodno Oblast Executive Committee (Head of regional emergency commission);</li> <li>• the First Deputy Head, Head of the Department of Agriculture and Food;</li> <li>• representative from the Department of Internal Affairs of the Ostrovets District Executive Committee</li> </ul>
Wednesday	am	<ul style="list-style-type: none"> <li>▪ Ministry of Health (Visit to Analytical Centre)</li> <li>▪ The republican unitary enterprise «Scientific practical centre of hygiene» Including laboratory</li> </ul>	<ul style="list-style-type: none"> <li>▪ On-Site BNPP Emergency/Crisis Centre</li> <li>▪ BNPP Fire Station (Fire rescue unit)</li> </ul>
	pm	<ul style="list-style-type: none"> <li>▪ «Center for surgery, nranspantology and hematology»</li> </ul>	
Thursday	am	<ul style="list-style-type: none"> <li>▪ Ministry of Environment</li> <li>▪ Visit to the Republican Center for Hydrometeorology, Radiation Control and Environmental Monitoring</li> </ul>	<ul style="list-style-type: none"> <li>▪ Ostrovets Central District Hospital (BNPP region)</li> </ul> The participation of the Head of the Health Care Department of the Grodno Oblast Executive Committee is planned
	pm	<ul style="list-style-type: none"> <li>▪ Ministry of Energy-</li> </ul>	Travel back to Minsk

Day		Team A	Team B
		<ul style="list-style-type: none"> <li>▪ Visit to Crisis centre of the Ministry for energy</li> </ul>	
Friday	am	<ul style="list-style-type: none"> <li>▪ Meeting to clarify outstanding issues identified in previous visits and meetings</li> </ul>	
	pm	<ul style="list-style-type: none"> <li>▪ Field visit to Branch “Institute for Retraining and Professional Development” of the University of Civil Protection of the Ministry for Emergency Situations of the Republic of Belarus Search and Rescue team</li> </ul>	
Saturday		Report writing by EPREV team	
Sunday		Report writing and/or time off for the team Draft report submitted to counterpart at 16:00	
Monday	am	Executive summary Time off for the team	
	pm	Comments sent by Liaison Officer in track changes mode to EPREV coordinator (16:00) EPREV team reviews the comments	
Tuesday		Meeting to clarify issues as appropriate Report finalization	
Wednesday	am	Exit meeting	

### Appendix III: List of Attendees to EPREV Mission Meetings

#### LIST of participants

##### Ministry for Emergency Situations

- Vashchenko Vladimir – Minister for Emergency Situations
- Dolgolevets Anatolij – Deputy Minister for Emergency Situations
- Jurzhits Andrej – Head of the Supreme Department of the State System for Emergency Response
- Gaishun Igor – First Deputy Head of the Supreme Department of the State System for Emergency Response
- Ioffe Aleksej – First Deputy Head of the Department of Rescue Services and Liquidation of Emergencies
- Uss Anna – Deputy Head of the International Cooperation Department
- Shotskaya Svetlana – Head of the sector of international projects at the international cooperation department
- Lugovskaya Olga – Head of the Nuclear and Radiation Safety Department (Gosatomnadzor)
- Dedul Leonid – First Deputy Head of the Nuclear and Radiation Safety Department
- Ivanov Artiom – Head of the Republican Center of Emergency Management and Response
- Konovalchik Aleksandr – First Deputy Head of the Republican Center of Emergency Management and Response
- Demianchik Victoria – Deputy Head of the Department of Monitoring and Forecasting of Emergencies of the Republican Center of Emergency Management and Response
- Rybak Vitalij – Head of the Ostrovets District Department

##### Ministry of health

- Borovko Igor – Senior Specialist of the Department of Medical Protection in Emergencies
- Nikolaenko Elena – Head of the Laboratory of Radiation Protection of RUE “Scientific Center for Hygiene”
- Mikhalevich Alexandr – Medical Adviser of the Department of Radiation Hygiene and Safety of the State Institution «Republican Center of Hygiene, Epidemiology and Public Health»
- Mozheiko Vladimir – Senior Doctor (the Director) of Ostrovets District Hospital

### **Ministry of Natural Resources and Environment Protection**

- Zdanevich Nadezhda – Consultant of the Department of State Ecological Expertise
- Labaznov Roman – Head of State Institution “Republican Center for Hydrometeorology and Radioactive Contamination and Environmental control»

### **Ministry of Energy**

- Kisel Mikhail – Deputy head of the Director General on Regime and Physical Protection of State Enterprise «Belarusian NPP»
- Koltan Gennadij – Head of the Department of Civil Defense and Liquidation of Emergencies of State Enterprise «Belarusian NPP»

### **Ministry of Foreign Affairs**

- Shumskij Vitalij – Deputy Head of the Main Department for Multilateral Diplomacy
- Fedorovich Tatiana – Senior Advisor to the Main Department for Multilateral Diplomacy

### **Grodno Regional Executive Committee**

- Deshko Vladimir – First Deputy Chairman

### **Ostrovets District Executive Committee**

- Shaludin Igor – Chairman
- Sachko Ruslan – First Deputy Chairman
- Svillo Viktor – Deputy Chairman
- Misjuk Dmitrij – Head of the District Department of Internal Affairs

## References

- [1] FOOD AND AGRICULTURE ORGANIZATION OF THE UNITED NATIONS, INTERNATIONAL ATOMIC ENERGY AGENCY, INTERNATIONAL CIVIL AVIATION ORGANIZATION, INTERNATIONAL LABOUR ORGANIZATION, INTERNATIONAL MARITIME ORGANIZATION, INTERNATIONAL CRIMINAL POLICE ORGANIZATION, OECD NUCLEAR ENERGY AGENCY, PAN AMERICAN HEALTH ORGANIZATION, PREPARATORY COMMISSION FOR THE COMPREHENSIVE NUCLEAR-TEST-BAN TREATY ORGANIZATION, UNITED NATIONS ENVIRONMENT PROGRAMME, UNITED NATIONS OFFICE FOR THE COORDINATION OF HUMANITARIAN AFFAIRS, WORLD HEALTH ORGANIZATION, WORLD METEOROLOGICAL ORGANIZATION, Preparedness and Response for a Nuclear or Radiological Emergency, IAEA Safety Standards Series, General Safety Requirements No. GSR Part 7, IAEA, Vienna (2015).
- [2] INTERNATIONAL ATOMIC ENERGY AGENCY, Criteria for Use in Preparedness and Response for a Nuclear or Radiological Emergency, GSG-2, IAEA, Vienna (2011).
- [3] INTERNATIONAL ATOMIC ENERGY AGENCY, Arrangements for Preparedness for a Nuclear or Radiological Emergency, GS-G-2.1, IAEA, Vienna (2007).
- [4] INTERNATIONAL ATOMIC ENERGY AGENCY, Arrangements for the Termination of a Nuclear or Radiological Emergency, GSG-11, Vienna (2018).



**Acronyms**  
(Alphabetic order)

AMP	Automatic Measurement Point
ARMS	Automatic Radiation Monitoring System
ASCA	Automated System of Centralized Alert of population, enterprises and state authorities
CES	Commission for Emergency Situations
ESTC - BNAS	Expert Scientific and Technical Centre of the National Academy of Sciences of Belarus
MES	Ministry of Emergency Situations
MH	Ministry of Health
MNREP	Ministry of Natural Resources and Environmental Protection
REMRC	Republican Emergency Management and Response Centre
RSRT	Republican Special Response Team
SCC - MH	Situational Crisis Centre – MH
SMFE	System of Monitoring and Forecasting of Natural and Man-Made Emergencies
SSES	System for Prevention and Elimination of Emergency Situations
TCP	Technical Code of Practice