



**INTEGRATED
REGULATORY
REVIEW SERVICE (IRRS)
FOLLOW-UP MISSION
TO
BELARUS**

Minsk, Belarus

5 to 13 December 2021

DEPARTMENT OF NUCLEAR SAFETY AND SECURITY



Integrated
Regulatory
Review Service

IRRS



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Mission dates:	<i>5 to 13 December 2021</i>
Regulatory body visited:	<i>Gosatomnadzor</i>
Location:	<i>Minsk, Belarus</i>
Regulated facilities and activities in the mission scope:	<i>Nuclear Power Plant, Research Nuclear Facilities, Radioactive Waste Management Facilities, Radiation Sources, Decommissioning, Emergency Preparedness and Response, Control of Medical Exposure, Occupational Radiation Protection, Control of Radioactive Discharges, Materials for Clearance.</i>
Organized by:	<i>International Atomic Energy Agency (IAEA)</i>

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The number of recommendations, suggestions and good practices is in no way a measure of the status of the regulatory body. Comparisons of such numbers between IRRS reports from different countries should not be attempted.

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EXECUTIVE SUMMARY

At the request of the Government of Belarus, an international team of senior safety experts met with representatives of Gosatomnadzor, the Ministry of Emergency Situations, the Ministry of Health and the Ministry of Natural Resources and Environmental Protection (Belhydromet) from 5 December to 13 December 2021 to conduct an Integrated Regulatory Review Service (IRRS) follow-up mission. The mission took place at the Gosatomnadzor Headquarters in Minsk. The purpose of the IRRS follow-up mission was to review Belarus' progress against the recommendations and suggestions identified in the initial IRRS mission, which was carried out in October 2016. The scope of the IRRS follow-up mission remained the same as the scope of the initial mission in 2016, namely the regulatory framework for all nuclear and radiation facilities and activities in Belarus. The IRRS team consisted of eight senior nuclear safety experts from eight IAEA Member States and four IAEA staff members.

The IRRS team carried out a review of the progress made on each recommendation and suggestion that was documented in the 2016 IRRS mission support. These recommendations and suggestions cover the following areas: responsibilities and functions of the government; the global safety regime; responsibilities and functions of the regulatory body; the management system of the regulatory body; the activities of the regulatory body, including authorization, review and assessment, inspection, enforcement and development and content of regulations and guides; emergency preparedness and response; control of medical exposure; occupational radiation protection; and control of radioactive discharges and materials for clearance. The IRRS mission also included a policy discussion on the development strategy for the system of technical support organizations in the field of nuclear and radiation safety.

To assess the progress made in addressing the recommendations and suggestions from the 2016 mission, the IRRS team conducted a series of interviews and discussions with the Deputy Prime Minister of the Republic of Belarus; the Minister of Energy; the Deputy Ministers of the Ministry of Emergency Situations and Ministry of Health; staff of the Ministry for Emergency Situations, Gosatomnadzor, the Ministry of Health and the Ministry of Natural Resources and Environmental Protection (Belhydromet). On the site visit to the Belarusian nuclear power plant, the IRRS team also observed an inspection conducted by Gosatomnadzor and held discussions with the management of the Belarusian nuclear power plant.

The IRRS team concluded that Belarus has been responsive to the recommendations and suggestions made in 2016 and continues to place appropriate focus on implementing a framework that provides for effective nuclear safety and radiation safety for workers, patients, the public and the environment. The IRRS team concluded that 22 out of 25 recommendations and 18 out of 20 suggestions identified in the 2016 mission have been closed. Two new suggestions were formulated on the basis of the transition of the Belarusian nuclear power plant from the commissioning to operational phase.

The IRRS team noted that Belarus has shown a strong commitment to nuclear and radiation safety. Progress made since 2016 includes the following:

- A national policy and strategy for safety now addresses the IAEA Fundamental Safety Objective and Fundamental Safety Principles through application of a graded approach.
- Conformity of regulations with IAEA safety standards has been improved.
- Roles and responsibilities between the Ministry of Emergency Situations and the Ministry of Health have been clarified for common areas.
- Gosatomnadzor developed and implemented an integrated management system.

- Gosatomnadzor developed and implemented the framework for emergency preparedness and response.
- Gosatomnadzor took measures to develop the competence of its technical staff.
- A Technical Support Organization system was created to provide comprehensive technical support for regulatory activities.

Belarus is encouraged to continue its efforts to:

- Implement a graded approach to inspection and enforcement through the development of a risk-informed, plant-specific decision-making approach;
- Align regulations with the IAEA safety standards, including requiring the participation of medical physicists in the optimization of medical exposures;
- Develop the technical competence of Gosatomnadzor staff to conduct sustainable and effective regulatory activities during the operational phase of the Belarusian nuclear power plant, specifically in conducting inspections and in managing and assessing the work of technical support organizations.

The IRRS team also identified three areas of good performance:

- The resourcefulness of Gosatomnadzor in obtaining thorough training and development for its inspectors throughout the construction and commissioning phases of the nuclear power plant;
- The initiative of Gosatomnadzor to develop challenging scenarios for emergency exercises at the nuclear power plant;
- The progress made in developing the regulatory framework for preparedness and response for a nuclear or radiological emergency over a very short time.

The IRRS team received full cooperation from all parties in an open and transparent manner throughout the mission. The IRRS team acknowledges all the support received and the excellent hospitality and assistance from Gosatomnadzor and all other parties involved in the follow-up mission. The IRRS team concluded that Belarus has considerably improved its regulatory framework for safety since the last mission and demonstrated commitment to sustain nuclear and radiation safety.

The IRRS team findings are summarized in Appendix V.

A joint IAEA and Gosatomnadzor press conference took place at the end of the mission. An IAEA press release was issued at the end of the exit meeting.

I. INTRODUCTION

At the request of the Government of Belarus, an international team of senior safety experts met representatives from the Government, Gosatomnadzor, the Ministry of Emergency Situations (MES), the Ministry of Health (MOH) and the Ministry of Natural Resources and Environmental Protection (Belhydromet) of the Republic of Belarus from 5 to 13 December 2021 to conduct an Integrated Regulatory Review Service (IRRS) follow-up mission.

The purpose of the follow-up mission is to review the implementation of the recommendations and suggestions given to the Government of Belarus during the IRRS mission in October 2016. The follow-up mission was formally requested by the Government of Belarus in December 2020. A virtual preparatory meeting was conducted on 13-14 July 2021 to discuss the purpose, objectives and detailed preparations of the review mission in connection with regulated facilities and activities in Belarus and their safety aspects.

In addition, one policy issue was discussed, on the development strategy of the system of scientific and technical support organizations in the field of nuclear and radiation safety.

The IRRS team consisted of eight senior regulatory experts from seven IAEA Member States, and four IAEA staff members. The IRRS team carried out the review in the areas covered by the initial mission in 2016 and observed a regulatory inspection at Belarus Nuclear Power Plant Unit-1.

The follow-up self-assessment report and supporting documentation were provided to the IRRS team as advance reference material (ARM) for the mission. During the mission, the IRRS team performed a systematic review of all topics by reviewing the advance reference material and additional information, and by conducting interviews with management and staff of Gosatomnadzor and the MOH.

All through the mission, the IRRS team received excellent support and cooperation from the Belarusian authorities.

II. OBJECTIVE AND SCOPE

The purpose of this Integrated Regulatory Review Service (IRRS) follow-up mission was to conduct a review of the implementation of the recommendations and suggestions given to the Government of Belarus during the IRRS mission in 2016 and to exchange information and experience in the areas covered by the IRRS. The IRRS follow-up review scope included all facilities and activities regulated by Gosatomnadzor and the MOH. The review was carried out by a comparison of existing arrangements against the IAEA safety standards.

It is expected that the IRRS follow-up mission will facilitate regulatory improvements in Belarus and other Member States from the knowledge gained and experiences shared between Gosatomnadzor and the MoH and IRRS reviewers and through the evaluation of the effectiveness of the Belarusian regulatory framework for radiation and nuclear safety.

III. BASIS FOR REVIEW

A) Preparatory work and IAEA Review Team

At the request of the Government of Belarus, a virtual preparatory meeting for the Integrated Regulatory Review Service (IRRS) was conducted from 13 to 14 July 2021. The preparatory meeting was attended by the Team Leader Mr Georg Schwarz, Deputy Team Leader Ms Ritva Bly, IAEA Coordinator Mr Zia Hussain Shah and IAEA Deputy Coordinator Mr Jovica Bosnjak and the representatives of Gosatomnadzor.

The IRRS follow-up mission preparatory team had discussions regarding regulatory programmes and policy issues with the senior management of Gosatomnadzor represented by Ms Olga Lugovskaya, the Head of Gosatomnadzor, other senior management and staff. The discussions resulted in agreement that the regulatory functions covering the following facilities and activities were to be reviewed by the IRRS follow-up mission:

- Nuclear power plants;
- Research reactors;
- Waste management facilities;
- Decommissioning;
- Radiation sources facilities and activities;
- Emergency preparedness and response;
- Control of medical exposure;
- Occupational radiation protection;
- Public and environmental exposure control.

Representatives of Gosatomnadzor made presentations on the national context for nuclear and radiation regulatory framework and the progress made since the initial mission in October 2016.

IAEA staff presented the process and methodology of conducting an IRRS follow-up mission. This was followed by a discussion on the tentative work plan for the implementation of the follow-up mission in Minsk in December 2021.

The proposed IRRS team composition (senior regulators from Member States to be involved in the review) was discussed and the size of the IRRS follow-up team was tentatively confirmed. Logistics including meeting and workspace, counterparts and Liaison Officer, proposed site visit, lodging and transport arrangements were also addressed.

The Liaison Officer for the preparatory meeting and the IRRS follow-up mission was Ms Natalia Danilenko, assisted by Ms Tatiana Bosenko.

Gosatomnadzor provided the IAEA (and the review team) with the advance reference material for the review in October 2021 and additional materials. In preparation for the mission, the IRRS team members conducted a review of the advance reference material and provided their initial review comments to the IRRS Team Coordinator and Team Leader prior to the follow-up mission.

B) References for the review

The most relevant IAEA safety standards and the Code of Conduct on the Safety and Security of Radioactive Sources were used as review criteria. A more complete list of IAEA publications used as references for this mission is given in Appendix VII.

C) Conduct of the review

The initial IRRS follow-up team meeting was conducted on 5 December 2021 in Minsk, led by the IRRS Team Leader and the IAEA Team Coordinator, to discuss the general overview, the focus areas and specific issues of the mission, to clarify the basis for the review and the background, context and objectives of the IRRS and to agree on the methodology for the review and the evaluation among all reviewers. They also presented the agenda for the mission.

In addition, a refresher training was provided to the IRRS team to ensure a common understanding of the IRRS process, methodology and report preparation. The reviewers also reported their first impressions of the advance reference material. In accordance with the IRRS guidelines, the Liaison Officer and Deputy Liaison Officers were present at the initial IRRS team meeting, and presented logistical arrangements planned for the mission.

The IRRS entrance meeting was held on Monday, 6 December, with the participation of management and staff of Belarusian authorities. Opening remarks were made by Mr Anatoly Dolgolevets, Deputy Minister for Emergency Situations of the Republic of Belarus, Ms. Olga Lugovskaya, Head of Gosatomnadzor, Mr Georg Schwarz, IRRS Team Leader and Mr Zia Shah, IRRS IAEA Coordinator. Ms. Olga Lugovskaya gave an overview of the current status of the national context, regulated facilities and activities, legal and regulatory safety infrastructure, and the main changes that have happened since the IRRS initial mission in 2016.

During the follow-up mission, a review was conducted for all the mission scope areas with the objective of reviewing the Gosatomnadzor and MOH's response to the recommendations and suggestions identified during the initial mission. The review was conducted through meetings, interviews and discussions, a visit to a nuclear power plant and direct observations regarding the national practices and activities. At the request of Gosatomnadzor the IRRS mission included discussions on policy issues regarding TSO Development Strategy for Regulatory Body.

The IRRS team performed its activities based on the mission programme given in Appendix II.

The IRRS exit meeting was held on Monday, 13 December 2021. The opening remarks at the exit meeting were presented by Mr Anatoly Dolgolevets, Deputy Minister for Emergency Situations of the Republic of Belarus and were followed by the presentation of the results of the mission by the IRRS Team Leader Mr Georg Schwarz, and the feedback of Ms Olga Lugovskaya, Head of Gosatomnadzor. Closing remarks were made by Ms Anna Bradford, Director of Division of Nuclear Installation Safety at IAEA.

A joint IAEA and Gosatomnadzor press conference took place at the end of the mission. An IAEA press release was issued at the end of the exit meeting.

1. RESPONSIBILITIES AND FUNCTIONS OF THE GOVERNMENT

1.1. NATIONAL POLICY AND STRATEGY FOR SAFETY

2016 MISSION RECOMMENDATIONS, SUGGESTIONS	
<p>Observation: <i>There is no distinct national policy and strategy for safety that addresses the fundamental safety objective and fundamental safety principles. Development of a national policy and strategy is part of the action plan.</i></p>	
(1)	<p>BASIS: GSR Part 1 (Rev.1) Requirement 1 states that “<i>The government shall establish a national policy and strategy for safety, the implementation of which shall be subject to a graded approach... to achieve the fundamental safety objective and to apply the fundamental safety principles established in the Safety Fundamentals.</i>”</p>
R1	<p>Recommendation: The Government should document its national policy and establish a strategy for radiation and nuclear safety that addresses the mechanisms to achieve the Fundamental Safety Objective and to apply the Fundamental Safety Principles in accordance with a graded approach.</p>

Changes since the initial IRRS mission

Recommendation 1: The Government has decided to implement the intent of the Recommendation 1 by amending the Law of the Republic of Belarus dated June 18, 2019 No. 198-Z “On Radiation Safety” and the Law dated July 30, 2008 “On the Use of Atomic Energy”. Within the framework of these amendments, in particular the Fundamental Safety Principles in accordance with a graded approach are intended to be included in the laws.

The Law "On Radiation Safety" has already been revised and entered into force in June 2020. As part of the revision, both the Fundamental Safety Objective as well as the Fundamental Safety Principles related to radiation safety are now addressed in the law. The graded approach is taken into account through corresponding provisions for the performance of core regulatory functions, in particular authorization and inspection and the arrangements for emergency preparedness and response, for sources, emergency situations and state supervision.

In view of the recent commencement of operation of the Belarussian NPP, it is planned to replace the existing Law "On the Use of Atomic Energy" with a new Law "On the Safety Regulation when Using Nuclear Energy". A corresponding legislative mandate was set out in Clause 21 of the Plan for the preparation of draft law for 2021, approved by the Decree of the President of the Republic of Belarus dated January 4, 2021 No. 2.

The draft of the new law was prepared with the close involvement of the regulatory body and was submitted to the Council of Ministers in November 2021. The Fundamental Safety Objective as well as the Fundamental Safety Principles relevant to nuclear safety are included in the new draft law. The regulatory body expects that due to the uncontroversial nature of the draft law, parliamentary debate and the enactment of the new law can be completed in the course of the next year.

In combination with the “Law on radiation safety” the draft "Law on the Safety Regulation when Using Nuclear Energy" covers all Fundamental Safety Principles.

Status of the initial mission findings

Recommendation 1 (R1) is closed on the basis of progress made and confidence in the effective completion as the revised "Law on Radiation Safety" and the draft "Law on the Safety Regulation when Using Nuclear Energy" include the Fundamental Safety Objective and the Fundamental Safety Principles in accordance with a graded approach. The new draft law is expected to come into force in approximately one year.

1.2. ESTABLISHMENT OF A FRAMEWORK FOR SAFETY

There were no findings in this area in the initial IRRS mission.

1.3. ESTABLISHMENT OF A REGULATORY BODY AND ITS INDEPENDENCE

2016 MISSION RECOMMENDATIONS, SUGGESTIONS	
Observation: <i>MES manages the operation of two facilities: the "Polesie" and "Radon" facilities and is also responsible for their regulation. Also, MoH operates medical facilities and is also responsible for their regulation. Despite certain mechanisms currently in place to manage this, there remains a potential for a real or perceived conflict of interest, which may compromise the independence of the regulator.</i>	
(1)	BASIS: GSR Part 1 (Rev.1) Requirement 4 states that <i>"The government shall ensure that the regulatory body is effectively independent in its safety related decision making and that it has functional separation from entities having responsibilities or interests that could unduly influence its decision making."</i>
S1	Suggestion: The Government should consider establishing measures to enhance independence of the regulator for regulated facilities and activities undertaken within MoH and MES.

Changes since the initial IRRS mission

Suggestion 1: The MES has issued an order dated July 14, 2020, No. 172 «On the distribution of responsibilities between the Minister and Deputy Ministers for Emergency Situations» and an order dated August 23, 2021 No. 195 «On the distribution of responsibilities between the Minister and Deputy Ministers for Emergency Situations». The only subject inspected by Gosatomnadzor in terms of compliance with radiation safety requirements falls under the authority of the Deputy Minister for Emergency Situations only in absence of the Deputy Minister in charge of the Research and Development Institute for Fire Safety and Emergency Situations, as well as the Deputy Minister, who replaces him/her. This clarifies the responsibilities to avoid a conflict of interests in the implementation of licensing and state supervision in the field of nuclear and radiation safety in relation to the units of the Ministry for Emergency Situations, state organizations subordinate to the Ministry for Emergency Situations.

The MoH has issued an order dated December 8, 2020, No 1304 on the Departments for Radiation Safety and Dosimetry. In this order the functions of managing activities for the safe use of radiation sources in healthcare organizations are regulated. In accordance with this order, the control over its execution is entrusted to the First Deputy Minister of Health, in charge of the organization of medical care. State sanitary supervision is under the control of the Deputy Minister – Chief State Sanitary Doctor of the Republic of Belarus.

This clarifies the responsibilities and avoids a possible conflict of interests in the implementation of licensing and state supervision in the field of nuclear and radiation safety in relation to the organizational units of the Ministry for Emergency Situations, the Ministry of Health, and their subordinate state organizations.

Status of the initial mission findings

Suggestion 1 (S1) is closed as MES and MoH have issued orders to enhance independence of the regulator for regulated facilities and activities undertaken within MES and MoH.

1.4. RESPONSIBILITY FOR SAFETY AND COMPLIANCE WITH REGULATIONS

There were no findings in this area in the initial IRRS mission.

1.5. COORDINATION OF AUTHORITIES WITH RESPONSIBILITIES FOR SAFETY WITHIN THE REGULATORY FRAMEWORK

2016 MISSION RECOMMENDATIONS, SUGGESTIONS	
<p>Observation: <i>There are areas of overlapping or unclear roles and responsibilities for nuclear and radiation safety regulation. There are no formal mechanisms between ministries responsible for the regulation of facilities and activities. A process to establish a formal agreement between the ministries is part of the action plan.</i></p>	
(1)	<p>BASIS: GSR Part 1 (Rev.1) Requirement 7, para. 2.18 states that “Where several authorities have responsibilities for safety... the government shall ensure that there is appropriate coordination of and liaison between the various authorities...”</p>
R2	<p>Recommendation: The Government should clarify roles and responsibilities for MoH and MES.</p> <p>The regulatory bodies should finalize formal agreements to ensure appropriate coordination and liaison between the two regulatory bodies and possibly to conduct joint inspections.</p>

Changes since the initial IRRS mission

Recommendation 2: The Government has issued a law dated June 18, 2019 No. 198-Z «On Radiation Safety» that clarified the functional division of the roles and responsibilities of the Ministry for Emergency Situations of the Republic of Belarus and the Ministry of Health of the Republic of Belarus. Article 10 defines the powers of MES and Article 11 the powers of MoH. Article 48 of the law specifies state supervision in the field of ensuring radiation safety and state sanitary supervision in terms of ensuring radiation safety. The law also clarifies roles and responsibilities of MES and MoH in authorization (see R12). Moreover, a memorandum of understanding (MoU) between MES and the MoH in the field of nuclear and radiation safety was signed by the management of MES and MoH on 30 June 2017. For strengthening the cooperation, there were plans to amend the MoU. It enables joint inspections that were also carried out. The reporting of unintended and accidental doses is still required to both MES and MoH. The relationship between MES and MoH on emergency response has been clarified and explained in Module 10 (see R20).

Status of the initial mission findings

Recommendation 2 (R2) is closed as the Government has clarified roles and responsibilities for MoH and MES through new legislation and regulation and a formal agreement to ensure appropriate coordination and liaison between the two regulatory bodies and possibility to conduct joint inspections was established.

1.6. SYSTEM FOR PROTECTIVE ACTIONS TO REDUCE EXISTING OR UNREGULATED RADIATION RISKS

There were no findings in this area in the initial IRRS mission.

1.7. PROVISIONS FOR DECOMMISSIONING AND MANAGEMENT OF RADIOACTIVE WASTE AND SPENT FUEL

2016 MISSION RECOMMENDATIONS, SUGGESTIONS	
<p>Observation: <i>There are gaps in the Belarusian NPP radioactive waste strategy and framework and there is no strategy for radioactive waste generated by other facilities and activities. This was acknowledged in the action plan. The framework does not clearly allocate responsibility for disposal facilities.</i></p>	
(1)	<p>BASIS: GSR Part 1 (Rev.1) Requirement 10 states that <i>“The government shall make provision for the safe decommissioning of facilities, the safe management and disposal of radioactive waste arising from facilities and activities...”</i></p>
(2)	<p>BASIS: SSR-5 Requirement 1 states that <i>“The government is required to establish and maintain an appropriate governmental, legal and regulatory framework for safety within which responsibilities shall be clearly allocated for disposal facilities for radioactive waste to be sited, designed, constructed, operated and closed. This shall include: ...and clear allocation of responsibilities...”</i></p>
(3)	<p>BASIS: SSR-5, para 3.6 states that <i>“Matters that have to be considered include: ...Setting clearly defined legal, technical and financial responsibilities for organizations that are to be involved in the development of facilities for radioactive waste management, including disposal facilities of all types.”</i></p>
R3	<p>Recommendation: The Government should address gaps in the radioactive waste management strategy and framework for radioactive waste from the Belarusian NPP and establish a strategy and framework for all other sources of radioactive waste including allocation of responsibility for disposal facilities.</p>
<p>Observation: <i>A decommissioning fund for nuclear facilities is required but not established. Financial arrangements for management of radioactive waste and for the decommissioning of facilities or sources of ionizing radiation other than for the Belarusian NPP are not in place.</i></p>	
(1)	<p>BASIS: GSR Part 1 (Rev.1) Requirement 10 states that <i>“The government shall make provision for the safe decommissioning of facilities, the safe management and disposal of radioactive waste arising from facilities and activities...”</i></p>
(2)	<p>BASIS: GSR Part 1 Requirement 10, para. 2.5 (16) states that <i>“... framework for safety shall set out ... (16) Responsibilities and obligations in respect of financial provision for ... decommissioning of facilities and termination of activities.”</i></p>

2016 MISSION RECOMMENDATIONS, SUGGESTIONS	
(3)	BASIS: GSR Part 1 Requirement 10, para. 2.33 states that <i>“Appropriate financial provision shall be made for: (a) Decommissioning of facilities...”</i> .
(4)	BASIS: GSR Part 6, Requirement 9 states that <i>“Responsibilities in respect of financial provisions for decommissioning shall be set out in national legislation. These provisions shall include establishing a mechanism to provide adequate financial resources and to ensure that they are available when necessary, for ensuring safe decommissioning.”</i> .
R4	Recommendation: The Government should establish financial arrangements for managing radioactive waste and for the decommissioning of all regulated facilities and activities.

Changes since the initial IRRS mission

Recommendation 3: The Government has issued the Law of the Republic of Belarus dated June 18, 2019 No. 198-Z «On radiation safety». In the article 44 of the Law there are provisions on consolidating the powers of the state administration body in the field of radioactive waste management, as well as the powers of the Council of Ministers of the Republic of Belarus to approve the strategy for radioactive waste management.

The President of the Republic of Belarus has issued a Decree dated 2 November 2021 No. 427 “On enhancing the system of radioactive waste management” stating that MES is a state administration body in the field of radioactive waste management, which carries out implementation of state policy, including scientific and technical policy. Moreover, it states that Gosatomnadzor develops a strategy for radioactive waste management; organizes and coordinates scientific and methodological support; provides the development of requirements for storage and disposal facilities of radioactive waste; carries out the formation and maintenance of a register of objects of storage and disposal of radioactive waste; forecasts the expected volumes of radioactive waste generation, taking into account their actual generation and transfer to storage and disposal facilities in previous years; agree on schemes for radioactive waste management; organizes the accounting of radioactive waste; participates in the preparation of proposals on the procedure and sources of financing of radioactive waste management activities; and exercises other powers in accordance with the acts of legislation. Ministry of Energy is empowered to organize the creation and operation of a system for long-term storage and disposal of radioactive waste, including through the creation of a specially authorized organization - a national operator for radioactive waste management; submits proposals to the Council of Ministers of the Republic of Belarus on the procedure and sources of financing of radioactive waste management measures.

The implementation of the Recommendation on the development of a strategy for radioactive waste management for all types of radioactive waste (including, if necessary, in terms of processing the Strategy for radioactive waste management of the Belarusian NPP) has been planned in a roadmap. A strategy for waste management including allocation of responsibility for disposal facilities has been drafted. The IRRS team was informed that the draft waste management strategy will be sent for approval to the Council of Ministers in 2022.

Recommendation 4: The revision of the Law "On Radiation Safety" established the legal basis for the financial arrangements for managing radioactive waste, as stated in Recommendation 4. Gosatomnadzor will be responsible for preparing proposals on the procedure and sources of financing for measures for radioactive waste management. Ministry of Energy will submit

proposals to the Council of Ministers of the Republic of Belarus on the procedure and sources of financing of radioactive waste management measures.

With regard to the financial arrangements for the decommissioning of NPP, the legal basis was established with the Decree of the President of the Republic of Belarus dated January 26, 2021 No. 32 "On the funds of the Belarusian Nuclear Power Plant". However, for all other non-NPP facilities and activities, the corresponding legal basis is still lacking.

Status of the initial mission findings

Recommendation 3 (R3) is closed on the basis of progress made and confidence in the effective completion as Gosatomnadzor drafted a new waste management strategy. The new draft strategy is expected to be approved by the Council of Ministers in approximately one year.

Recommendation 4 (R4) is closed on the basis of progress made and confidence in the effective completion as the Government has made substantial progress in establishing financial arrangements for the decommissioning of NPPs and managing radioactive waste. Concrete proposals on the procedure and sources of financing for radioactive waste management have yet to be implemented.

1.8. COMPETENCE FOR SAFETY

There were no findings in this area in the initial IRRS mission.

1.9. PROVISION OF TECHNICAL SERVICES

There were no findings in this area in the initial IRRS mission.

2. THE GLOBAL SAFETY REGIME

2.1. INTERNATIONAL OBLIGATIONS AND ARRANGEMENTS FOR INTERNATIONAL COOPERATION

There were no findings in this area in the initial IRRS mission.

2.2. SHARING OF OPERATING EXPERIENCE AND REGULATORY EXPERIENCE

2016 MISSION RECOMMENDATIONS, SUGGESTIONS	
<p>Observation: <i>Some additional international knowledge and reporting networks are not currently used to receive and share information on regulatory and operating experience.</i></p>	
(1)	<p>BASIS: GSR Part 1 (Rev.1) para. 3.4 states that <i>“The regulatory body shall establish and maintain a means for receiving information from other States, regulatory bodies of other States, international organizations and authorized parties, as well as a means for making available to others lessons learned from operating experience and regulatory experience. The regulatory body shall require appropriate corrective actions to be carried out to prevent the recurrence of safety significant events. This process involves acquisition of the necessary information and its analysis to facilitate the effective utilization of international networks for learning from operating experience and regulatory experience.”</i></p>
S2	<p>Suggestion: Gosatomnadzor should consider joining international knowledge and reporting networks, such as the IAEA IRS and establish procedures on receiving and sharing information on operating and regulatory experience.</p>

Changes since the initial IRRS mission

Suggestion 2: Gosatomnadzor joined IAEA-IRS in 2019 and nominated the Director of the Division for Nuclear Safety Regulation as the national coordinator and responsible official from Gosatomnadzor to serve as the country contact point. The primary responsibility of the contact point is to prepare reports associated with the Belarussian NPP, submit reports to the IAEA-IRS, receive international experience feedback through the system and disseminate information within Gosatomnadzor and other national organizations. The primary responsibility for reporting has also been stipulated in the management system.

As of December 2021, Gosatomnadzor has not started full use of the system in terms of contribution and receiving information from IAEA-IRS, which may be due to lack of familiarization in usage. However, Gosatomnadzor has planned to participate in IAEA-IRS training of its responsible staff, scheduled in January 2022.

During the commissioning phase of the Belarus NPP, seven events were evaluated and categorized as level-0 on IAEA-INES scale. No reportable event to the IAEA-IRS has been identified since the commencement of operation of Belarussian NPP Unit 1.

In addition to joining IAEA-IRS, Gosatomnadzor has joined other international fora and working groups, and networks such as VVER forum (as an observer), WENRA, ENSREG Working Group, the IAEA Regulatory Cooperation Forum (RCF), etc.

Status of the initial mission findings

Suggestion 2 (S2) is closed as Gosatomnadzor has engaged in global participation and collaboration to learn best practices and share experience with other nuclear countries.

3. RESPONSIBILITIES AND FUNCTIONS OF THE REGULATORY BODY

3.1. ORGANIZATIONAL STRUCTURE OF THE REGULATORY BODY AND ALLOCATION OF RESOURCES

There were no findings in this area in the initial IRRS mission.

3.2. EFFECTIVE INDEPENDENCE IN THE PERFORMANCE OF REGULATORY ACTIVITIES

2016 MISSION RECOMMENDATIONS, SUGGESTIONS	
<p>Observation: <i>MES is required to complete licensing reviews within prescribed timelines. MES is not permitted to perform unannounced inspections unless it is for cause (e.g. as a result of an event). This could impact its ability to fully perform its regulatory functions and potentially create undue pressure or constraint. Development of a documented procedure for carrying out unannounced inspections is part of the action plan.</i></p>	
(1)	<p>BASIS: GSR Part 1 (Rev.1) Requirement 4 states that <i>“The government shall ensure that the regulatory body is effectively independent in its safety related decision making and that it has functional separation from entities having responsibilities or interests that could unduly influence its decision making.”</i></p>
(2)	<p>BASIS: GSR Part 1 (Rev.1) Requirement 4, para. 2.7 states that <i>“...the government shall ensure that the regulatory body is able to make decisions under its statutory obligation for the regulatory control of facilities and activities, and that it is able to perform its functions without undue pressure or constraint.”</i></p>
R5	<p>Recommendation: The Government should provide additional flexibility to Gosatomnadzor to extend timelines prescribed for licensing review and to perform unannounced inspections to ensure safety is not compromised.</p>

Changes since the initial IRRS mission

Recommendation 5: The Government completed the recommendation through amendment of the legislation and issuance of Decree No. 137 from April 5, 2021 of the President of the Republic of Belarus on the regulation of activities in the field of atomic energy and sources of ionizing radiation, including the regulation of licensing activities. Through the provisions of this Decree, Gosatomnadzor is empowered to establish the timeframe for the assessment of licensing activities and/or examination of compliance of capabilities of the licence applicants and activities in the field of nuclear power and the use of ionizing radiation sources.

In addition, the Statute of the Council of Ministers of the Republic of Belarus №133 of 25.02.2015, procedure No.49 (25-09-2018) was updated and its provisions authorize Gosatomnadzor to introduce and conduct unannounced inspections, as well as reactive inspections (see also Suggestion S9). Unannounced inspections were conducted to oversee the activities during construction and commissioning of the Belarusian NPP, as well as of other nuclear facilities and activities. For instance, on-site inspectors of Gosatomnadzor have access to the NPP site with no restrictions, and the authority to conduct an inspection as necessary in circumstances other than in response to an event.

Status of the initial mission findings

Recommendation 5 (R5) is closed as the Government has issued amended Decrees and Regulations to grant Gosatomnadzor additional flexibility for licensing reviews and to perform unannounced inspections.

3.3. STAFFING AND COMPETENCE OF THE REGULATORY BODY

2016 MISSION RECOMMENDATIONS, SUGGESTIONS	
<p>Observation: <i>Gaps in Gosatomnadzor’s access to technical expertise in some technical areas have been identified Gosatomnadzor is continuing to further develop the technical competence of its staff. A strategy to develop a dedicated TSO and to build a network of support organizations in order to address some of these gaps is included in the action plan. In addition Gosatomnadzor has a focused plan to further train and develop its employees to enhance their competencies.</i></p>	
(1)	<p>BASIS: GSR Part 1 (Rev.1) Requirement 11, para. 2.36 (b) states that “[the government] shall make provision for adequate arrangements for the regulatory body and its support organizations to build and maintain expertise in the disciplines necessary for discharge of the regulatory body’s responsibilities in relation to safety.”</p>
(2)	<p>BASIS: GSR Part 1 (Rev.1) Requirement 18 states that “The regulatory body shall employ a sufficient number of qualified and competent staff, commensurate with the nature and the number of facilities and activities to be regulated, to perform its functions and to discharge its responsibilities.”</p>
R6	<p>Recommendation: The Government should ensure that adequate technical support is available to the regulator for all applicable disciplines. Gosatomnadzor should continue to implement the training and development plans to enhance its staff competencies.</p>

Changes since the initial IRRS mission

Recommendation 6: On October 5, 2017, the Decree of the President of the Republic of Belarus No. 361 “on the establishment of the Center for Nuclear and Radiation Safety (STC NRS)” was adopted. Through this Decree, STC NRS was created, as the State’s scientific and technical support organization. Currently, STC NRS comprises 25 staff members to:

- i. coordinate a multi-disciplinary TSO system composed by 17 organizations which provide scientific and technical support to Gosatomnadzor in the field of nuclear and radiation safety;
- ii. conduct scientific research and development; and
- iii. conduct and participate in safety reviews and evaluation of third-party reviews.

In 2019, effort continued to build the STC NRS capacity, the establishment and development of TSO system, and the improvement of competence; notably, in the field of science and computer code validations. The system of TSOs includes institutions with a wide experience and scientific background acquired within the framework of post-Chernobyl activities.

In 2020, systematic activities were carried out to attract highly qualified specialists, including foreign experts, to work at STC NRS.

Communication protocols to define interaction between Gosatomnadzor/MES and organizations of scientific and technical support have been established, to ensure that there is no conflict of interest.

Status of the initial mission findings

Recommendation 6 (R6) is closed as a TSO system has been created. Moreover, Gosatomnadzor has improved training plans and is in the process of implementing training for its staff.

New finding from the follow-up mission

While activities have been conducted at the construction and commissioning stage, additional expertise will be needed at the operational stage and there is the potential for new types of work to be conducted by the TSO – for example, the assessment of design modifications during operation, investigation and causal analysis of events, and evaluation of periodic safety review. Thus, Gosatomnadzor staff will need to further develop their competencies in order to be an intelligent customer.

Follow-Up Mission RECOMMENDATIONS, SUGGESTIONS AND GOOD PRACTICES	
Observation: <i>The IRRS team was informed that Gosatomnadzor will need to further develop their competencies to have sufficient technical knowledge to manage and evaluate the work of the TSO as the Belarusian NPP enters into the operating phase.</i>	
(1)	BASIS: GSG-12 Appendix I, para. 1.4 states that “ <i>The regulatory body should have sufficient technical knowledge (be an intelligent customer) to identify problems, to determine whether it would be appropriate to seek assistance from an external expert support organization, to manage and supervise the external expert support while the advice is being developed and, at the end of the process, to understand, evaluate and use any relevant advice from external organizations or experts.</i> ”
SF1	Suggestion: Gosatomnadzor should consider expanding its competency development programmes in the areas of emerging technical challenges for the operating phase of the Belarusian NPP, so that its staff continues to have sufficient technical knowledge to manage and evaluate the work of the TSO.

3.4. LIAISON WITH ADVISORY BODIES AND SUPPORT ORGANIZATIONS

2016 MISSION RECOMMENDATIONS, SUGGESTIONS	
Observation: <i>In order for Gosatomnadzor to obtain a technical review, it asks the licensee/applicant to arrange a review through a contract with an expert organization. It also can order technical support on its budget. It appears that Gosatomnadzor’s ability to order independent expert support may be limited.</i>	
(1)	BASIS: GSR Part 1 (Rev.1) Requirement 20, para. 4.19 states that “ <i>The regulatory body may decide to establish a dedicated support organization, in which case clear limits shall be set for the degree of control and direction by the regulatory body over the work of the support organization</i> ”

2016 MISSION RECOMMENDATIONS, SUGGESTIONS	
(2)	BASIS: GSR Part 1 (Rev.1) Requirement 20, para. 4.20 states that “Arrangements shall be made to ensure that there is no conflict of interest for those organizations that provide the regulatory body with advice or services.”
S3	Suggestion: The Government should consider enabling Gosatomnadzor to request an independent expert review when necessary.

Changes since the initial IRRS mission

Suggestion 3: The process of requesting an independent or third-party safety review, involving expert and specialist, has been reinforced under Statute of the Council of Ministers of the Republic of Belarus dated July 2, 2019 No. 452, which amended the Statute of the Council of Ministers of the Republic of Belarus No. 49 from February 25, 2015. Under the auspices of this Statute, Gosatomnadzor has the flexibility to issue tenders for safety and security reviews.

Governmental financial support to procure independent expert review is granted through annual planned budgeting or upon requests for additional funds, as necessary.

Examples of how third-party reviews to complement Gosatomnadzor in-house expertise were demonstrated and discussed during the IRRS team meeting with the respective counterparts.

Status of the initial mission findings

Suggestion 3 (S3) is closed as Gosatomnadzor can request independent expert assessments and opinions for their regulatory decisions and has corresponding financial support.

3.5. LIAISON BETWEEN THE REGULATORY BODY AND AUTHORIZED PARTIES

There were no findings in this area in the initial IRRS mission.

3.6. STABILITY AND CONSISTENCY OF REGULATORY CONTROL

There were no findings in this area in the initial IRRS mission.

3.7. SAFETY RELATED RECORDS

2016 MISSION RECOMMENDATIONS, SUGGESTIONS	
Observation: <i>Requirements for regulatory reporting and record keeping are not in place for nuclear facilities. Further, Gosatomnadzor does not have systems to track and analyze industry events and performance. This has been recognized in the action plan as being currently in development.</i>	
(1)	BASIS: GSR Part 1 (Rev.1) Requirement 35, para. 6.63 states that “The regulatory body shall make provision for establishing and maintaining the following main registers and inventories:…Records relating to the safety of facilities and activities; Records that might be necessary for the shutdown and decommissioning (or closure) of facilities; Records of events, including non-routine releases of radioactive material to the environment; …”
S4	Suggestion: MES/Gosatomnadzor should consider finalizing and implementing requirements for record keeping and reporting for nuclear facilities, and developing internal systems to effectively track and analyse operating experience and trends in performance.

Changes since the initial IRRS mission

Suggestion 4: MES Resolution No. 34 dated 27.07.2017 establishes general requirements for the system of analysis and trending of operational experience, including requirements for the collection, processing and storage of data, record of decision-making and the evaluation of the effectiveness of corrective measures, as well as the procedure for the exchange of data on operational experience.

Based on these requirements Gosatomnadzor has developed a database that comprises two parts:

- Part 1: internal system to track and analyse international operating experience for which a special platform was developed to analyse trend results of safety assessments through mathematical modelling, carried out by STC NRS; and
- Part 2: a system for records keeping of surveillance or compliance activities, and event reporting for nuclear facilities.

Planned activities to enhance the system are underway with a timeline for completion by 2024.

Status of the initial mission findings

Suggestion 4 (S4) is closed as Gosatomnadzor has established requirements for record keeping and developed an internal system to collect, track and analyse operating experience.

3.8. COMMUNICATION AND CONSULTATION WITH INTERESTED PARTIES

2016 MISSION RECOMMENDATIONS, SUGGESTIONS	
<p>Observation: <i>The public is not consistently consulted during the development of regulations and rules. Also, Gosatomnadzor does not provide the public with an opportunity to engage in major regulatory decisions and does not have targeted consultations with interested parties in the vicinity of the Belarusian NPP. Conducting a public hearing for the decision on the operation of the NPP is part of the action plan.</i></p>	
(1)	<p>BASIS: GSR Part 1 (Rev.1) Requirement 36, para. 4.67 states that “...there shall be consultation by means of an open and inclusive process with interested parties residing in the vicinity of authorized facilities and activities, and other interested parties, as appropriate.”</p>
(2)	<p>BASIS: GSR Part 1 (Rev.1) Requirement 36, para. 4.67 states that “Interested parties including the public shall have an opportunity to be consulted in the process for making significant regulatory decisions, subject to national legislation and international obligations. The results of these consultations shall be taken into consideration by the regulatory body in a transparent manner.”</p>
(3)	<p>BASIS: GSR Part 1 (Rev.1) Requirement 36, para. 4.67 states that “The government or the regulatory body shall establish, within the legal framework, processes for establishing or adopting, promoting and amending regulations and guides. These processes shall involve consultation with interested parties in the development of the regulations and guides.”</p>
R7	<p>Recommendation: MES/Gosatomnadzor should finalize and implement plans to inform and consult with the public when making significant regulatory decisions.</p>

Changes since the initial IRRS mission

Recommendation 7: The Government promulgated a law dated 17 July 2018 N 130-Z “On normative legal acts”, requiring draft regulations to be placed on the official website of the National Legal Internet Portal of the Republic of Belarus (www.pravo.by).

In addition, the Presidential Decree No. 70 from February 18, 2019, authorizes Gosatomnadzor to conduct hearings as determined by the Council of Ministers of the Republic of Belarus. The Council of Ministers of the Republic of Belarus has issued a Statute dated April 24, 2019 No. 258: “On approval of the Order on public hearings on the safety regulation of the Belarusian Nuclear Power Plant”, which establishes the procedure for organizing and conducting the public hearings in relation to regulatory decisions in the nuclear field, as well as the circumstances that will require the conduct of public hearings.

Gosatomnadzor organized the first public hearing on April 30, 2021, before the decision was made to issue the operating licence for Belarusian NPP Unit 1. The public hearing was conducted through a video conference with 9 studios, and 148 participants. In total, there were 16 interventions by the public and 74 questions were addressed. International observers from 12 countries participated via video conferencing. A live broadcast to the BELTA press centre was organized for media representatives.

MES Board considered all opinions and outcomes from the public hearing in their decision to grant an operating licence for Belarus NPP Unit 1.

In preparation for this hearing, Gosatomnadzor observed public hearings held by regulatory bodies of other countries, namely Hungary and Canada, to learn from their experiences.

Gosatomnadzor shared their experience and lessons learned from the public hearing of April 30, 2021 with Member States that participated at the Regulatory Cooperation Forum held virtually by the IAEA in December 2021.

Status of the initial mission findings

Recommendation 7 (R7) is closed as the Government has established the legal framework and Gosatomnadzor conducts public hearings before making significant regulatory decisions.

Policy Discussion on the development strategy for the system of technical support organizations in the field of nuclear and radiation safety

In Belarus, Gosatomnadzor has created a scientific and technical support system with 17 organizations authorized to provide support in the main regulatory areas. The TSO system was established in 2012 by resolution of the Council of Ministers of the Republic of Belarus, empowering the research institute Sosny to provide technical support to the Ministry of Emergency Situations. In 2016, this was expanded by a resolution of the government to a system of 16 organizations. Then in 2017, the Center for Nuclear and Radiation Safety was established by Presidential decree to coordinate the work of these expert organizations. The center is organized in the Ministry of Emergency Situations and has 25 staff. In addition, to address new objectives related to medical issues, the National Center of Human Medicine is a candidate to join the TSO system.

Gosatomnadzor now has access to numerous experts in atomic energy and ionizing radiation who have developed extensive expertise originating in response to the Chernobyl disaster that is now being adapted in new areas such as work on the Belarusian nuclear power plant. Currently, Gosatomnadzor is engaged in 10 projects as part of a strategic plan for 2021 to 2025. Eight

contracts for consulting services are already in place, with the remaining two to be placed by the end of 2021. A key focus of the TSO is on nuclear knowledge management, including long-term tasks to develop a national portal of practical knowledge and share information with partners. Gosatomnadzor is developing a strategy and vision for development of its TSO to support safety review, capacity building, knowledge preservation, and necessary infrastructure.

On December 10, 2021, the IRRS team engaged in a policy discussion with Gosatomnadzor on development strategy for a system of scientific and technical support organizations (TSOs) in the field of nuclear and radiation safety. Having such a system of TSOs, the regulator has access to broad competencies in the field and can provide sound basis in making regulatory decisions.

The IRRS team shared various experiences from their home countries, including the following:

- Pakistan’s experience with developing and strengthening TSO capability for a new independent regulatory body, capable of reviewing submittals and supporting regulatory decision-making, as well as conducting safety analysis at a new center located at the site of new nuclear power plants
- Finland’s active research activities including the CORES consortium for radiation safety research and SAFIR research program, both of which are explained on the STUK website, and approaches to fund research through fees or other mechanisms and to collaborate with other European regulators
- Russia’s use of two main TSOs to conduct safety reviews and perform scientific analyses for new technical challenges such as fast breeder reactors, use of a scientific advisory council to discuss important new issues, and hosting of an October 2022 IAEA conference in St. Petersburg on TSOs
- The United States’s approach of providing grants to universities for faculty support, student support, and curriculum development; making research reports available on public website; and use of standing advisory committees for nuclear safety and medical isotope issues
- Switzerland’s approach of obtaining core competencies in the regulatory body, with TSOs for very specialized tasks and “on-call” support from universities

Gosatomnadzor appreciated the technical interchange with the IRRS team and looked forward to using experiences from other countries to continue a sustainable approach.

4. MANAGEMENT SYSTEM OF THE REGULATORY BODY

4.1. LEADERSHIP FOR SAFETY

There were no findings in this area in the initial IRRS mission.

4.2. MANAGEMENT FOR SAFETY

2016 MISSION RECOMMENDATIONS, SUGGESTIONS	
<p>Observation: Gosatomnadzor has not fully developed and implemented an Integrated Management System to include the documentation of the processes and procedures contributing to the achievement of the safety goals of the organization. Gosatomnadzor has not assessed the leadership of safety and safety culture. Development of the management system and approaches to Gosatomnadzor self-assessment of safety culture is part of the action plan.</p>	
(1)	<p>BASIS: GSR Part 1 Requirement 19, paras. 4.14 – 4.17 state that “The regulatory body shall establish, implement, and assess and improve a management system that is aligned with its safety goals and contributes to their achievement.”</p>
(2)	<p>BASIS: GSR Part 2 Requirement 10, paras. 4.28 – 4.32 state that “Processes and activities shall be developed and shall be effectively managed to achieve the organization’s goals without compromising safety.”</p>
(3)	<p>BASIS: GSR Part 2 Requirement 14, paras. 6.9. – 6.11 state that “Senior management shall regularly commission assessments of leadership for safety and of safety culture in its own organization.”</p>
R8	<p>Recommendation: Gosatomnadzor should complete its activities to establish, implement, and assess its integrated management system. Special attention should be on the regulatory processes, applying a graded approach, and assessing leadership for safety and safety culture.</p>

Changes since the initial IRRS mission

Recommendation 8: The Gosatomnadzor Board approved the revised Policy of Gosatomnadzor in July 2020 and the Strategy for 2021-2025 in February 2021.

The roles and responsibilities of the Coordination Council, representative of the management and the process owners are specified by the Order No. 55 of the Head of Gosatomnadzor (2020). The Coordination Council is responsible for coordinating the development, application and maintenance of the management system. The Council is chaired by the head of Gosatomnadzor, and its members are deputy heads of Gosatomnadzor.

The development of the processes was completed, a total of 16 processes were identified and documented, including 9 core processes, 1 management process and 5 supporting processes. The full list with short description of all processes, implementing procedures and other IMS documents is provided in the IMS Manual. A responsible person (process owner) is appointed for implementing and improving each process. The requirement for the application of a graded approach is integrated in all the processes.

A training programme on the use of the IMS for Gosatomnadzor staff was developed and approved in 2020. The IRRS team was informed that about 10 training courses have been held since then, and the feedback received has been used to further improve individual processes and procedures.

The need for continuous improvement of the IMS is highlighted in the Gosatomnadzor Policy and further supported by the Planning, Analysis, and Improvement Process. This process also includes several supporting documents, such as the procedure for monitoring, analysis, and improvement of the IMS, instruction on the procedure for IMS analysis by management and its improvement, instruction on the management of inconsistencies and guidance on the conduct of internal audit.

Information on the IMS implementation is included in the biannual report on Gosatomnadzor activities. A detailed summary report is prepared annually and includes an assessment of the suitability of the Gosatomnadzor management system, its adequacy and analysis on the effectiveness of the individual processes.

In order to effectively implement the recommendation related to the assessment of leadership for safety and safety culture, Gosatomnadzor took a set of measures. In 2019 a plan on the preparation and conduct of safety culture self-assessment was developed according to which, several national trainings, workshops and expert missions were organized with the support of the IAEA, EU and Rosatom. In addition, a technical visit to the Swedish Radiation Safety Authority (SSM) was conducted. The safety culture principles were established and included in Appendix-5 of the IMS Manual. A related self-assessment methodology was developed and approved by the Board. Moreover, a national conference on safety culture with the participation of all relevant parties, was prepared with the support of the IAEA and EU, but its implementation has been postponed to 2022.

The IRRS team was informed that during October and November 2021, a self-assessment of the leadership for safety and safety culture of Gosatomnadzor has been conducted. The preparation of the final report on self-assessment is in progress and according to the plan it should be completed by the end of 2021. A visit to the Swedish regulatory body (SSM) to discuss the results of the self-assessment, share experience and discuss possible measures to further improve the safety culture is planned for February 2022.

Status of the initial mission findings

Recommendation 8 (R8) is closed on the basis of progress made and confidence in the effective completion as Gosatomnadzor has developed, implemented, and assessed its management system to be in line with GSR Part 2, and the process for assessment of leadership for safety and safety culture is in the final phase of implementation.

4.3. CULTURE FOR SAFETY

There were no findings in this area in the initial IRRS mission.

4.4. MEASUREMENT, ASSESSMENT AND IMPROVEMENT

There were no findings in this area in the initial IRRS mission.

5. AUTHORIZATION

5.1. GENERIC ISSUES

2016 MISSION RECOMMENDATIONS, SUGGESTIONS	
<p>Observation: Decree of the President No.450 does not authorise MES to initiate changes in the license or license conditions when needed for safety related purposes. It also does not require licensing of disposal facilities and its lifecycle stages.</p>	
(1)	<p>BASIS: GSR Part 1 (Rev.1) Requirement 24, para. 4.29 states that “Different types of authorization shall be obtained for the different stages in the lifetime of a facility or the duration of an activity. The regulatory body shall be able to modify authorizations for safety related purposes...”</p>
R9	<p>Recommendation: The Government should update Decree of the President No. 450 to ensure that it authorises MES to initiate changes in the license and license conditions when needed for safety related purposes and that it requires licensing of disposal facilities and its lifecycle stages.</p>
<p>Observation: Arrangements on review and assessment of safety-related modifications of design and procedures are missing. A draft of an MES decree on the subject is being developed.</p>	
(1)	<p>BASIS: GSR Part 1 (Rev.1) Requirement 24, para. 4.29 states that “Different types of authorization shall be obtained for the different stages in the lifetime of a facility or the duration of an activity. The regulatory body shall be able to modify authorizations for safety related purposes...”</p>
(2)	<p>BASIS: GSR Part 1 (Rev.1) Requirement 26, para. 4.44 states that “Any proposed modification that might significantly affect the safety of a facility or activity shall be subject to a review and assessment by the regulatory body”</p>
R10	<p>Recommendation: MES should establish appropriate requirements, processes and procedures to ensure that modification of facility design, processes or procedures, which might significantly affect safety, undergo prior review and assessment by Gosatomnadzor.</p>

Changes since the initial IRRS mission

Recommendation 9: The Decree of the President No. 450 was supplemented by a new Presidential decree No.70, which was promulgated on February 18, 2019. Accordingly, subparagraph 1.7 of the Decree authorized the Ministry for Emergency Situations to introduce amendments to the special conditions for the validity of issued licences. In addition, another presidential decree No. 137 was promulgated on April 5, 2021, whose Appendix-1 (Clause 12) mandated MES to license and regulate design, construction, decommissioning of radioactive waste management facilities.

Recommendation 10: MES Resolution No. 34, adopted on July 27, 2017 specifies the norms and rules for ensuring nuclear and radiation safety. This Resolution establishes general technical requirements for activities related to the implementation of design modifications on nuclear power plants and their safety assessment during the commissioning and operation of nuclear power plants, including the procedure for the development and implementation of modifications, the category of

modifications, impact on safety, as well as the procedure for reporting the modifications by the licensee to the Department of Nuclear and Radiation Safety of the Ministry for Emergency Situations.

As per Resolution No.34, the need for modifications is determined by the operating organization. Modifications should aim at ensuring NPP safety on the basis of analysis of internal or external experience in NPP operation; safety assessment results; analysis of reliability of safety critical equipment and systems; analysis of nuclear and radiation safety requirements. The operating organization is required to provide training for personnel responsible for implementation, operation and maintenance of modified structures, systems and elements, including the use of a full-scale simulator. The detailed information justifying the modifications is submitted for review and approval/authorization of Gosatomnadzor prior to implementation.

Status of the initial mission findings

Recommendation 9 (R9) is closed as the Government amended and promulgated decrees authorizing MES to make changes in the licence and licence conditions when needed for safety related purposes and mandated MES to license and regulate radioactive waste disposal facilities during different lifecycle stages.

Recommendation 10 (R10) is closed as MES adopted a resolution establishing technical requirements for the licensees to report modifications in facility design, processes and procedures to MES prior to implementation.

5.2. AUTHORIZATION OF NUCLEAR POWER PLANTS

There were no findings in this area in the initial IRRS mission.

5.3. AUTHORIZATION OF RESEARCH NUCLEAR INSTALLATIONS

2016 MISSION RECOMMENDATIONS, SUGGESTIONS	
Observation: <i>Comprehensive periodic safety reviews are not required by the regulations for RNIs or radioactive waste management facilities.</i>	
(1)	BASIS: GSR Part 1 (Rev.1) Requirement 26, para.4.39(A) states that <i>“The regulatory body shall ensure, adopting a graded approach, that authorized parties routinely evaluate operating experience and periodically perform comprehensive safety reviews of facilities, such as periodic safety reviews for nuclear power plants.”</i>
(2)	BASIS: GSR Part 5, Requirement 16 states that <i>“The operator shall carry out periodic safety reviews and shall implement any safety upgrade required by the regulatory body following this review.”</i>
R11	Recommendation: MES/Gosatomnadzor should require parties holding authorizations for research nuclear installations and radioactive waste management facilities to periodically perform comprehensive safety reviews of their facilities.

Changes since the initial IRRS mission

Recommendation 11: MES approved new requirements for conducting periodic safety assessments of nuclear research facilities once every 10 years through the Resolution of the

Ministry for Emergency Situations dated July 4, 2019 No. 44. This Resolution establishes the scope and content of the documents submitted by the licensee to MES containing the results of periodic safety assessment of a nuclear research facility and justifying the safety of its operation.

In addition, amendments were made in the earlier Resolution No. 47 of the Ministry for Emergency Situations dated September 28, 2010 by adopting a new Resolution No.33 on July 4, 2017 which establishes requirements for performing periodic safety assessment of radioactive waste management facilities. The Resolution requires the operating organization to perform the first periodic safety assessment after 10 years of commissioning, followed by periodic safety assessment every 10 years during the life-time of the facility. In the event of changes in operating conditions that may affect the safety of a facility, the operating organization is required to perform an extraordinary safety assessment.

Status of the initial mission findings

Recommendation 11 (R11) is closed as Gosatomnadzor established requirements for the licensees holding authorizations for research nuclear installations and radioactive waste management facilities to perform comprehensive periodic safety assessments of their facilities.

5.4. AUTHORIZATION OF RADIOACTIVE WASTE MANAGEMENT FACILITIES

There were no findings in this area in the initial IRRS mission.

5.5. AUTHORIZATION OF IONIZING RADIATION SOURCES FACILITIES AND ACTIVITIES

2016 MISSION RECOMMENDATIONS, SUGGESTIONS	
Observation: <i>Process for authorization for activities in area of use of sources of ionizing radiation (including process for licensing and/or registration by MES and issue of sanitary passport by MoH) and associated regulations are not fully consistent.</i>	
(1)	BASIS: GSR Part 1 Requirement 2, para. 2.5 states that “The government shall promulgate laws and statutes to make provision for an effective governmental, legal and regulatory framework for safety. This framework for safety shall set out the following: (3) The type of authorization that is required for the operation of facilities and for the conduct of activities, in accordance with a graded approach;”
(2)	BASIS: GSR Part 1 Requirement 4, para. 2.12 states that “Where several authorities are involved in the authorization process, requirements shall apply, and they shall be applied consistently and without undue modification.”
(3)	BASIS: GS-G-1.5, para. 3.23 states that “The Basic Safety Standards apply the terms notification, and authorization by registration or licence to indicate broadly an appropriate type of control based upon the levels of risk or complexity associated with non-exempted practices, notification being applied to the lowest level of risk or complexity and licence to the highest...”
R12	Recommendation: MES and MoH should revise the authorization processes and associated regulations in the field of activities with ionizing radiation sources to make them consistent.
Observation: <i>Criteria (such as activity and energy threshold) for exemption of sources and for licensing of activities in the field of use of radioactive sources are not justified and not consistent, also not based on internationally recognized standards.</i>	

2016 MISSION RECOMMENDATIONS, SUGGESTIONS	
(1)	<p>BASIS: GSR Part 3 Requirement 8, paras. 3.10 and 3.11 state that <i>“The government or the regulatory body shall determine which practices or sources within practices are to be exempted from some or all of the requirements of these Standards, including the requirements for notification, registration or licensing, using as the basis for this determination the criteria for exemption specified in Schedule I or any exemption levels specified by the regulatory body on the basis of these criteria.</i></p> <p><i>3.11. Exemption shall not be granted for practices deemed to be not justified.”</i></p>
(2)	<p>BASIS: GS-G-1.5, para. 3.23 states that <i>“...A categorization system for sealed radioactive sources based on considerations of health detriment, among other factors, has been published by the IAEA. This categorization should be used to assist regulatory bodies in determining the graded approach to notification and authorization that should be adopted.”</i></p>
R13	<p>Recommendation: MES should revise exemption criteria in accordance with international standards and define criteria for licensing of activities with radiation sources taking into account a graded approach.</p>

Changes since the initial IRRS mission

Recommendation 12: A new “Law on Radiation Safety” was adopted in 2019, establishing four steps in the authorization process for MES for radiation sources: justification of the safety of practice with the source, licensing, safety expertise, and registration of type of the source.

Decree of the President of the Republic of Belarus dated April 5, 2021 No. 137 “On the regulation of activities in the field of atomic energy and sources of ionizing radiation” was adopted, which removes activity in area of use of atomic energy (including use of radioactive sources) from the scope of Decree of the President of the Republic of Belarus of September 1, 2010 No. 450 “On licensing certain types of activities”. The types of activity to be licensed, including use of mammography generators, are established in an attachment to Decree No. 137, as well as general procedure for licence reviews and establishing specific licence conditions. Licence terms for radiation source use are limited to not more than 10 years.

MES adopted resolution of September 21, 2021 No. 64 “On the composition and content of documents justifying nuclear and radiation safety” to specify the set of documents that must be submitted to MES for licence application.

MES adopted resolution of October 19, 2020 No. 42 “Safety when handling sources of ionizing radiation. General provisions” removing requirements for having a sanitary passport before approval of order-request for radioactive sources. This change ensures that there are no conflicts with other regulations for that type of authorization.

MES revised its regulation on accounting and control of radioactive sources, adopted Resolution of April 13, 2020 No. 16 “On accounting and control of ionizing radiation sources” (together with “Instruction on the procedure for accounting and control of sources of ionizing radiation”).

Recommendation 13: As part of the new legislation and changes to regulations described under Recommendation 12, the types of activity to be licensed and requirements for all four types of the authorization are based on a graded approach. For example, a licence is required for use of sealed sources of category 1-3 and for use of unsealed sources of class I and II. For manufacturing, a licence is required to manufacture any sources above the exemption level.

The authorization process for MES is now consistent with authorization process for MoH: all users are required to have approval of an order-request for the source by both MES and MoH, as well as obtaining a sanitary passport from MoH. Based on graded approach, it may be required to obtain other types of authorization based on the category and type of the source, the use of the source, and whether it is a new type of source or a new practice.

Status of the initial mission findings

Recommendation 12 (R12) is closed as new legislation and revised MES regulations provide a clear authorization process with no conflict between MES and MoH authorization.

Recommendation 13 (R13) is closed as new legislation and revised MES regulations provide consistent criteria for activities to be licensed based on a graded approach.

5.6. AUTHORIZATION OF DECOMMISSIONING ACTIVITIES

There were no findings in this area in the initial IRRS mission.

6. REVIEW AND ASSESSMENT

6.1. GENERIC ISSUES

6.1.1 MANAGEMENT OF REVIEW AND ASSESSMENT

2016 MISSION RECOMMENDATIONS, SUGGESTIONS	
<p>Observation: <i>The regulatory procedure to conduct review and assessment including a graded approach and categorizations of safety assessment findings is not established by the Gosatomnadzor.</i></p>	
(1)	<p>BASIS: GS-G 1.2 para. 3.4 states that <i>“For regulatory efficiency, the findings of the preliminary review should be prioritized on the basis of their potential implication for the overall safety assessment of the facility and associated hold points in the authorization process. For regulatory effectiveness, the review and assessment efforts should usually be focused more on those aspects of site evaluation, design or operation which involve untested (innovative) features.”.</i></p>
(2)	<p>BASIS: GSR Part 1 (Rev.1) Requirement 26, para. 4.33 states that <i>“Prior to the granting of an authorization, the applicant shall be required to submit a safety assessment [9], which shall be reviewed and assessed by the regulatory body in accordance with clearly specified procedures. The extent of the regulatory control applied shall be commensurate with the radiation risks associated with facilities and activities, in accordance with a graded approach.”.</i></p>
S5	<p>Suggestion: Gosatomnadzor should consider finalizing the review and assessment procedure that includes a graded approach and the categorization of safety assessment findings.</p>

Changes since the initial IRRS mission

Suggestion 5: Gosatomnadzor established a policy and strategy on July 2, 2020 and May 2, 2021 respectively for application of graded approach in regulatory activities. In addition, procedure No. 68 for safety assessment was developed and approved on December 31, 2019. The procedure describes the process to be followed by Gosatomnadzor to conduct safety review and assessment of licensed facilities and activities with the consideration of graded approach and perform categorization of review and assessment findings according to their safety significance.

Status of the initial mission findings

Suggestion 5 (S5) is closed as Gosatomnadzor developed and issued a procedure for review and assessment of licensing submissions with consideration of a graded approach in the categorization of safety assessment findings.

6.1.2 ORGANIZATION AND TECHNICAL RESOURCES FOR REVIEW AND ASSESSMENT

There were no findings in this area in the initial IRRS mission.

6.1.3 BASES FOR REVIEW AND ASSESSMENT

There were no findings in this area in the initial IRRS mission.

6.1.4 PERFORMANCE OF REVIEW AND ASSESSMENT

2016 MISSION RECOMMENDATIONS, SUGGESTIONS	
<p>Observation: <i>The regulatory body does not perform safety performance assessment of facilities and activities on a regular basis.</i></p>	
(1)	<p>BASIS: GSR Part 1 (Rev.1) Requirement 25 states that <i>“The regulatory body shall review and assess relevant information — whether submitted by the authorized party or the vendor, compiled by the regulatory body, or obtained from elsewhere — to determine whether facilities and activities comply with regulatory requirements and the conditions specified in the authorization. This review and assessment of information shall be performed prior to authorization and again over the lifetime of the facility or the duration of the activity, as specified in regulations promulgated by the regulatory body or in the authorization.”</i></p>
(2)	<p>BASIS: GSR Part 1 (Rev.1) Requirement 26, para. 4.46 states that <i>“For an integrated safety assessment, the regulatory body shall first organize the results obtained in a systematic manner. It shall then identify trends and conclusions drawn from inspections, from reviews and assessments for operating facilities, and from the conduct of activities where relevant. Feedback information shall be provided to the authorized party. This integrated safety assessment shall be repeated periodically, with account taken of the radiation risks associated with the facility or activity, in accordance with a graded approach.”</i></p>
(3)	<p>BASIS: GS-G 1.2 para. 2.5 states that <i>“The review and assessment of nuclear facilities necessitate considerable amounts of work and resources, and appropriate plans should be made for these. The regulatory body should develop a programme to review and assess information provided by the operator (see Ref. [4], paras 4.2–4.8) or collected during its own inspections [3]. The co-operation of the operator should be obtained to ensure that review and assessment can be carried out in an effective and informed manner. In addition, information from other sources (such as incident reports from other States) which have a bearing on the safety of facilities should be reviewed and assessed.”</i></p>
S6	<p>Suggestion: The regulatory body should consider performing safety performance assessments of facilities and activities on a periodic basis.</p>

Changes since the initial IRRS mission

Suggestion 6: Gosatomnadzor updated the general provisions for ensuring the safety of nuclear power plants to establish the requirement of performing a periodic safety assessment of a nuclear power plant every 10 years in accordance with the established procedure. In addition, Resolutions No. 58 and 59, dated September 6, 2021, were adopted by the Ministry for Emergency Situations, which provide requirements for the content of the report on the assessment of the current state of safety and ongoing works and (or) services and composition and content of documents containing the results of the safety performance assessment of nuclear and storage facilities.

Status of the initial mission findings

Suggestion 6 (S6) is closed as MES adopted resolutions providing requirements for the assessment of the current state of safety performance of nuclear installations and storage facilities.

6.2. REVIEW AND ASSESSMENT FOR NUCLEAR POWER PLANTS

2016 MISSION RECOMMENDATIONS, SUGGESTIONS	
Observation: <i>Hold points are required to be included in the operational license, however procedures to implement the respective regulatory requirements have not been developed.</i>	
(1)	BASIS: GSR Part 1 (Rev.1) Requirement 24, para. 4.35 states that <i>“4.35. Some of the stages in the lifetime of a facility or the duration of an activity (see para. 4.29) may require specific hold points at which separate authorizations are required. In such cases, the completed stages have to be subject to review and assessment, with account taken of feedback from the previous stages.”</i>
(2)	BASIS: SSG 12 para. 3.47 states that <i>“Before authorizing significant steps such as the introduction of nuclear or certain types of radioactive material, fuel loading, initial criticality or power raising, the regulatory body should complete the review, assessment and inspection of: ...”</i>
(3)	BASIS: SSG 12 para. 3.54 states that <i>“The results of commissioning tests should be subject to: ... (b) Review, assessment and inspection by the regulatory body. The aim of these regulatory controls is to assess whether the test results are adequate for confirming the adequacy of all safety related features of the nuclear installation.”</i>
S7	Suggestion: MES/Gosatomnadzor should consider developing procedures to implement the respective regulatory requirements related to hold points.

Changes since the initial IRRS mission

Suggestion 7: The IRRS team was informed that Gosatomnadzor follows a stage wise or sub-stage wise approach of implementing the hold points instead of the individual test wise approach commonly followed internationally in which critical safety significant tests are selected by the regulatory body during commissioning for inspection and the operator requires authorization/permission of the regulatory body for acceptance of these tests to proceed further. However, it was justified by the counterpart that the approach followed by Gosatomnadzor encompasses the internationally followed concept of hold points during commissioning by holding the operator, if required, to proceed to the next stage or sub-stage of commissioning without the permission of Gosatomnadzor. The resolution of the Ministry for Emergency Situations No.15 was passed on April 13, 2020, which provided general provisions for ensuring the Safety of Nuclear Power Plants.

Status of the initial mission findings

Suggestion 7 (S7) is closed as MES approved procedures to implement the regulatory requirements related to hold points.

6.3. REVIEW AND ASSESSMENT FOR RESEARCH NUCLEAR INSTALLATIONS

There were no findings in this area in the initial IRRS mission.

6.4. REVIEW AND ASSESSMENT FOR WASTE MANAGEMENT FACILITIES

There were no findings in this area in the initial IRRS mission.

6.5. REVIEW AND ASSESSMENT FOR RADIATION SOURCES FACILITIES AND ACTIVITIES

2016 MISSION RECOMMENDATIONS, SUGGESTIONS	
<p>Observation: <i>In the use of radiation sources Gosatomnadzor does not perform inspection by means of pre-licensing verification to confirm validity of the documents submitted for review and assessment of an application.</i></p>	
(1)	<p>BASIS: <i>GS-G-1.5 para. 3.42 states that “A fundamental feature of the process of review and assessment of an application for authorization by the regulatory body is its consideration of the documentation submitted by the applicant. For significant risk sources or unusual or complex practices, the regulatory body should also verify the contents of the documents submitted by means of inspection of the site where the radiation sources are to be installed or used. These inspections will also allow the regulatory body to supplement the information and data needed for review and assessment. Additionally, the regulatory body will be able to extend its practical understanding of the managerial, engineering and operational aspects of the application for authorization and to foster links with specialists of the operating organization.”</i></p>
S8	<p>Suggestion: Gosatomnadzor should consider verification during the pre-licensing process of radiation sources.</p>

Changes since the initial IRRS mission

Suggestion 8: Under the new “Law on Radiation Safety,” Decree of the President of the Republic of Belarus No. 137, and Statute of the Council of Ministers No. 558, safety expertise is one of the types of authorizations needed to obtain a licence. Gosatomnadzor receives a licence request, reviews it for consistency with requirements and completeness, and establishes the terms for the safety expertise. Under the regulation on “Instruction on the procedure for conducting expertise in the field of atomic energy use and use of sources of ionizing radiation” Gosatomnadzor approves the task order (program) for expertise. The IRRS team was informed that Task orders for expertise include requirements that the expert organization visit and review the real conditions (actual correspondence with requirements) as part of its review and assessment. Completion of this visit is one of the conditions of acceptance of the expertise report by Gosatomnadzor.

The IRRS team was also informed that during the process of issuance of the sanitary passport for users of radioactive sources, a sanitary expertise is conducted. This expertise usually includes visits of inspectors from MOH to user premises to verify compliance with radiation hygienic standards in real conditions.

Thus, pre-authorization verification is organized for both MES and MoH: as part of safety expertise for licence (by MES) and as part of sanitary expertise for sanitary passport (by MoH). This ensures that all users will have a pre-authorization verification regardless of the type of source to be used.

Status of the initial mission findings

Suggestion 8 (S8) is closed as new legislation established bases for verification activities as part of the pre-licensing process of Gosatomnadzor.

6.6. REVIEW AND ASSESSMENT FOR DECOMMISSIONING ACTIVITIES

There were no findings in this area in the initial IRRS mission.

7. INSPECTION

7.1. GENERIC ISSUES

7.1.1. INSPECTION PROGRAMME

2016 MISSION RECOMMENDATIONS, SUGGESTIONS	
<p>Observation: <i>Gosatmnadzor performs reactive inspections in response to significant events; however the comprehensive and detailed set of criteria to initiate a reactive inspection has not been formalized.</i></p>	
(1)	<p>BASIS: GSR-1 Requirement 28 states that <i>“Inspections of facilities and activities shall include programmed inspections and reactive inspections; both announced and unannounced.”</i></p>
(2)	<p>BASIS: GS-G-1.3 para. 3.10 states that <i>“Reactive inspections, by individuals or teams, are usually initiated by the regulatory body in response to an unexpected, unplanned situation or incident in order to assess its significance and implications and the adequacy of corrective actions. A reactive inspection may be occasioned by an isolated incident or a series of lesser events occurring at the particular facility under consideration. Similarly, a reactive inspection may be made in response to a generic problem encountered at another plant or identified by the review and assessment staff of the regulatory body. Unlike planned inspections, which are scheduled, reactive inspections are only partly subject to planning by the regulatory body and may disrupt regulatory programmes and schedules. The regulatory body should assume that there will be a need for reactive inspections and should plan to meet its needs for staff and consultants accordingly. For example, in implementing the inspection programme, the regulatory body should establish a graded approach in responding to unforeseen circumstances. All available resources may be needed in responding to a serious event, whereas in the simplest of cases only one inspector may be needed. This pre-established graded approach in responding to special circumstances will assist in determining the appropriate level of resources for use in inspections.”</i></p>
S9	<p>Suggestion: Gosatmnadzor should consider developing detailed and comprehensive criteria for initiating reactive inspection to supplement their general criteria.</p>

Changes since the initial IRRS mission

Suggestion 9: The Council of Ministers revised the Statute of the Council of Ministers No. 133 in July 2019. The amendment authorized Gosatmnadzor to perform planned and unplanned inspections in response to an unforeseen situation or when “facts affecting safety” are detected. The regulator can determine how to conduct the inspections. The statute stipulates that these inspections are carried out to assess the actual state of construction and commissioning, identify and prevent causes of violations, and respond to emergencies or other events. Further, the operator is obliged to provide access to Gosatmnadzor inspectors at any time.

Following the revision to Statute No. 133, Gosatmnadzor revised its inspection instruction via Gosatmnadzor Order No. 49 in September 2018 to include specific criteria for unplanned inspections: (a) hazardous work or information on violations that could cause harm or emergencies, (b) failure to submit or untimely submission of information to Gosatmnadzor, (c) inconsistencies in information submitted to Gosatmnadzor, (d) accidents or incidents at similar facilities.

The Council of Ministers issued the Statute of the Council of Ministers No. 497 to address implementation of the new law “On Radiation Safety.” The statute provides similar grounds for conducting unplanned inspections, including when information is received on a violation or concern of harm to life and health or security, when prompt assessment of conditions is needed, or when the licensee has failed to eliminate violations or provide information.

In general, the operator is notified of the inspection at least one day before the start of the inspection, but the inspection may be immediately performed in serious cases. Gosatomnadzor staff stated that the head of inspection onsite can implement inspections at any time, and that staff can account for their hours and receive overtime pay. Gosatomnadzor inspectors generally are accompanied by staff of the operator during their inspections, and there is an agreement that the operator will provide this accompaniment within one hour to any location in the NPP. In practice, if an event occurs, immediate physical response by an inspector may not be needed. Gosatomnadzor has direct access to relevant plant parameters in the inspection offices and at headquarters in the emergency centre. Gosatomnadzor receives a written report from the operator for each event.

Gosatomnadzor has applied the criteria for unplanned inspections in multiple cases during the construction and commissioning phases, including several equipment and construction issues, as well as on receipt of information from a non-governmental organization that a violation had occurred.

The IRRS team was informed that evaluation of root causes and prevention of recurrence is considered by the regulatory authority as part of safety assessment procedures. Gosatomnadzor receives the results of the operator’s investigation and analyses whether the appropriate root cause has been found (with support from the TSO if needed). After this assessment, Gosatomnadzor can issue a letter back to the operator if the causal analysis has been found to be inappropriate. The assessment staff have power, like inspectors, to issue Acts that require the operator to take action to address such issues.

Status of the initial mission findings

Suggestion 9 (S9) is closed as the Government established and implemented criteria for conducting reactive inspections (also see SF2).

7.1.2. INSPECTION PROCESS AND PRACTICE

There were no findings in this area in the initial IRRS mission.

7.1.3. INSPECTORS

There were no findings in this area in the initial IRRS mission.

7.2. INSPECTION OF NUCLEAR POWER PLANTS

2016 MISSION RECOMMENDATIONS, SUGGESTIONS

Observation: *Inspection programmes for nuclear power plant construction and commissioning phase are in place; however, a formally documented analysis of whether these programmes cover all inspection areas listed in the Appendix to the IAEA GS-G-1.3 has not been performed. Inspection programme for nuclear power plant operational stage has not prepared.*

2016 MISSION RECOMMENDATIONS, SUGGESTIONS	
(1)	Basis: GSR-1 para. 4.50 states that <i>“The regulatory body shall develop and implement a programme of inspection of facilities and activities, to confirm compliance with regulatory requirements and with any conditions specified in the authorization. In this programme, it shall specify the types of regulatory inspection (including scheduled inspections and unannounced inspections), and shall stipulate the frequency of inspections and the areas and programmes to be inspected, in accordance with a graded approach.”</i>
(2)	Basis: Appendix to the GS-G-1.3 provides a list of <i>“inspection areas to be inspected in the course or regulatory inspections.”</i>
(3)	Basis: GSR Part 2 para 4.26 states that <i>“All individuals in the organization shall be trained in the relevant requirements of the management system. Such training shall be conducted to ensure that individuals are knowledgeable of the relevance and the importance of their activities and of how their activities contribute to ensuring safety in the achievement of the organization’s goals.”</i>
S10	Suggestion: The regulatory body should consider performing formally documented analysis to verify that inspection programmes for nuclear power plant construction and commissioning stages cover all inspection areas listed in the Appendix to the IAEA GS-G-1.3.
R14	Recommendation: The regulatory body should ensure that adequate inspection programmes and training are in place to support effective supervision of the NPP operational phase.
Observation: <i>The frequency, the focus, intensity, and the level of detail of Gosatomnadzor inspections are not fully determined based on the risks associated with activities planned to be inspected. A graded approach is not fully implemented in the Gosatomnadzor inspection programme for nuclear power plants. Implementation of graded approach is part of the action plan.</i>	
(1)	BASIS: GSR Part 1 (Rev.1) Requirement 29 states that <i>“Graded approach to inspections of facilities and activities. Inspections of facilities and activities shall be commensurate with the radiation risks associated with the facility or activity, in accordance with a graded approach.”</i>
R15	Recommendation: Gosatomnadzor should fully implement a graded approach for carrying out inspections at the nuclear power plants.

Changes since the initial IRRS mission

Suggestion 10: During the construction and commissioning phases of Unit 1, Gosatomnadzor developed a program of technical visits and meetings with Rostechnadzor, designed to assess the inspection programme against the GS-G-1.3 Appendix (now GSG-13, Appendix 4). The specific focus was on the readiness and the first fuel delivery and later startup of Unit 1. Rostechnadzor participated in several construction inspections. Gosatomnadzor also contracted with VO Safety (TSO of Rostechnadzor) which provided reports and checklists and extended support during inspections of manufacturers. This cooperation played an important role in the training and mentoring of junior inspectors. Gosatomnadzor was of the view that the inspection programme appropriately addressed all aspects of the GS-G-1.3 Appendix, as referenced in the suggestion. As

evidence of these activities, the IRRS team was provided with several of the VO Safety reports associated with inspections of the preparations for physical start-up, the system of personnel training, the preparations for first fuel delivery, and hot functional testing.

Recommendation 14: Gosatomnadzor has taken and planned several actions to develop an inspection programme and inspector training for the operational phase.

Inspection Programme for Operational Phase

In a cooperative agreement with experts from Sweden, Ukraine, and France, Gosatomnadzor assessed its inspection programme and were tasked with developing a plan to address the operational stage.

“Basic Programme of Supervision at NPP at the Stage of Operation” was issued to plan work, develop training, and allocate resources. This basic programme specifies that a graded approach will be implemented in preparing these documents. To implement the inspection programme, the basic programme establishes thematic areas for which general supervision programmes must be developed, as well as specific questions within thematic areas for which detailed documents or checklists will be established.

The four thematic areas are: (I) NPP safety, (II) radiation protection, (III) physical protection and safeguards, and (IV) leadership and management for safety.

The eleven specific areas under the four main areas are:

- I-1. NPP project management
- I-2. Ensuring operational safety and consideration of operating experience
- II-1. Radiation safety
- II-2. Management of radioactive waste
- II-3. Emergency preparedness and response
- III-1. Physical protection
- III-2. Accountability and control of nuclear material
- IV-1. Sustainable functioning of the organization
- IV-2. Management system
- IV-3. Safety culture and leadership
- IV-4. Staff training system

Topical issues are provided under each of these specific areas, such as development and implementation of modifications under area I-1. Gosatomnadzor will establish inspection procedures for each of the areas, addressing how often to inspect, how to inspect (e.g., by direct inspection, document review, or participation in internal meetings).

On December 3, 2021, the head of Gosatomnadzor issued Order No. 88, “On Approval of Basic Supervision Program at Belarusian NPP during Operation Phase.” This order approved the Basic Programme. The relevant groups were directed to implement the programme by developing the documents for these areas by September 1, 2022.

Gosatomnadzor inspectors are already inspecting an operating nuclear unit under existing procedures for construction and commissioning. These inspectors use the inspection manual (Order No. 49) and two general books on inspection practices for commissioning inspection and

manufacturing inspection. The rationale for this approach is that the site as a whole is still in a commissioning phase because Unit 2 has not yet started operation.

Currently, the general plan of inspections is established every 6 months, with specific plans being prepared for each week based on the priority set by the head of inspections onsite. While a large number of activities is going on for the construction of Unit 2, some routine inspections (such as of monthly equipment tests of every channel) are sampled less frequently. The weekly inspection plan is submitted to the department head at Gosatomnadzor headquarters and provided to the operator to ensure that documents are prepared in support of inspections. The IRRS team reviewed the inspection plan for that week (“Plan No. 15-04-28/2021,” dated December 1, 2021) and found that it addressed multiple safety significant activities.

Site Visit

The IRRS team visited the Belarus NPP site and observed an inspection of a monthly test of the emergency power system for Channel 1 of the safety systems at Unit 1. The inspector prepared a detailed checklist of activities that he would undertake during the inspection, as a tool for his own use. The IRRS team was provided with this checklist for their reference. The inspector visited the Unit 1 control room to review and copy logs associated with prior tests of the equipment, as well as to discuss the inspection with operating staff. The IRRS team also met with site inspectors and the operator’s chief engineer to discuss inspection activities.

Training of Inspectors for Operational Phase

The IRRS team also assessed the training programme for inspectors in the operational phase. Gosatomnadzor produces a training plan annually for all staff, which could include courses from the operating organization, courses held by Rosatom, or internships (such as the 6-month internship period that all new inspectors must complete). NPP onsite inspectors must pass an internal exam after at least 6 months of training before they can conduct inspections by themselves. For inspectors based at headquarters who inspect focused topics such as welding, the head of the department must determine whether the inspectors are appropriately trained. The IRRS team reviewed the professional training plan for 2021, dated January 20, 2021, which showed the courses needed, who would take them, the location, and the due date. The plan was approved by the head of human resources and the head of Gosatomnadzor.

The IRRS team considers Gosatomnadzor’s resourcefulness in obtaining a thorough training and qualification program for its inspectors throughout the construction and commissioning phases as an area of good performance.

Two key components of the inspectors’ technical competency are (1) deep knowledge of plant design acquired through their work at the Belarusian NPP from the beginning of construction through the current operational stage and (2) thorough understanding of stages of construction, commissioning, and operation acquired through bilateral relationships with other VVER regulators. The latter effort included site visits to other new VVER NPPs and inspection support from Rostekhnadzor. Of particular value was Rostekhnadzor’s experience with the Leningrad Unit 2 NPP, which proceeded to operation about two years before the Belarusian NPP and was the reference design.

Recommendation 15: Gosatomnadzor Order No. 49 applies a graded approach based on the safety class. First-class activities receive direct inspector observation. Second-class activities can be inspected after the test only if the inspector is busy with a first-class activity. Third-class activities can be assessed by documents, and fourth-class activities for certain equipment (called out in an annex to the inspection manual) are treated the same as third class. As noted above, the head of inspections onsite prioritizes work based on the operator’s planned activities and his knowledge of

their safety significance based on a thorough understanding of plant design and practice of regulators from other countries. This graded approach was applied for oversight of the construction and commissioning phases for Belarus NPP.

To address the operational phase, Gosatomnadzor included aspects in its multi-year strategy for 2021-2025 and arranged with STC NRS (the TSO) to conduct several research projects on a formal risk-informed approach to inspections. Currently, two reports are available on the main groups of safety performance indicators that Gosatomnadzor should assess, as well as the mathematics needed to assess them. A third report is underway that will establish 20 or more performance indicators to assess plant performance. Gosatomnadzor has also found suppliers for computer software that will enable it to conduct this risk-informed performance assessment. The first data on indicators and statistics is required to be submitted by the operator in June 2022 which will enable Gosatomnadzor to begin its quantitative approach.

Status of the initial mission findings

Suggestion 10 (S10) is closed as Gosatomnadzor conducted an assessment of the construction and commissioning inspection programmes through multiple meetings and technical exchanges, resulting in several reports.

Recommendation 14 (R14) is closed on the basis of progress made and confidence in the effective completion as Gosatomnadzor has prepared a basic programme for the development of inspection procedures for the operation phase to be completed by September 2022. Gosatomnadzor has established training plans for all of its inspection staff (see also SF2).

Recommendation 15 (R15) remains open as Gosatomnadzor has implemented a graded approach to its inspections during the construction and commissioning phases; however, work will continue for several years on the development of data and performance indicators to support full implementation of graded approach to inspections.

New finding from the follow-up mission

Gosatomnadzor currently assures the qualification of its inspection staff through various means such as internship opportunities and annual training plans for all staff. The current staff inspecting the Belarusian NPP have plant knowledge that was acquired through direct observation of plant construction and commissioning. This is a unique experience that will no longer be available to new hires. Gosatomnadzor may need to expand its approaches to ensure appropriate development of staff during the operational phase of the Belarusian NPP.

Gosatomnadzor is beginning development of a knowledge transfer program to capture and institutionalize its inspectors' knowledge, as well as insights gained from visits to other countries and cooperation with other regulators. Gosatomnadzor intends to continue these visits and inspector training on similar designs. Gosatomnadzor could benefit from a longer-term approach to staff development that would be sustainable in the operational phase.

Follow-Up Mission RECOMMENDATIONS, SUGGESTIONS AND GOOD PRACTICES

Observation: *Gosatomnadzor has created staff training and development plans during the construction and commissioning phases, but new challenges exist during the operating phase, as well as the potential to hire new staff without construction and commissioning experience. Gosatomnadzor does not have a long-term staff development strategy for inspectors beyond current annual training plans.*

Follow-Up Mission RECOMMENDATIONS, SUGGESTIONS AND GOOD PRACTICES	
(1)	BASIS: GSR Part 1 (rev. 1) para. 2.34 states that “ <i>As an essential element of the national policy and strategy for safety, the necessary professional training for maintaining the competence of a sufficient number of suitably qualified and experienced staff shall be made available.</i> ”
(2)	BASIS: GSG-12 para. 3.18 states that “ <i>...attention should be paid to the education, training and continuing development of the staff of the regulatory body in a dedicated human resources process within the integrated management system.</i> ”
(3)	BASIS: GSG-12 para. 6.43 states that “ <i>Staff who are assigned to inspect major facilities and activities (e.g the manufacture of components and the commissioning and initial operation of facilities) should have sufficient relevant work experience, preferably in facilities and activities of a type similar to those they will be assigned to inspect....</i> ”
SF2	Suggestion: Gosatomnadzor should consider expanding its current training planning into a longer-term (multi-year) staff development approach as well as other activities aimed at knowledge management and staff retention that will be sustainable during the operational phase of the Belarusian NPP, including addressing new technical areas of specialization needed.

7.3. INSPECTION OF RESEARCH NUCLEAR INSTALLATIONS

2016 MISSION RECOMMENDATIONS, SUGGESTIONS	
Observation: <i>Inspection procedures or checklists are not consistently prepared or available for facilities and activities other than NPPs.</i>	
(1)	BASIS: GSR Part 1 (Rev.1) Requirement 2, para. 2.5 (10) states that “ <i>an effective governmental, legal and regulatory framework for safety ... shall set out ... provision for the inspection of facilities and activities, and for the enforcement of regulations, in accordance with a graded approach.</i> ”
(2)	BASIS: GSR Part 1 (Rev.1) Requirement 28, para. 4.50 (10) states that “ <i>The regulatory body shall develop and implement a programme of inspection of facilities and activities, to confirm compliance with regulatory requirements and with any conditions specified in the authorization.</i> ”
(3)	BASIS: GS-G-1.3, para. 4.1 states that “ <i>To ensure that all nuclear facilities in a State are inspected to a common standard and that their level of safety is consistent, the regulatory body should provide its inspectors with written guidelines in sufficient detail. The guidelines should be followed to ensure a systematic and consistent approach to inspection while allowing sufficient flexibility for inspectors to take the initiative in dealing with new concerns that arise. Appropriate information and guidance should be provided to the inspectors ...Appropriate subjects for guidance and instructions for inspectors could include:</i> ... <i>(c) the use of regulatory requirements, regulations and guides and industrial standards;</i>

2016 MISSION RECOMMENDATIONS, SUGGESTIONS

	<p><i>(d) implementation of the inspection programme, including:</i></p> <ul style="list-style-type: none"> <i>—areas to be subject to inspection,</i> <i>—method of inspection to be used,</i> <i>—methods for selection of inspection samples,</i> <i>—relevant technical information and questionnaires;</i> <i>... ”</i>
S11	<p>Suggestion: Gosatomnadzor should consider development and consistent use of inspection procedures or checklists for facilities and activities other than NPPs.</p>

Changes since the initial IRRS mission

Suggestion 11: Gosatomnadzor developed checklists for storage of nuclear materials, subcritical test facilities, and critical test facilities, as approved by Gosatomnadzor Order No. 49. These have been in use since September 2020, and the IRRS team was provided with copies of each of these checklists.

Status of the initial mission findings

Suggestion 11 (S11) is closed as the checklists referenced in the suggestion have been developed and are in use.

7.4. INSPECTION OF WASTE MANAGEMENT FACILITIES

There were no findings in this area in the initial IRRS mission.

7.5. INSPECTION OF RADIATION SOURCES FACILITIES AND ACTIVITIES

There were no findings in this area in the initial IRRS mission.

7.6. INSPECTION OF DECOMMISSIONING ACTIVITIES

There were no findings in this area in the initial IRRS mission.

8. ENFORCEMENT

8.1. ENFORCEMENT POLICY AND PROCESS

2016 MISSION RECOMMENDATIONS, SUGGESTIONS	
<p>Observation: <i>The existing procedure is not sufficient to evaluate inspection findings and to consider their severity in order to decide whether or not to imply specific sanctions.</i></p>	
(1)	<p>Basis: GS-G-1.5 para. 3.75 states that “<i>Within the legal framework within which it is established, the regulatory body may draft and issue enabling regulations that detail procedures for determining and exercising enforcement actions as well as the rights and obligations of the operator.</i>”</p>
(2)	<p>Basis: GS-G-1.5 para. 3.85 states that “<i>The regulatory body should adopt clear administrative procedures governing the taking of enforcement actions. ... The procedures should cover in detail the decision making approach of the regulatory body in determining the level of action to take and the way in which actions should be taken, including dealing with the failure of the operator to comply with the regulatory enforcement requirements.</i>”</p>
S12	<p>Suggestion: Gosatomnadzor should consider improving the procedure for determining the safety significance of inspection findings to imply the appropriate enforcement action.</p>
<p>Observation: <i>MES/Gosatomnadzor and MoH are not able to require a licensee to take appropriate corrective actions in the event unforeseen radiation risks are identified.</i></p>	
(1)	<p>BASIS: GSR Part 1 (Rev.1) Requirement 31, para. 4.59 states that “<i>In the event that unforeseen radiation risks are identified, whether or not they are due to non-compliances with regulatory requirements or authorization conditions, the regulatory body shall require the authorized party to take appropriate corrective actions to reduce the risks</i>”.</p>
R16	<p>Recommendation: The Government should provide MES/Gosatomnadzor and MoH with the authority to require the authorized party to take appropriate corrective actions in the event unforeseen radiation risks are identified that are not the result of non-compliances.</p>

Changes since the initial IRRS mission

Suggestion 12: The Government adopted a code and procedural code on administrative offences, and these new codes are in force as of March 1, 2021. As a result, Gosatomnadzor can prepare offences and cases in several areas associated with violations of acts, requirements, and licence conditions, as well as on disobeying orders, failing to comply with requests, and obstructing inspections. Powers have been identified for the relevant Gosatomnadzor staff. Chief and lead inspectors have the power to conduct enforcement of certain penalties and are trained each time the code changes to ensure that they understand their responsibilities.

As part of their inspection Acts, inspectors are bound to document all violations that they identify. For certain individual violations, if the guilty person agrees with the inspector and the penalty is minor, the inspector can directly assess a small monetary penalty. In addition to penalties, inspectors have the power to issue an official letter with suggestions to exclude the source of future violations, and the operating organization must review the letter. These suggestions include a

response that is graded based on the significance. Information on this is included in Gosatomnadzor Order No. 49. The guidance is not very detailed at the construction stage because the improper activity must be fixed before proceeding and the timeline is not necessarily critical. At the operational stage, the criteria may change.

Without having implemented fully a graded approach to inspections (Recommendation 15), it is challenging to assess quantitatively the significance of a finding and to use it in establishing the appropriate enforcement mechanism. In addition, Gosatomnadzor's current practices do not allow for the identification of minor violations during the inspection process that can be communicated to the operator but not documented.

Recommendation 16: The authority to inspect radiation safety was established for MES and MoH in number of new/revised documents, including new Law dated June 18, 2019 No. 198-Z "On radiation safety" and new Statute of the Council of Ministers of the Republic of Belarus dated August 21, 2020 No. 497 "On the implementation of the Law of the Republic of Belarus" dated June 18, 2019 No. 198-Z "On radiation safety".

Gosatomnadzor Order No. 51 provided a procedure for conducting planned and unplanned inspections, as well as documenting the results of the inspections. This order specifically authorizes inspectors to require corrective actions in case of unforeseen radiation risks that are not the result of non-compliances. The template for the inspection report in this order provides space for such requirements.

MoH approved Resolution dated September 19, 2019 No. 97 "On the procedure for implementing measures of a technical (technological, verification) nature", which also provides for actions in case of unforeseen radiation risks that are not results of non-compliances.

Status of the initial mission findings

Suggestion 12 (S12) remains open as the changes to the administrative code are relatively new, with internal processes still under development.

Recommendation 16 (R16) is closed as new MES and MoH procedures for inspections provide for appropriate measures in case of unforeseen radiation risks that are not the result of non-compliances.

8.2. ENFORCEMENT IMPLEMENTATIONS

There were no findings in this area in the initial IRRS mission.

9. REGULATIONS AND GUIDES

9.1. GENERIC ISSUES

2016 MISSION RECOMMENDATIONS, SUGGESTIONS	
<p>Observation: <i>In some areas other than the NPP, the IRRS team concluded that the legal status of some guides namely TCPs is not fully clear. Some existing regulations and guides do not fully comply with the IAEA Standards. In addition there is some overlap and inconsistency between some regulations and guides, particularly in areas where MES and MoH have common regulatory responsibility.</i></p> <p><i>The need to review and revise the regulations and guides is part of the action plan.</i></p>	
(1)	<p>BASIS: GSR Part 1 (Rev.1) Requirement 33 states that <i>“Regulations and guides shall be reviewed and revised as necessary to keep them up to date...”</i></p>
(2)	<p>BASIS: GSR Part 1 (Rev.1) Requirement 34 states that <i>“The regulations and guides shall be kept consistent and comprehensive, and shall provide adequate coverage commensurate with the radiation risks associated with the facilities and activities, in accordance with a graded approach.”</i></p>
R17	<p>Recommendation: The MES and MoH should:</p> <ul style="list-style-type: none"> • complete efforts to clarify the legal status of TCPs in the area of radiation and nuclear safety, • continue developing and revising regulations and guides to avoid overlaps and/or inconsistency and to be in line with IAEA safety standards.

Changes since the initial IRRS mission

Recommendation 17: Status of technical codes of practice (TCPs) was clearly specified in the law on technical regulation and standardization. The TCPs are non-mandatory standards unless specifically mentioned and required by norms and rules approved by MES or MoH.

Since 2016, significant work was done by MES for development and revision of regulations and guidance: more than 30 regulations and guides were revised/developed. MoH initiated revision of some of its regulations, to be completed over the course of several years.

However, some of the revised MES regulations are still not fully consistent with IAEA safety standards or with MoH guidance. For example, the criteria for category 5 sealed sources are inconsistent with MOH regulations and with IAEA safety standards, also the scope of application of some of the regulations is not consistent with other regulations.

Status of the initial mission findings

Recommendation 17 (R17) remains open as MoH has not completed the revision of its regulations, and revised MES regulations still contain some inconsistencies with other regulations and IAEA safety standards.

9.2. REGULATIONS AND GUIDES FOR NUCLEAR POWER PLANTS

There were no findings in this area in the initial IRRS mission.

9.3. REGULATIONS AND GUIDES FOR RESEARCH NUCLEAR INSTALLATIONS

There were no findings in this area in the initial IRRS mission.

9.4. REGULATIONS AND GUIDES FOR WASTE MANAGEMENT FACILITIES

There were no findings in this area in the initial IRRS mission.

9.5. REGULATIONS AND GUIDES FOR IONIZING RADIATION SOURCES FACILITIES AND ACTIVITIES

2016 MISSION RECOMMENDATIONS, SUGGESTIONS	
Observation: <i>There is lack of non-mandatory regulatory guides for users of radiation sources on how to implement the safety requirements of normative legal acts in the field of radiation safety.</i>	
(1)	BASIS: <i>GS-G-1.5 para. 3.11 states that “Guides, of a non-mandatory nature, on how to comply with the regulations shall be prepared, as necessary”. Irrespective of the degree to which the regulatory body has developed prescriptive regulations, the regulatory body is required to give consideration to supplementing its regulations with guidance documents, where appropriate, based on those of the IAEA and of the other joint sponsoring organizations of this Safety Guide.”</i>
S13	Suggestion: MES should consider development of more non-mandatory regulatory guides for implementation of safety regulations and requirements, as necessary.

Changes since the initial IRRS mission

Suggestion 13: According to new the Law of the Republic of Belarus dated June 18, 2019 No. 198-Z “On Radiation Safety”, both MES and MoH are authorized to develop non-mandatory guides for users/licensees.

MES has developed and approved several guidance documents, and there is an approved plan for development of more guidance.

MoH has not developed any non-mandatory guidance on implementation of safety regulations and requirements, and the IRRS team was informed that MoH does not plan to do so.

Status of the initial mission findings

Suggestion 13 (S13) is closed as MES have a process for development and approval of non-mandatory regulatory guides for implementation of safety regulations and requirements. A number of such guides were approved and there is a plan for development of other guidance.

9.6. REGULATIONS AND GUIDES FOR DECOMMISSIONING ACTIVITIES

There were no findings in this area in the initial IRRS mission.

10. EMERGENCY PREPAREDNESS AND RESPONSE – REGULATORY ASPECTS

10.1. GENERAL EPR REGULATORY REQUIREMENTS

2016 MISSION RECOMMENDATIONS, SUGGESTIONS	
<p>Observation: <i>Some of the regulatory requirements for emergency preparedness and response for facilities and activities are not yet established (mainly in relation to the Belarusian NPP) or not fully in compliance with the IAEA GSR Part 7. For example, the IAEA emergency preparedness categories as basis for the hazard assessment and regulatory criteria or guidance are not yet in place.</i></p> <p><i>Revising regulatory requirements on EPR in line with GSR Part 7 and adopting emergency preparedness categories are part of the Action Plan.</i></p>	
(1)	<p>BASIS: GSR Part 7 para. 4.12 states that <i>“The regulatory body is required to establish or adopt regulations and guides to specify the principles, requirements and associated criteria for safety upon which its regulatory judgements, decisions and actions are based [...].”</i></p>
(2)	<p>BASIS: GSR Part 7 para. 4.19 states that <i>“For the purposes of these safety requirements, assessed hazards are grouped in accordance with the emergency preparedness categories [...]. The five emergency preparedness categories [...] establish the basis for a graded approach to the application of these requirements and for developing generically justified and optimized arrangements for preparedness and response for a nuclear or radiological emergency.”</i></p>
R18	<p>Recommendation: MES/Gosatomnadzor and MoH should jointly:</p> <ol style="list-style-type: none"> i. adopt IAEA emergency preparedness categories as the basis for a graded approach for planning the response to a nuclear or radiological emergency, ii. prepare and promulgate documented criteria and guidance for operating organizations to perform, and periodically review, the on-site hazard assessment as basis for a graded approach to emergency preparedness arrangements and iii. review, update and complete the other regulatory requirements on preparedness and response for a nuclear or radiological emergency for all operating organizations, in line with IAEA safety standards in the area of emergency preparedness and response.

Changes since the initial IRRS mission

Recommendation 18: The main EPR topics are reflected in different legislative acts which were amended or newly promulgated. New general requirements are established in the Law on Radiation Safety. Some general requirements which were included in previously adopted Governmental Resolutions on EPR (Statutes of the Council of Ministers) have been revised and amended. Detailed regulatory requirements were either revised or created through adoption of various new MES Resolutions, especially in relation to the NPP.

In 2017, MES adopted Resolution No. 38 on “Requirements for categorizing emergency planning in the event of a nuclear or radiological emergency” which defines five emergency preparedness categories in line with those provided in IAEA GSR Part 7, and includes criteria and guidance for

the operating organizations on how to use the emergency preparedness categories for a graded approach in relation to planning purposes, based on the radiological risk perceived for their facility or activity.

After the establishment of emergency preparedness categories in 2017, MES/Gosatomnadzor started to update regulatory requirements for each preparedness category. MES Resolution 24 (2017) includes detailed regulatory requirements for the structure and content of on-site emergency plans of NPP and other facilities in emergency preparedness category I (EPC I), and MES Resolution 43 (2018) includes detailed regulatory requirements for the structure and content of on-site emergency plans of facilities in EPC II (research reactors).

In 2018, MES revised the Strategy for responding to radiation emergencies and added a new chapter on the mechanism for provision and exchange of information in radiation emergencies including public communication, which was agreed with MoH and adopted on December 31, 2019. The document includes updated principles and requirements which apply to all facilities and activities, including the NPP, and addresses and reinforces, in line with the provisions of IAEA GSR Part 7: the definition of emergency preparedness categories, the emergency classification system, emergency planning zones (EPZs) and distances (EPDs), generic and operational (OILs) criteria for responding to radiation emergencies, and emergency action levels (EALs). Based on the revised strategy, IAEA EPREV findings and feedback from exercises, the on-site emergency plan of the Belarusian NPP which was initially developed and adopted in 2018, has been reviewed and its revision approved on July 7, 2020.

General regulatory requirements for planning the emergency response at facilities and activities involving the use of radioactive sources were initially included in MES Resolution 22 (2010). After the Law on Radiation Safety was adopted in 2019, MES Resolution 22 was replaced by three main documents, one of which is dealing with general requirements on EPR that address the structure and content of on-site emergency plans for facilities in EPC III, and is now in the final stage of being approved.

Regulatory requirements on EPR in relation to activities in EPC IV are included in the Statute of Council of Ministers No. 495 (2001) amended 2020, in the Statute of Council of Ministers No. 560 (2009) amended 2017, and in the MES Resolution 38 (2017). MES/Gosatomnadzor has revised and updated the regulatory requirements in relation to EPC IV, and a draft document has been prepared recently, which includes detailed regulatory requirements for EPR in relation to transport emergencies and is now in the process of getting approved by relevant governmental authorities.

In relation to EPC V, the Republic of Belarus has territories which are situated in the emergency planning zones and/or distances of NPPs abroad. For these areas, the regulatory requirements adopted in the Statute of Council of Ministers No. 211 (2018), together with the general requirements included in the relevant Statutes of Council of Ministers No. 495 (2001, amended 2020) and No. 1242 (2010) as described above, are applicable.

Status of the initial mission findings

Recommendation 18 (R18) is closed on the basis of progress made and confidence in the effective completion as emergency preparedness categories have been adopted, together with criteria and guidance on how to use them, and most of regulatory requirements on EPR have been revised, updated and adopted in line with the provisions of IAEA GSR Part 7, while some are still in the process of getting approved.

10.2. FUNCTIONAL REGULATORY REQUIREMENTS

2016 MISSION RECOMMENDATIONS, SUGGESTIONS	
<p>Observation: <i>Although general classification of emergencies in terms of size and damage exist, a system for emergency classification in line with IAEA safety standard GSR Part 7 and specific criteria for the NPP are not yet in place. The adoption of IAEA system for emergency classification is part of the Action Plan.</i></p>	
(1)	<p>BASIS: GSR Part 7 para. 5.14 states that “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 [...]. This shall include a system for classifying all types of nuclear or radiological emergency as follows: [...]”</p>
R19	<p>Recommendation: MES/Gosatomnadzor should ensure that a system for emergency classification and operational criteria that follows IAEA GSR Part 7 are adopted by the NPP, for the effective declaration of the emergency and activation of the response.</p>

Changes since the initial IRRS mission

Recommendation 19: In 2018, MES/Gosatomnadzor adopted the Resolution No. 52 “On the Approval of Norms and Rules for Ensuring Nuclear and Radiation Safety: Safety of Nuclear Power Plants in the event of a nuclear and (or) radiological emergency. Requirements for establishing a class emergency, the procedure for declaring an emergency, prompt transfer of information, and Requirements for the procedure for investigation and accounting of violations in the operation of Nuclear Power Plants”. MES Resolution No. 52 (2018) includes requirements for emergency classification in line with IAEA GSR Part 7, and detailed criteria for the NPP operator to establish Emergency Action Levels (EALs) to be used to trigger the activation of the response and the implementation of immediate response actions. Initially (in 2018), only three emergency classes have been adopted: alert, site area emergency, and general emergency.

After the regulatory requirements were issued, the Belarusian NPP has adopted the emergency classification system described in MES Resolution No.52 and included in addition the emergency class ‘facility emergency’ thus becoming fully compliant with the IAEA emergency classification system. Also, the NPP operator developed sets of Emergency Action Levels (EALs) for each emergency class. During discussions held, the on-site emergency plan of the Belarusian NPP has been presented as evidence (document revision from July 7th, 2020). The EALs are included in Appendix 27 of the on-site emergency plan. Moreover, the IRRS team was informed that the EALs are used in drills and exercises for the classification of the emergency and for triggering the activation of appropriate immediate response actions.

Status of the initial mission findings

Recommendation 19 (R19) is closed as MES/Gosatomnadzor adopted the IAEA emergency classification system and detailed criteria for the NPP operator to establish Emergency Action Levels (EALs). These have been implemented by the NPP operator who developed sets of EALs for each emergency class and included them in the on-site emergency plan.

10.3. REGULATORY REQUIREMENTS FOR INFRASTRUCTURE

2016 MISSION RECOMMENDATIONS, SUGGESTIONS	
<p>Observation: According to the Law on Atomic Energy Use, the on-site emergency plan of the NPP should be approved six months prior to the date of commissioning. In addition, the Law requires practical testing of the on-site plan before commissioning. This timeline may not provide adequate time for testing and evaluation of the on-site and off-site emergency plans.</p>	
(1)	<p>BASIS: GSR Part 7 para. 4.14 states that “Before commencement of operation of the facility or commencement of the activity, the regulatory body shall ensure, for all facilities and activities under regulatory control that could necessitate emergency response actions, that the on-site emergency arrangements:(a) Are integrated with those of other response organizations, as appropriate; [...]; (c) Provide, to the extent practicable, assurance of an effective response to a nuclear or radiological emergency.”</p>
S14	<p>Suggestion: MES/Gosatomnadzor should consider ensuring that the organization of the exercise and methodology for evaluation of the exercise are in place before the on-site plan is approved.</p>
S15	<p>Suggestion: MES should consider exercising the on-site and off-site emergency plans together, before commissioning of the NPP, in order to ensure that on-site and off-site EPR arrangements are integrated and provide for an effective response to a nuclear or radiological emergency.</p>

Changes since the initial IRRS mission

Suggestion 14: For the evaluation of effectiveness of drills and exercises of the NPP, MES/Gosatomnadzor has approved on June 29, 2017 the Order No. 31 on “Methodological Recommendations for assessing the effectiveness of emergency response drills and exercises at a Nuclear Power Plant”. For facilities using radioactive sources, similar methodological recommendations were adopted earlier, through the Order No. 32 of August 2016.

Significant progress has been made in the recent years in relation to the organization and conduct of emergency response exercises with the participation of the NPP and all off-site response organizations of SPEES system. On October 18-19, 2017, an emergency response exercise aimed at testing the off-site emergency arrangements prior the commissioning of the NPP was conducted with the participation of off-site response organizations of the SPEES. On October 10, 2018, another emergency response exercise was conducted to test the on-site arrangements of the Belarusian NPP, and the response actions to protect the personnel on the site.

Suggestion 15: In October 2019, prior to the commissioning of the NPP, MES conducted a full-scale emergency response exercise with the participation of the NPP operator and main off-site response organizations of SPEES, which was aimed at testing the on-site and the off-site emergency plans and arrangements together. The System of Situational Crisis Centres was activated, to support management decisions on protection of population and territories in case of a nuclear emergency at Belarusian NPP. During the exercise, Gosatomnadzor participated with its Information and Analytical Centre (IAC) and Mobile Laboratory.

Since then, based on existing regulatory requirements and NPP’s on-site internal procedures, a system of drills and exercises was put in place, to periodically test the on-site plan of the NPP and

the coordination with off-site response organizations. The NPP conducts monthly drills/exercises, to test the full on-site plan, or parts of the on-site plan. One or two times per year, Gosatomnadzor joins these drills and exercises and challenges the NPP operator with scenarios which are developed by Gosatomnadzor in cooperation with the Russian Nuclear Safety Institute of the Russian Academy of Science (IBRAE). The most recent full-scale on-site exercise was conducted on November 26, 2021. Gosatomnadzor and other response organizations of SPEES also participated in the exercise. While the evaluation of the exercise results is still in progress, corrective actions have been already implemented in relation to identified deficiencies. On December 03, 2021 Gosatomnadzor adopted the internal Instruction No. 86 “on procedures for interaction between Gosatomnadzor-IAC and Gosatomnadzor on-site inspectors at the Belarusian NPP”, including the actions the on-site inspectors should take, how they should act and protect themselves, and the information they should provide to the Gosatomnadzor-IAC for the assessment of emergency conditions.

The initiative of Gosatomnadzor to develop challenging scenarios for emergency exercises at the NPP is considered an area of good performance.

Status of the initial mission findings

Suggestion 14 (S14) is closed as MES/Gosatomnadzor developed the methodology for the evaluation of effectiveness of NPP drills and exercises, and ensured that the organization of the on-site exercise at the NPP and the methodology for evaluation of the exercise were in place before the on-site plan was approved.

Suggestion 15 (S15) is closed as MES conducted a full-scale emergency response exercise before the commissioning of the NPP in order to test the on-site and off-site emergency plans together.

10.4. ROLE OF REGULATORY BODY DURING RESPONSE

2016 MISSION RECOMMENDATIONS, SUGGESTIONS	
Observation: <i>While MES roles are clearly defined as a whole, Gosatomnadzor’s role in a nuclear or radiological emergency is not well defined or documented in legislation.</i>	
(1)	BASIS: GSR Part 7 para. 4.7 states that “ <i>The government shall ensure that all roles and responsibilities for preparedness and response for a nuclear or radiological emergency are clearly allocated in advance among operating organizations, the regulatory body and response organizations.</i> ”
(2)	BASIS: GSR Part 7 para. 4.8 states that “ <i>The government shall ensure that response organizations, operating organizations and the regulatory body have the necessary human, financial and other resources, in view of their expected roles and responsibilities and the assessed hazards, to prepare for and to deal with both radiological and non-radiological consequences of a nuclear or radiological emergency [...].</i> ”
R20	Recommendation: The Government should ensure that: i) clear roles and responsibilities are assigned to Gosatomnadzor in the area of emergency response and ii) these roles are consistent with and not duplicative of those established for MoH.
R21	Recommendation: Gosatomnadzor should develop its own internal EPR arrangements including: emergency plans and procedures; designation of emergency response structure; internal training, drills and exercise programs.

Changes since the initial IRRS mission

Recommendation 20: The Government adopted in June 2019 the Law on Radiation Safety, in which the functions of MES, MES/Gosatomnadzor and MoH are defined, for routine and emergency conditions.

The main response functions of MES/Gosatomnadzor were previously described to some extent by the Statute of the Council of Ministers of the Republic of Belarus dated June 21, 2016 No. 479 “On Approval of the Concept of Creating a System of Situational Crisis Centres in the Republic of Belarus”, and are now supplemented by MES Resolution 33 (2020) on “Regulations on the Order of functioning of the information management system of SPEES”.

In addition, the roles and responsibilities of MES/Gosatomnadzor and MoH are now clearly and consistently described in the “National Plan with protective actions in a radiation accident at the Belarusian NPP”, which was approved by Statute of the Council of the Ministers of the Republic of Belarus No. 211 (2018).

Moreover, the “Order on the establishment of the Information and Analytical Centre of Gosatomnadzor (IAC)” and the “Regulations for the functioning of the IAC” which were approved by Gosatomnadzor in 2017 clearly define the role and responsibilities of Gosatomnadzor during the response to a nuclear or radiological emergency.

Recommendation 21: In 2017, through internal Order No. 33, MES/Gosatomnadzor established its own emergency response centre, which is called the Information and Analytical Centre (IAC). The emergency response organization was created and is composed of 5 working groups: the decision-making group; the group for nuclear safety analyses; the group for radiological consequences assessments; the public information group; and the technical support group. The emergency response plan of Gosatomnadzor-IAC was approved; its last revision is from July 12, 2021. The online connection was established between Gosatomnadzor-IAC and the Belarusian NPP, the plant status parameters are sent continuously through dedicated communication lines, and analysed at Gosatomnadzor-IAC on a routine basis, with specific analysis software.

Internal emergency procedures and protocols for collaboration with other agencies and ministries (e.g., with Ministry of Natural Resources and Environmental Protection, and with the Republican Emergency Management and Response Centre of MES) on mutual support and collaboration during the response to a nuclear or radiological emergency have been developed and approved since the establishment of Gosatomnadzor-IAC. They have been provided for evidence during the discussions held.

The IRRS team was informed that Gosatomnadzor approves its internal training, drills, and exercise programs every six months. Two to three times per year, the drills/exercises include the participation of all working groups of Gosatomnadzor-IAC. The most recent internal exercise with the participation of all groups of IAC was conducted on September 24, 2021. After the exercise, Gosatomnadzor-IAC elaborated an evaluation report which includes a self-assessment of participants’ performance, proposals for corrective actions, and recommendations for short-term and long-term actions for improvement of existing arrangements at Gosatomnadzor-IAC.

Within the framework of the integrated management system of Gosatomnadzor, a main process on "Regulatory control in the field of emergency preparedness and response" was introduced through Gosatomnadzor Order No. 64 of December 27, 2019.

The IRRS team acknowledged the commitment of MES/Gosatomnadzor to fulfil the recommendations and suggestions of the initial mission in the area of EPR, in its both roles, as a regulator and as response organization responsible to advice the government in aspects related to

preparedness and response for a nuclear or radiological emergency. In a very short timeframe, the EPR infrastructure was strengthened in line with the IAEA safety standards, so to cope with the commissioning and operation of the Belarusian NPP. MES/Gosatomnadzor proved to take full ownership of its responsibilities on EPR, and this is the best indicator for achieving long-term sustainability. **The progress made in the area of EPR over a very short time is recognized as a good performance.**

Status of the initial mission findings

Recommendation 20 (R20) is closed as additional legislative acts have been adopted to clarify the roles and responsibilities of MES/ Gosatomnadzor and MoH during the response to a nuclear or radiological emergency.

Recommendation 21 (R21) is closed as Gosatomnadzor established its own emergency response centre, developed and approved its emergency response plan and associated emergency procedures, and established internal training, drills and exercise programs in relation to its response functions.

11. ADDITIONAL AREAS

11.1. CONTROL OF MEDICAL EXPOSURES

2016 MISSION RECOMMENDATIONS, SUGGESTIONS	
<p>Observation: <i>Contrary to IAEA Safety standards Article 15 of the Law on Radiation Safety of Population requires the establishment of dose limits for patients.</i></p>	
(1)	<p>BASIS: GSR Part 3 Para 3.145 in the Scope of Medical Exposure states that “Dose limits do not apply to medical exposures.”</p>
R22	<p>Recommendation: The Government should remove the requirement to establish dose limits to patients from the law.</p>
<p>Observation: <i>The regulations do not require that the medical physicists be involved with optimization of medical exposures.</i></p>	
(1)	<p>BASIS: GSR Part 3 Requirement 38 states that “Registrants and licensees and radiological medical practitioners shall ensure that protection and safety is optimized for each medical exposure .”</p>
(2)	<p>BASIS: GSR Part 3 para. 3.166 states that “in accordance with para. 3.153(d) and (e), the medical physicist shall ensure that:</p> <ul style="list-style-type: none"> a) All sources giving rise to medical exposure are calibrated in terms of appropriate quantities using internationally accepted or nationally accepted protocols; b) Calibrations are carried out at the time of commissioning a unit prior to clinical use, after any maintenance procedure that could affect the dosimetry and at intervals approved by the regulatory body; c) Calibrations of radiotherapy units are subject to independent verification prior to clinical use; d) Calibration of all dosimeters used for dosimetry of patients and for the calibration of sources is traceable to a standards dosimetry laboratory.”
(3)	<p>BASIS: GSR Part 3 para. 3.167 states that “registrants and licensees shall ensure that dosimetry of patients is performed and documented by or under the supervision of a medical physicist, using calibrated dosimeters and following internationally accepted or nationally accepted protocols, including dosimetry to determine the following:</p> <ul style="list-style-type: none"> a) For diagnostic medical exposures, typical doses to patients for common radiological procedures; b) For image guided interventional procedures, typical doses to patients;”
<p>Observation: <i>Referrals for asymptomatic exposure and self-referred patients are not explicitly covered by the regulations as required by IAEA safety standards.</i></p>	
(4)	<p>BASIS: GSR Part 3 Requirement 36, para 3.150 states that “Registrants and licensees shall ensure that no patient, whether symptomatic or asymptomatic, undergoes a medical exposure unless:</p> <ul style="list-style-type: none"> a) the radiological procedure has been requested by a referring medical practitioner

2016 MISSION RECOMMENDATIONS, SUGGESTIONS

	<p><i>and information on the clinical context has been provided, or it is part of an approved health screening programme;</i></p> <p><i>b) The medical exposure has been justified through consultation between the radiological medical practitioner and the referring medical practitioner, as appropriate, or it is part of an approved health screening programme;</i></p> <p><i>c) A radiological medical practitioner has assumed responsibility for protection and safety in the planning and delivery of the medical exposure as specified in para. 3.153(a);</i></p> <p><i>d) The patient or the patient’s legal authorized representative has been informed, as appropriate, of the expected diagnostic or therapeutic benefits of the radiological procedure as well as the radiation risks.”</i></p>
Observation: <i>Dose limit of 1 mSv applies to medical exposure of asymptomatic individuals.</i>	
(5)	BASIS: <i>GSR Part 3 para. 3.145 states that “ Dose limits do not apply to medical exposures.”</i>
Observation: <i>The specific criteria for releasing patients after I-131 therapy is missing.</i>	
(6)	BASIS: <i>GSR Part 3 Requirement 40 states that “ Registrants and licensees shall ensure that there are arrangements in place to ensure appropriate radiation protection for members of the public and for family members before a patient is released following radionuclide therapy.”...“(a) The activity of radionuclides in the patient is such that doses that could be received by members of the public and family members would be in compliance with the requirements set by the relevant authorities (para. 3.149(b));”</i>
R23	<p>Recommendation: The MoH should revise the regulations to</p> <ul style="list-style-type: none"> • include a requirement <ul style="list-style-type: none"> ○ for using medical physicists in optimizing medical exposures and ○ for a referral process for asymptomatic exposure and self-referred patients; • remove dose limits for medical exposures and • establish specific criteria for releasing patients after I-131 therapy.

Changes since the initial IRRS mission

Recommendation 22: The Government has issued a law dated June 18, 2019 No. 198-Z “On Radiation Safety” in which there is no dose limit for a patient. Instead, the Law “On Radiation Safety” requires MoH to establish Diagnostic Reference Levels (DRLs) for medical exposures in the Article 20, point 6.

Recommendation 23: The Government has issued a law dated June 18, 2019 No. 198-Z “On Radiation Safety” which requires the adaptation of appropriate measures to minimize the probability of unjustified medical exposures. Additionally, the MoH published the Resolution 1304 of December 8, 2020 “On the Departments of Radiation Safety and Dosimetry” which authorizes the departments of radiation safety and dosimetry to supervise radiation safety at

subordinate facilities including the referral process for diagnostic and therapeutic procedures with radiation sources including asymptomatic and self-referred patients. Moreover, the requirement on dose limit of 1 mSv for medical exposures of asymptomatic individuals does not exist anymore.

The MoH has established an order dated November 18, 2020, No. 105 with instructions and criteria for the discharge of patients who have undergone a therapeutic procedure with sealed or unsealed radiation sources.

The MoH has not required the use of medical physicists in optimizing medical exposures. However, job descriptions have been developed for the involvement of medical physicists in radiation therapy but not in nuclear medicine, diagnostic radiology or image guided interventional procedures. The Ministry of Labour has established a resolution in 2013 No. 49 “Employee Positions for All Types of Activities” defining the responsibilities of medical physicists in radiotherapy. Moreover, the specialty of the medical physicist is included in the Unified Qualification Handbook of Employee Positions (EKSD) “Employee Positions for All Types of Activities”.

The Ministry of Education has established resolutions on higher education including education of medical physicist, as follows:

- Resolution 130, 2018, “On the Approval of the Educational Standard of Higher Education of the 1st Stage in the Specialty 1-31 04 05 Medical Physics”, and
- Resolution 81 of, 2019 (amended on June 23, 2020) “On the Approval of Educational Standards of Higher Education of the 2nd Stage in the Specialty 1 - 31 80 22 Medical physics” (master’s degree).

Since 2018 about 70 medical physicists have been graduated after following the educational programme in Medical Physics conducted by the International State University “A.D. Sakharov BSU”. The IRRS team was informed that due to missing requirements, medical physicists are not used in the optimization of radiation protection in nuclear medicine, diagnostic radiology and image guided interventional procedures.

The IRRS team was informed during the discussions with the counterparts at the Republican Scientific Practical Centre of Oncology and medical radiology N.N.Aleksandrov that the educational programme in Medical Physics might not be available and the medical physics specialty not officially recognized at national level in the upcoming years. This might further jeopardise the optimisation of the protection in medical exposures to comply with the IAEA safety standards.

Status of the initial mission findings

Recommendation 22 (R22) is closed as there is no longer any requirement in the national legislation for the establishment of dose limits for patients.

Recommendation 23 (R23) remains open as the regulations do not include a requirement for the use of medical physicists in the optimization of medical exposures. However, the other aspects of the recommendation have been addressed appropriately.

11.2. OCCUPATIONAL RADIATION PROTECTION

2016 MISSION RECOMMENDATIONS, SUGGESTIONS	
Observation: <i>Worker doses are being tracked, however, regulatory requirements regarding safety and radiation protection for external workers are not in full compliance with IAEA safety standards.</i>	
(1)	BASIS: GSR Part 3 Requirement 23 states that: <i>“Employers and registrants and licensees shall cooperate to the extent necessary for compliance by all responsible parties with the requirements for protection and safety”.</i>
S16	Suggestion: The regulatory bodies should consider updating requirements needed to provide adequate safety and radiation protection of external workers.
Observation: <i>Article 41 of the Law on the Atomic Energy is not compliant with the IAEA Standards concerning the conditions of service.</i>	
(1)	BASIS: GSR Part 3 Requirement 27 states that <i>“Employers, registrants and licensees shall not offer benefits as substitutes for measures for protection and safety.”</i>
R24	Recommendation: The Government should analyse and make a decision on how to adapt the legislation in order to comply with the IAEA safety standards in the area of conditions of services.
Observation: <i>The actual format of the National Dose Records Register doesn't allow for an easy and efficient use of the available data for radiation protection issues.</i>	
(1)	BASIS: GSR Part 1 Requirement 35 states that <i>“The regulatory body shall make provision for establishing, maintaining and retrieving adequate records relating to the safety of facilities and activities”.</i>
(2)	BASIS: GSR Part 3 Requirement 20, para. 3.73 states that <i>“The regulatory body shall be responsible, as appropriate, for: ... d) Review of periodic reports on occupational exposure (including results of monitoring programmes and dose assessments) submitted by employers, registrants and licensees;”</i>
S17	Suggestion: The MoH should consider improving the content as well as the access, as appropriate, to the national register of individual dose records for the occupationally exposed workers.
Observation: <i>Some inspectors were observed not using individual dosimetry. And this indicates a potential concern with the safety culture. In addition, inspectors do not use measuring devices during inspections.</i>	
(1)	BASIS: Code of Conduct on the Safety and Security of Radioactive Sources para. 22 (d) states that <i>“Every State should ensure that its regulatory body promotes the establishment of a safety culture among all individuals and in all bodies involved in the management of radioactive sources.”</i>
(2)	BASIS: GSR Part 3 para. 3.100 states that <i>“For any worker who usually works in a controlled area, or who occasionally works in a controlled area and may receive a significant dose from occupational exposure, individual monitoring shall be undertaken where appropriate, adequate and feasible.”</i>
S18	Suggestion: MES and MoH should consider stressing the need for use of personal

2016 MISSION RECOMMENDATIONS, SUGGESTIONS	
	dosimetry with all inspectors. MES and MoH should consider evaluation, procurement, and use of measuring devices to support independent field measurements by inspectors.
Observation: <i>There is no process for the recognition of Radiation specialists such as qualified experts.</i>	
(1)	BASIS: GSR Part 1 Requirement 11, para. 2.34 states that <i>“As an essential element of the national policy and strategy for safety, the necessary professional training for maintaining the competence of a sufficient number of suitably qualified and experienced staff shall be made available.”</i>
(2)	BASIS: GSR Part 3 Requirement 2, para. 2.21 states that <i>“The government shall ensure that requirements are established for:</i> <i>a) Education, training, qualification and competence in protection and safety of all persons engaged in activities relevant to protection and safety;</i> <i>b) The formal recognition of qualified experts;</i> <i>c) The competence of organizations that have responsibilities relating to protection and safety.”</i>
(3)	BASIS: GSR Part 3 Requirement 3, para. 2.32 states that <i>“The regulatory body shall ensure the application of the requirements for education, training, qualification and competence in protection and safety of all persons engaged in activities relevant to protection and safety.”</i>
S19	Suggestion: The Government should consider establishing appropriate requirements for the qualification, and make sufficient arrangements for the training and the recognition of radiation safety specialists (i.e., radiation protection officers, qualified experts) in order to ensure a reliable availability of such specialists.

Changes since the initial IRRS mission

Suggestion 16: The MoH has issued regulation to require the users of radiation sources to develop and implement a radiation monitoring system (individual and workplace), which concerns all workers. The regulation includes:

- The Order of June 19, 2017, No.668 “On Approval of the Procedure for Registration and Control of Radiation Doses to Personnel, Emergency Workers and the Population within the Framework of the Unified State System for Monitoring and Accounting of Individual Irradiation Doses”.
- The Resolution of November 27, 2020, No.110 “On the Procedure for Recording Radiation Doses Received by the Population and Personnel”.

However, there are no specific requirements to ensure that radiation safety and protection of external workers is in line with IAEA safety standards.

Recommendation 24: A draft Law “On the Regulation of Safety in Nuclear Energy” is being developed which will repeal the Law “On the Use of Nuclear Energy” and include requirements for the conditions of service in line with the IAEA safety standards. The draft of the new Law was elaborated with the close involvement of the regulatory body and is to be submitted to the Council of Ministers shortly (see R1).

Suggestion 17: The MoH has adopted the Resolution No. 110 of November 27, 2020 “Regulations on the procedure for accounting radiation doses received by the population and personnel”, which determines the procedure for calculating radiation doses received by the population and personnel in situations of planned, emergency, and existing exposure.

Regional centres of hygiene, epidemiology and public health collect occupational doses and send the data to the State Institution “Republican Scientific and Practical Center for Radiation Medicine and Human Ecology”, under the auspices of which the State Dosimetric Register operates.

The occupational doses are kept permanently in the State Dosimetric Register which annually submits an analytical report to the MoH and the Republican Centre for Hygiene, Epidemiology and Public Health.

Legal entities and individuals can request information on occupational doses in line with the corresponding legislative provisions.

Suggestion 18: Gosatomnadzor and MoH have equipped their inspectors with individual dosimeters and ensured their use by procedures. Since the initial IRRS mission Gosatomnadzor and MoH have increased the number of individual dosimeters. Moreover, MoH has analysed the technical capabilities of its measuring equipment, defined related needs, and gradually updates the equipment.

Gosatomnadzor’s inspectors may use measuring equipment available in Gosatomnadzor or the TSOs and perform indicative measurements, when needed, with equipment available to the inspected entities. In joint inspections conducted by Gosatomnadzor and the MoH equipment from an accredited MoH’s laboratory is used.

Suggestion 19: The Government has issued the Law “On Radiation Safety”, which stipulates specific requirements on the roles, responsibilities, and qualifications of radiation safety specialists.

The training requirements for radiation safety specialists are stipulated in the Resolution of the MES dated April 16, 2020 No.18, while the procedure for their certification is established in the Order “On the Procedure for Certification of Employees, Individual Entrepreneurs Providing Consulting Services in the Field of Radiation Safety”, approved by the Statute of the Council of Ministers of the Republic of Belarus dated August 21, 2020 No.497 "On the Implementation of the Law of the Republic of Belarus of June 18, 2019 No. 198-Z “On Radiation Safety”.

Status of the initial mission findings

Suggestion 16 (S16) remains open as MoH has not yet clarified the specific requirements needed to provide adequate safety and radiation protection of external workers.

Recommendation 24 (R24) is closed on the basis of progress made and confidence in the effective completion as the draft Law “On the Regulation of Safety in Nuclear Energy” which will include requirements for the conditions of service in line with the IAEA safety standards is expected to come into force in approximately one year.

Suggestion 17 (S17) is closed as the MoH has taken appropriate actions to improve the content and the access to the national register of individual dose records for the occupationally exposed workers.

Suggestion 18 (S18) is closed as MES and MoH stress the need for use of personal dosimetry with all inspectors, and have proceeded to the evaluation, procurement, and use of measuring devices to support independent field measurements by inspectors.

Suggestion 19 (S19) is closed as requirements for the qualifications of the radiation safety specialists have been established and arrangements for their training and certification are defined in the legislation.

11.3. CONTROL OF RADIOACTIVE DISCHARGES, MATERIALS FOR CLEARANCE

2016 MISSION RECOMMENDATIONS, SUGGESTIONS	
Observation: <i>The procedure for clearance of radioactive materials from regulatory control has not been established. Development of a clearance procedure is part of the action plan.</i>	
(1)	BASIS: GSR Part 3 Requirement 8, para. 3.12 states that <i>“The regulatory body shall approve which sources, including materials and objects, within notified or authorized practices may be cleared from regulatory control, using as the basis for such approval the criteria for clearance specified in Schedule I or any clearance levels specified by the regulatory body on the basis of these criteria. By means of this approval, the regulatory body shall ensure that sources that have been cleared from regulatory control do not again become subject to the requirements for notification, registration or licensing unless it so specifies.”</i>
(2)	BASIS: GSR Part 1 para. 4.26 states that <i>“The regulatory process shall be a formal process that is based on specified policies, principles and associated criteria, and that follows specified procedures in the management system.”</i>
S20	Suggestion: MES/Gosatomnadzor should consider establishing a procedure for clearance of radioactive materials.
Observation: <i>The authorized limits for NPP discharges and dose criteria for radioactive waste management facilities discharges are established in MoH regulations. There is no procedure within the licensing process to establish or approve authorized limits for discharges for facilities other than NPPs.</i>	
(1)	BASIS: GSR Part 3 Requirement 29, para. 3.123 states that <i>“The regulatory body shall establish or approve operational limits and conditions relating to public exposure, including authorized limits for discharges. These operational limits and conditions:...(b) Shall correspond to doses below the dose limits with account taken of the results of optimization of protection and safety;...”</i>
(2)	BASIS: GSR Part 3 Requirement 31, para. 3.132 states that <i>“Registrants and licensees in applying for an authorization for discharges, as appropriate:</i> <ul style="list-style-type: none"> <i>a) Shall determine the characteristics and activity of the material to be discharged, and the possible points and methods of discharge;</i> <i>b) Shall determine by an appropriate pre-operational study all significant exposure pathways by which discharged radionuclides could give rise to exposure of members of the public;</i> <i>c) Shall assess the doses to the representative person due to the planned discharges;</i> <i>d) Shall consider the radiological environmental impacts in an integrated manner with features of the system of protection and safety, as required by the regulatory body;</i> <i>e) Shall submit to the regulatory body the findings of (a)–(d) above as an input to the establishment by the regulatory body, in accordance with para. 3.123, of authorized limits on discharges and conditions for their implementation.”</i>
R25	Recommendation: MES should revise licensing process for facilities other than NPP with provisions for discharge limits authorization as appropriate.

Changes since the initial IRRS mission

Suggestion 20: The MoH is revising the standard entitled “Criteria for Assessing Radiation Impact”, which establishes the criteria for the release of radioactive materials from regulatory control.

Gosatomnadzor is in the process of developing draft regulatory requirements for the clearance of radioactive materials within the implementation framework of Component D “Support in the development of activities for the management of radioactive waste and spent nuclear fuel” of the international technical assistance project BY3.01/16 “Support and assistance in developing the capacity of the Belarusian regulatory body in the field of nuclear and radiation safety”.

Recommendation 25: MES prepared a draft Resolution “On the Requirements for the Composition and Content of Documents Substantiating Nuclear and Radiation Safety” to implement the Decree of the President of the Republic of Belarus dated April 5, 2021, No.137 “On Regulation of Activities on Nuclear Power and Ionizing Radiation Sources”. In this respect, suggestions are being developed concerning the inclusion in the authorization documents of the limits of permissible emissions and discharges of radioactive substances into the environment, as appropriate.

Additionally, an Order on the procedure for the development and approval of standards for permissible emissions and discharges of radioactive substances into the environment was approved by the Statute of the Council of Ministers of the Republic of Belarus dated August 21, 2020, No. 497.

Status of the initial mission findings

Suggestion 20 (S20) is closed on the basis of progress made and confidence in the effective completion as MoH established criteria for the clearance of radioactive materials, while Gosatomnadzor together with MoH are developing the corresponding procedure.

Recommendation 25 (R25) is closed on the basis of progress made and confidence in the effective completion as MES has initiated actions for the inclusion of provisions for discharge limits authorization in the licensing process of facilities other than NPPs.

APPENDIX I - LIST OF PARTICIPANTS

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APPENDIX II - MISSION PROGRAMME

Time	Sun 5 December	Mon 6 December	Tue 7 December	Wed 8 December	Thu 9 December	Fri 10 December	Sat 11 December	Sun 12 December	Mon 13 December
9:00-10:00	Team Arrival	Entrance Meeting	Interviews	Interviews	Discussion of findings/ report by the team	Individual reading of the report	Written comments presented by the Host		Final Draft to the Host Exit Meeting
10:00-11:00						Discussion of results of cross-reading			
11:00-12:00						Collective reading of the report			
13:00-14:00	Initial Team Meeting	Interviews	Interviews	TM finalize findings/ TM write report	Discussion of findings with counterpart	Finalise draft Report	Review of host's comments		Departures of Team Members
14:00-15:00						Review of the Executive Summary			
15:00-16:00						Submission of Report to IRRS Admin			
16:00-17:00			Team revises report based on discussions	Submission of the Draft Report to the Host					
17:00-18:00			Daily Team Meeting	Daily Team Meeting	Daily Team Meeting	Daily Team Meeting	Discussion with the Host		
20:00-24:00			Daily Team Meeting	Daily Team Meeting	Daily Team Meeting	Daily Team Meeting	Preparation of the press release		
		TM write findings	Secretariat edits findings TM write report	Secretariat edits report TM Read Draft	Cross reading TL drafts Executive Summary	Host reads report TL prepares presentation			

APPENDIX III - MISSION COUNTERPARTS

IRRS Experts	COUNTERPART
1.	RESPONSIBILITIES AND FUNCTIONS OF THE GOVERNMENT
Georg Schwarz Ritva Bly	A.N. Dokuchaev (Gosatomnadzor) G.A. Astashko (Gosatomnadzor) D.E. Pavlov (Gosatomnadzor) T.A. Bosenko (Gosatomnadzor) O.V. Sobolev (Gosatomnadzor) E.V. Zhigalko (Gosatomnadzor)
2.	THE GLOBAL SAFETY REGIME
Georg Schwarz Ritva Bly Hatem Khouaja	A.N. Dokuchaev (Gosatomnadzor) O.V. Sobolev (Gosatomnadzor) N.V. Danilenko (Gosatomnadzor)
3.	RESPONSIBILITIES AND FUNCTIONS OF THE REGULATORY BODY
Georg Schwarz Ritva Bly Hatem Khouaja	G.A. Astashko (Gosatomnadzor) L.F. Dedul (Gosatomnadzor) D.E. Pavlov (Gosatomnadzor) T.A. Bosenko (Gosatomnadzor) M.V. Mazurenko (Gosatomnadzor) N.V. Gorelik (Gosatomnadzor)
4.	MANAGEMENT SYSTEM OF THE REGULATORY BODY
Jovica Bosnjak	A.N. Dokuchaev (Gosatomnadzor) T.A. Bosenko (Gosatomnadzor)

	IRRS Experts	COUNTERPART
5.	AUTHORIZATION	
	Naveed Maqbul Dimitry Bokov	L.F. Dedul (Gosatomnadzor) N.V. Gorelik (Gosatomnadzor) D.E. Gorshkov (Gosatomnadzor) E.V. Zhigalko (Gosatomnadzor) S.S. Tretyakevich (Gosatomnadzor) I.V. Tkachonok (Gosatomnadzor) E.N. Gordeiuk (Gosatomnadzor)
6.	REVIEW AND ASSESSMENT	
	Naveed Maqbul Dimitry Bokov	O.M. Lugovskaya (Gosatomnadzor) V.V. Marukhian (Gosatomnadzor) S.S. Tretyakevich (Gosatomnadzor) I.P. Vitiaz (Gosatomnadzor) I.V. Tkachonok (Gosatomnadzor) E.N. Gordeiuk (Gosatomnadzor)
7.	INSPECTION	
	Theresa Clark Hatem Khouaja Naveed Maqbul Dimitry Bokov	G.A. Astashko (Gosatomnadzor) M.V. Mazurenko (Gosatomnadzor) A.V. Bylinskiy I.V. Tkachonok (Gosatomnadzor)
8.	ENFORCEMENT	
	Theresa Clark Hatem Khouaja Naveed Maqbul Dimitry Bokov	G.A. Astashko (Gosatomnadzor) E.V. Zhigalko (Gosatomnadzor) M.V. Mazurenko (Gosatomnadzor) I.V. Tkachonok (Gosatomnadzor)

	IRRS Experts	COUNTERPART
9.	REGULATIONS AND GUIDES	
	Naveed Maqbul Dimitry Bokov	O.M. Lugovskaya (Gosatomnadzor) G.A. Astashko (Gosatomnadzor) E.V. Zhigalko (Gosatomnadzor) D.E. Pavlov (Gosatomnadzor)
10.	EMERGENCY PREPAREDNESS AND RESPONSE – REGULATORY ASPECTS	
	Adriana Baci	L.F. Dedul (Gosatomnadzor) V.S. Antonova (Gosatomnadzor) Z.I. Trafimchik. (Ministry of Natural Resources and Environmental Protection) A.M. Shaibak (Ministry of Natural Resources and Environmental Protection) A.V. Zamaro (Ministry of Natural Resources and Environmental Protection)
11.	ADDITIONAL AREAS	
	Sotiris Economides	E.V. Nikolaenko (MoH) L.F.Rozdyalovskaya (MoH) V.V. Kliaus (MoH) V.V. Sineiko (MoH) I.I. Minailo (MoH) I.G.Tarutin (MoH) S.A. Khoruzhik (MoH) N.G. Vlasova (MoH) K.N. Buzdalkin (MoH) E.A. Drozd (MoH) I.V. Tkachonok (Gosatomnadzor) N.V. Sokolova (Gosatomnadzor)

APPENDIX IV - RECOMMENDATIONS (R) AND SUGGESTIONS (S) FROM THE PREVIOUS IRRS MISSION THAT REMAIN OPEN

Section	Module	R/S	Recommendation/Suggestion
7.2	7	R15	Gosatmnadzor should fully implement a graded approach for carrying out inspections at the nuclear power plants.
8.1	8	S12	Gosatmnadzor should consider improving the procedure for determining the safety significance of inspection findings to imply the appropriate enforcement action.
9.1	9	R17	<p>The MES and MoH should:</p> <ul style="list-style-type: none"> • complete efforts to clarify the legal status of TCPs in the area of radiation and nuclear safety, • continue developing and revising regulations and guides to avoid overlaps and/or inconsistency and to be in line with IAEA safety standards.
11.1	11	R23	<p>The MoH should revise the regulations to</p> <ul style="list-style-type: none"> • include a requirement <ul style="list-style-type: none"> ○ for using medical physicists in optimizing medical exposures and ○ for a referral process for asymptomatic exposure and self-referred patients; • remove dose limits for medical exposures and <p>establish specific criteria for releasing patients after I-131 therapy.</p>
11.2	11	S16	The regulatory bodies should consider updating requirements needed to provide adequate safety and radiation protection of external workers.

APPENDIX V - RECOMMENDATIONS (RF), SUGGESTIONS (SF) AND GOOD PRACTICES (GPF) FROM THE 2021 IRRS FOLLOW UP MISSION

Section	Module	RF/SF/GPF	Recommendation, Suggestion or Good Practice
3.3	3	SF1	Gosatomnadzor should consider expanding its competency development programmes in the areas of emerging technical challenges for the operating phase of the Belarusian NPP, so that its staff continues to have sufficient technical knowledge to manage and evaluate the work of the TSO.
7.2	7	SF2	Gosatomnadzor should consider expanding its current training planning into a longer-term (multi-year) staff development approach as well as other activities aimed at knowledge management and staff retention that will be sustainable during the operational phase of the Belarusian NPP, including addressing new technical areas of specialization needed.

APPENDIX VI - REFERENCE MATERIAL PROVIDED BY GOSATOMNADZOR

International legal acts

1. Agreement between the Ministry for Emergency Situations of the Republic of Belarus and the State Atomic Energy Safety Inspectorate of the Republic of Lithuania on Prompt Notification of a Nuclear Accident and exchange of information on nuclear Installations and Nuclear Activities (signed by the Belarusian side on May 8, 2020, entered into force on May 25, 2020).
2. Memorandum of Understanding between the Ministry for Emergency Situations of the Republic of Belarus and the UAE Federal Agency for Nuclear Regulation (FANR) on cooperation, training of specialists and exchange of information in the field of prevention and response to nuclear and radiation emergencies, radiation safety and regulatory activities (signed on July 31, 2020).
3. Memorandum of Understanding between the Department of Nuclear and Radiation Safety of the Ministry for Emergency Situations of the Republic of Belarus and the Agency for Nuclear Regulation of the Republic of Turkey on cooperation and exchange of information in the field of nuclear safety and radiation protection (signed on August 17, 2020).
4. Agreement between the Government of the Republic of Belarus and the Government of the Republic of Poland on early notification of nuclear accidents and cooperation in the field of radiation safety (signed on 26 October 1994).
5. Agreement between the Government of the Republic of Belarus and the Government of the Republic of Austria on the exchange of information and cooperation in nuclear safety and radiation protection (signed on 9 June 2000).
6. Agreement between the Government of the Republic of Belarus and the Government of the Republic of Armenia "On the exchange of information and cooperation in the field of nuclear safety and radiation protection "(signed on May 13, 2013).
7. The Agreement between the Government of the Republic of Belarus and the Government of the Russian Federation on prompt notification of a Nuclear Accident and exchange of Information in the field of Nuclear and Radiation Safety (signed on December 13, 2013) and the Protocol between the Ministry of Emergency Situations of the Republic of Belarus and the State Atomic Energy Corporation Rosatom on the implementation of practical measures to fulfill the obligations provided for in the Agreement (2017).
8. Agreement between the Government of the Republic of Belarus and the Government of the Republic of Latvia on early notification of a nuclear accident and exchange of information and cooperation in nuclear safety and radiation protection (signed on 7 February 2018, approved August 29, 2018).
9. The agreement on the transboundary movement of radioactive materials in the States – participants of Commonwealth of Independent States (signed on 6 November 2020).
10. Agreement between the Ministry of Emergency Situations of the Republic of Belarus and the State Nuclear Regulatory Inspectorate of Ukraine on cooperation in the field of nuclear and radiation safety (signed on September 5, 2013).
11. Agreement between the Ministry of Emergency Situations of the Republic of Belarus and the Federal Service for Environmental, Technological and Nuclear Supervision (Russian

Federation) on cooperation in the field of regulation of nuclear and radiation safety in the use of atomic energy (signed on December 20, 2013).

12. Memorandum of Understanding between the Ministry of Emergency Situations of the Republic of Belarus and the Hungarian Atomic Energy Agency in the field of peaceful uses of atomic energy (signed on September 26, 2016).

13. Memorandum of Understanding between the Ministry of Emergency Situations of the Republic of Belarus and the Norwegian Radiation Protection Agency (NRPA), the Finnish Nuclear Safety Agency (STUK) and the Swedish Radiation Protection Agency on cooperation and information exchange (SSM) (signed on September 28, 2016.).

14. Memorandum of Understanding between the Ministry of Emergency Situations of the Republic of Belarus and the Atomic Supervision Committee of the Slovak Republic on information exchange and cooperation in the field of state regulation of nuclear safety (signed on April 28, 2017, entered into force on October 1, 2017).

15. Memorandum of Understanding between the Ministry of Emergency Situations of the Republic of Belarus and the Nuclear Safety Administration of the Republic of Slovenia on the exchange of information on nuclear and radiation safety (signed on November 8, 2018).

16. Framework agreement on cooperation in the field of nuclear safety between the Ministry of Emergency Situations of the Republic of Belarus and the Society for Technical and Nuclear Safety (GRS) of the Federal Republic of Germany (signed on October 14, 2010).

17. Framework agreement on cooperation in the field of nuclear and radiation safety between the Department for Nuclear and Radiation Safety of the Ministry of Emergency Situations of the Republic of Belarus and the Institute for Radiation Protection and Nuclear Safety (France) (signed on August 5, 2014).

18. Agreement on scientific and technical cooperation between the state scientific and technical institution «Center for Nuclear and Radiation Safety» of the Ministry of Emergency Situations of the Republic of Belarus, the state enterprise «State Scientific and Technical Center for Nuclear and Radiation Safety» of the State Inspectorate for Nuclear Regulation of Ukraine and the National Academy of Sciences of Ukraine (signed on December 3, 2018).

19. Framework agreement on scientific and technical cooperation between the state scientific and technical institution «Center for Nuclear and Radiation Safety» of the Ministry of Emergency Situations of the Republic of Belarus and the Federal Budgetary Institution «Scientific and Technical Center for Nuclear and Radiation Safety» of the Federal Service for Environmental, Technological and Nuclear Supervision (Russian Federation) (signed on March 27, 2019).

Codes

20. Code of the Republic of Belarus on Administrative Offenses dated January 6, 2021 No. 91-Z.

21. Procedural and Executive Code of the Republic of Belarus on Administrative Offenses dated January 6, 2021 No. 92-Z.

Laws of the Republic of Belarus

22. Law dated October 4, 2014 No 122-3 «On the basics of activities for the prevention of offenses».
23. Law dated June 18, 2019 No. 198-Z «On radiation safety».
24. Law dated July 15, 2019 No. 217-Z «On sanitary and epidemiological welfare of the population».
25. Law dated July 30, 2008, No. 426-Z «On use of atomic energy».
26. Law dated 16 December 2008 No. 2-Z «On atmospheric air protection».
27. Law dated July 25, 2004 No. 300-Z «On architectural, urban planning and construction activities in the Republic of Belarus».
28. Law dated May 5, 1998, No. 141-3 «On protection of population and territories from emergency situations of natural and technogenic character».
29. Law dated September 5, 1995, No. 3448-XII «On ensuring the unity of measurements».
30. Law dated June 15, 1993, No. 2403-XII «On fire».
31. Law dated November 26, 1992, No. 1982-XII «On environmental protection».
32. Law dated June 18, 1993 No. 2435-XII «On health care».
33. Law dated July 18, 2016 No. 399-Z «On the environmental impact assessment, strategic environmental assessment and impact assessment on the environment».
129. Law dated July 17, 2018 No. 130-3 «On regulatory legal acts».
130. Law dated January 5, 2004 No. 262-3 «On technical regulation and standardization».

Decrees of the President of the Republic of Belarus

34. Decree of the President of the Republic of Belarus dated April 5, 2021 No. 137 «On the regulation of activities in the field of atomic energy and sources of ionizing radiation» (Regulation on licensing activities in the field of atomic energy and sources of ionizing radiation).
35. Decree of the President of the Republic of Belarus of January 26, 2021 No. 32 «On the funds of the Belarusian nuclear power plant».
36. Decree of the President of the Republic of Belarus of October 5, 2017 No. 361 «On the establishment of an institution».
37. Decree of the President of the Republic of Belarus of February 16, 2015 No. 62 «On ensuring safety during the construction and operation of the Belarusian nuclear power plant».
38. Decree of the President of the Republic of Belarus of September 1, 2010 No. 450 «On licensing certain types of activities».
39. Decree of the President of the Republic of Belarus of December 29, 2006 No. 756 «On some issues of the Ministry of Emergency Situations» (Regulation on the Department of Nuclear and Radiation Safety of the Ministry of Emergency Situations of the Republic of Belarus).

40. Decree of the President of the Republic of Belarus «On the development of entrepreneurship» dated November 23, 2017 No. 7.
41. Decree of the President of the Republic of Belarus dated October 16, 2009 No. 510 «On improving control (supervisory) activities in the Republic of Belarus».
42. Decree of the President of the Republic of Belarus dated April 26, 2010 No. 200 «On administrative procedures carried out by state bodies and other organizations upon applications from citizens».

Statutes of the Council of Ministers of the Republic of Belarus

43. Statute of the Council of Ministers of the Republic of Belarus dated August 21, 2020 No. 497 «On the implementation of the Law of the Republic of Belarus dated June 18, 2019 No. 198-Z" On radiation safety «(Regulation on state supervision in the field of nuclear and radiation safety, Regulation on the procedure and criteria for classifying radioactive waste into radiation hazard classes, Regulation on the procedure for the development and approval of standards for permissible emissions and discharges of radioactive substances into the environment, Regulation on the procedure for certification of workers, individual entrepreneurs providing consulting services in the field of radiation safety, Regulation on the procedure for state registration of the type of ionizing radiation source).
44. Statute of the Council of Ministers of the Republic of Belarus dated July 29, 2020 No. 443 «On the radiation-hygienic passport of the user of an ionizing radiation source» (Instruction on the procedure for maintaining and using the radiation-hygienic passport of the user of an ionizing radiation source).
45. Statute of the Council of Ministers of the Republic of Belarus dated March 24, 2020 No. 168 «On approval of specific sanitary and epidemiological requirements».
46. Statute of the Council of Ministers of the Republic of Belarus dated June 14, 2019 No. 385 «On physical protection of nuclear facilities».
47. Statute of the Council of Ministers of the Republic of Belarus dated April 24, 2019 No. 258 «On approval of the Regulation on public hearings on the safety regulation of the Belarusian nuclear power plant».
48. Statute of the Council of Ministers of the Republic of Belarus dated June 21, 2016 No. 479 «On approval of the concept of creating a system of situational crisis centers in the Republic of Belarus».
49. Statute of the Council of Ministers of the Republic of Belarus dated February 25, 2015 No. 133 «On approval of the regulation on the organization and implementation of control (supervision) over safety during the construction and commissioning of the Belarusian nuclear power plant».
50. Statute of the Council of Ministers of the Republic of Belarus dated March 17, 2014 No. 224 «On approval of the Regulation on the procedure for maintaining the state system of accounting and control of nuclear materials in the Republic of Belarus».
51. Statute of the Council of Ministers of the Republic of Belarus dated July 11, 2012 No. 635 «On some issues of sanitary and epidemiological well-being of the population» («Regulations on the procedure and conditions for conducting state sanitary and hygienic examination of a business entity for the production of food products»).

52. Statute of the Council of Ministers of the Republic of Belarus dated February 17, 2012 No. 156 «On approval of a unified list of administrative procedures carried out by state bodies and other organizations in relation to legal entities and individual entrepreneurs».
53. Statute of the Council of Ministers of the Republic of Belarus dated December 30, 2011 No. 1791 «On the creation of a working group to coordinate the implementation of state control (supervision) over the construction of a nuclear power plant».
54. Statute of the Council of Ministers of the Republic of Belarus dated June 6, 2011 No. 716 «On Approval of the Regulation on the Procedure for Acceptance of Construction Objects into Operation».
55. Statute of the Council of Ministers of the Republic of Belarus dated December 7, 2010 No. 1781 «On approval of the Regulation on the procedure for the examination of documents substantiating nuclear and radiation safety in the implementation of activities in the field of the use of atomic energy and sources of ionizing radiation».
56. Statute of the Council of Ministers of the Republic of Belarus dated August 27, 2010 No. 1242 «On approval of the Regulation on the conditions and procedure for the development of emergency plans».
57. Statute of the Council of Ministers of the Republic of Belarus dated December 31, 2009 No. 1748 «On approval of the technical regulations of the Republic of Belarus «Buildings and structures, construction materials and products. Security» (TP 2009/013/BY)».
58. Statute of the Council of Ministers of the Republic of Belarus dated April 30, 2009 No. 560 «On approval of the Regulation on the procedure for interaction of republican bodies and organizations upon detection of sources of ionizing radiation, as well as in the event of their arrest while moving across the State border of the Republic of Belarus».
59. Statute of the Council of Ministers of the Republic of Belarus of September 23, 2008 No. 1397 «On some issues of the order of movement of certain types of goods across the State border of the Republic of Belarus».
60. Statute of the Council of Ministers of the Republic of Belarus dated August 23, 2001 No. 1280 «On the procedure for collecting information in the field of protecting the population and territories from natural and man-made emergencies and exchanging this information».
61. Statute of the Council of Ministers of the Republic of Belarus dated April 10, 2001 No. 495 «On the state system for the prevention and elimination of emergency situations».

Resolutions of the Ministry for Emergency Situations

62. Resolution of the Ministry for Emergency Situations of the Republic of Belarus dated January 21, 2021 No. 4 «On the procedure and criteria for classifying ionizing radiation sources into categories according to the degree of radiation hazard».
63. Resolution of the Ministry for Emergency Situations of the Republic of Belarus dated April 13, 2020 No. 16 «On accounting and control of ionizing radiation sources» (together with «Instruction on the procedure for accounting and control of sources of ionizing radiation»).
64. Resolution of the Ministry for Emergency Situations of the Republic of Belarus dated April 13, 2020 No. 17 «On the examination of safety in the field of using sources of ionizing radiation» (together with the "Instruction on the procedure for conducting a safety examination in the field of using sources of ionizing radiation»).

65. Resolution of the Ministry for Emergency Situations of the Republic of Belarus dated April 16, 2020 No. 18 «On training and verification (assessment) of knowledge on nuclear and radiation safety» (together with «Instruction on the procedure for training and verification (assessment) of knowledge on nuclear and radiation safety»).
66. Resolution of the Ministry for Emergency Situations of the Republic of Belarus dated April 16, 2020 No. 19 «On a unified register of certified consultants in the field of radiation safety» («Instruction on the procedure for maintaining a unified register of certified workers, individual entrepreneurs providing consulting services in the field of radiation safety»).
67. Resolution of the Ministry for Emergency Situations of the Republic of Belarus dated April 25, 2019 No. 35 «On lists of works (services) and equipment for nuclear facilities».
68. Resolution of the Ministry for Emergency Situations of the Republic of Belarus of August 17, 2018 No. 46 «On the composition and content of documents substantiating nuclear and radiation safety in the implementation of activities in the field of the use of atomic energy and sources of ionizing radiation».
69. Resolution of the Ministry for Emergency Situations of the Republic of Belarus dated April 29, 2016 No. 25 «On establishing the form of permission for the right to conduct work in the implementation of activities for the use of atomic energy».
70. Resolution of the Ministry for Emergency Situations of the Republic of Belarus dated October 13, 2015 No. 40 «On some issues of accounting for inspections at the site of the Belarusian nuclear power plant».
71. Resolution of the Ministry for Emergency Situations of the Republic of Belarus dated January 24, 2011 No. 4 «On drawing up protocols and preparing cases of administrative offenses».
72. Resolution of the Ministry for Emergency Situations of the Republic of Belarus dated April 30, 2009 No. 21 «On approval of the Instruction on the procedure for the development, coordination and approval of a radioactive waste management scheme».
73. Resolution of the Ministry for Emergency Situations of the Republic of Belarus dated July 29, 2008 No. 80 «On approval of the Instruction on the procedure for organizing the investigation of accidents, catastrophes, disasters leading to emergencies of a natural and technical nature».
74. Resolution of the Ministry for Emergency Situations of the Republic of Belarus dated December 30, 2006 No. 72 «On Approval of Regulatory Legal Acts in the Field of Nuclear Safety»).
75. Resolution of the Ministry for Emergency Situations of the Republic of Belarus dated November 30, 2010 No. 54 «On approval of the Instruction on the procedure for granting permission to conduct a safety review in the field of the use of atomic energy and sources of ionizing radiation».
76. Resolution of the Ministry for Emergency Situations of the Republic of Belarus dated May 11, 2010 No. 19 «On approval of norms and rules for ensuring nuclear and radiation safety» («Rules for the design and operation of ventilation systems important for the safety of nuclear power plants»; «Rules for the provision of hydrogen explosion protection at nuclear power plants with VVER reactors»).
77. Resolution of the Ministry for Emergency Situations of the Republic of Belarus dated December 13, 2010 No. 64 «On approval of norms and rules for ensuring nuclear and radiation

safety» Requirements for the structure and content of the report on the safety analysis of radioactive waste management facilities».

78. Resolution of the Ministry for Emergency Situations of the Republic of Belarus dated September 28, 2010 No. 47 «On approval of norms and rules for ensuring nuclear and radiation safety» Safety in handling radioactive waste. General Provisions».

79. Resolution of the Ministry for Emergency Situations of the Republic of Belarus dated December 30, 2011 No. 73 «On approval of norms and rules for ensuring nuclear and radiation safety» Requirements for the structure and content of the report on the safety analysis of a radiation facility».

80. Resolution of the Ministry for Emergency Situations of the Republic of Belarus dated December 28, 2012 No. 73 «On approval of the Rules for ensuring the safety of transportation of dangerous goods by rail in the territory of the Republic of Belarus».

81. Resolution of the Ministry for Emergency Situations of the Republic of Belarus dated January 20, 2012 No. 7 «On approval of norms and rules for ensuring nuclear and radiation safety» («Disposal of radioactive waste. Principles, criteria and basic safety requirements»).

82. Resolution of the Ministry for Emergency Situations of the Republic of Belarus dated February 22, 2016 No. 11 «On establishing the form of an action plan to eliminate and (or) compensate for deviations affecting safety when carrying out activities in the field of atomic energy use».

83. Resolution of the Ministry for Emergency Situations of the Republic of Belarus dated June 30, 2016 No. 29 «On Approval of Norms and Rules for Ensuring Nuclear and Radiation Safety «Safety of Nuclear Power Plants in the Sanitary Protection Zone and the Observation Zone. Requirements for the organization and provision of radiation monitoring»).

84. Resolution of the Ministry for Emergency Situations of the Republic of Belarus dated April 12, 2017 No. 11 «On approval of norms and rules for ensuring nuclear and radiation safety» («Safety of nuclear power plants in the event of a nuclear and (or) radiological emergency. Requirements for planning and radiation monitoring»).

85. Resolution of the Ministry for Emergency Situations of the Republic of Belarus dated June 2, 2017 No. 24 «On approval of norms and rules for ensuring nuclear and radiation safety" Requirements for the composition and content of an action plan to protect NPP employees in the event of a radiation accident (internal emergency plan)».

86. Resolution of the Ministry for Emergency Situations of the Republic of Belarus dated June 12, 2017 No. 26 «On approval of norms and rules for ensuring nuclear and radiation safety» nuclear power plants; Equipment and pipelines of nuclear power plants. Welded joints and surfacing. Control rules; Equipment and pipelines of nuclear power plants. Welding and surfacing. Basic provisions; Basic provisions for welding elements of localizing safety systems of nuclear power plants).

87. Resolution of the Ministry for Emergency Situations of the Republic of Belarus dated July 27, 2017 No. 34 «On approval of norms and rules for ensuring nuclear and radiation safety» («Requirements for the implementation of modifications at nuclear power plants and their safety assessment»; «Requirements for the functioning of the system accounting and analysis of operational experience of nuclear power plants»).

88. Resolution of the Ministry for Emergency Situations of the Republic of Belarus dated August 21, 2017 No. 38 «On approval of norms and rules for ensuring nuclear and radiation

safety» («Requirements for categorizing emergency planning in the event of a nuclear and (or) radiological emergency»).

89. Resolution of the Ministry for Emergency Situations of the Republic of Belarus dated October 12, 2017 No. 43 «On approval of norms and rules for ensuring nuclear and radiation safety» (Safety rules for handling radioactive waste from nuclear power plants).

90. Resolution of the Ministry for Emergency Situations of the Republic of Belarus dated August 8, 2018 No. 43 «On approval of norms and rules for ensuring nuclear and radiation safety «Requirements for the composition and content of an action plan for personnel protection in the event of an accident at a research nuclear facility».

91. Resolution of the Ministry for Emergency Situations of the Republic of Belarus dated October 2, 2018 No. 52 «On approval of norms and rules for ensuring nuclear and radiation safety» («Safety of nuclear power plants in the event of a nuclear and (or) radiological emergency. Requirements for establishing a class emergency, the procedure for declaring an emergency, prompt transfer of information», «Safety of nuclear power plants. Requirements for the procedure for investigation and accounting of violations in the operation of nuclear power plants»).

92. Resolution of the Ministry for Emergency Situations of the Republic of Belarus dated December 6, 2018 No. 61 «On approval of norms and rules for ensuring nuclear and radiation safety» («Safety of nuclear power plants. Requirements for a program for managing the aging of nuclear power plants»).

93. Resolution of the Ministry for Emergency Situations of the Republic of Belarus dated February 22, 2019 No. 25 «On approval of norms and rules for ensuring nuclear and radiation safety» («Safety requirements for decommissioning radioactive waste storage facilities»).

94. Resolution of the Ministry for Emergency Situations of the Republic of Belarus dated February 22, 2019 No. 26 «On approval of norms and rules for ensuring nuclear and radiation safety» («Safety in handling nuclear materials. Requirements for accounting and control of nuclear materials»).

95. Resolution of the Ministry for Emergency Situations of the Republic of Belarus dated July 4, 2019 No. 44 «On approval of norms and rules for ensuring nuclear and radiation safety» («Requirements for the procedure for conducting periodic safety assessments of nuclear research facilities»).

96. Resolution of the Ministry for Emergency Situations of the Republic of Belarus dated July 16, 2019 No. 47 «On approval of norms and rules for ensuring nuclear and radiation safety» («Criteria for the acceptability of radioactive waste for disposal»).

97. Resolution of the Ministry for Emergency Situations of the Republic of Belarus dated November 16, 2019 No. 60 «On approval of norms and rules for ensuring nuclear and radiation safety» («Conceptual design of a physical protection system for nuclear facilities»).

98. Resolution of the Ministry for Emergency Situations of the Republic of Belarus dated April 13, 2020 No. 15 «On approval of norms and rules for ensuring nuclear and radiation safety» («General provisions for ensuring the safety of nuclear power plants»).

99. Resolution of the Ministry for Emergency Situations of the Republic of Belarus dated September 21, 2020 No. 36 «On approval of norms and rules for ensuring nuclear and radiation safety» («Safety of nuclear facilities. Requirements for the quality assurance program for the physical protection of nuclear facilities»).

100. Resolution of the Ministry for Emergency Situations of the Republic of Belarus dated October 19, 2020 No. 42 «On approval of norms and rules for ensuring nuclear and radiation safety» («Safety when handling sources of ionizing radiation. General provisions»).

101. Resolution of the Ministry for Emergency Situations of the Republic of Belarus dated April 7, 2021 No. 19 «On approval of norms and rules for ensuring nuclear and radiation safety» («Basic requirements for substantiating the strength and thermomechanical behavior of fuel assemblies and fuel elements in the water power reactors»).

102. Resolution of the Ministry for Emergency Situations of the Republic of Belarus dated April 22, 2021 No. 24 «On approval of norms and rules for ensuring nuclear and radiation safety» («Basic requirements for substantiating the strength of internals of reactors of the type of pressurized water reactors»).

103. Resolution of the Ministry for Emergency Situations of the Republic of Belarus dated April 29, 2021 No. 30 «On the approval of norms and rules for ensuring nuclear and radiation safety» («Rules for the design and safe operation of actuators for influencing reactivity»).

104. Resolution of the Ministry for Emergency Situations of the Republic of Belarus dated May 3, 2021 No. 32 «On approval of norms and rules for ensuring nuclear and radiation safety» («Near-surface disposal of radioactive waste. Safety requirements»).

105. Resolution of the Ministry for Emergency Situations of the Republic of Belarus dated May 17, 2021 No. 38 «On approval of norms and rules for ensuring nuclear and radiation safety» («Safety rules for storage and transportation of fresh nuclear fuel at nuclear facilities»).

106. Resolution of the Ministry for Emergency Situations of the Republic of Belarus dated May 18, 2021 No. 39 «On approval of norms and rules for ensuring nuclear and radiation safety» («Requirements for control systems important for the safety of nuclear power plants»; «Requirements for emergency power supply systems nuclear power plants»).

107. Resolution of the Ministry for Emergency Situations of the Republic of Belarus dated June 16, 2021 No. 42 «On approval of norms and rules for ensuring nuclear and radiation safety» («Nuclear safety rules for reactor facilities of nuclear power plants»).

108. Resolution of the Ministry for Emergency Situations of the Republic of Belarus dated June 30, 2021 No. 45 «On approval of norms and rules for ensuring nuclear and radiation safety» («Rules for the design and safe operation of equipment and pipelines of nuclear power plants, pipeline valves used for nuclear facilities», «Rules for the design and operation of localizing safety systems for nuclear power plants», «Rules for the design and safe operation of lifting machines and mechanisms used at nuclear facilities»).

109. Resolution of the Ministry of Emergency Situations of the Republic of Belarus dated April 12, 2017 No. 12 «On approval of norms and rules for ensuring nuclear and radiation safety» («Requirements for stress tests (targeted safety reassessment) of a nuclear power plant») (invalidated in connection with the adoption of the resolution of the Ministry of Emergency Situations of the Republic of Belarus dated July 22, 2021 No. 50).

110. Resolution of the Ministry for Emergency Situations of the Republic of Belarus «On the composition and content of documents containing the results of the periodic safety assessment of a nuclear installation, storage point» dated September 6, 2021 No.58.

111. Resolution of the Ministry for Emergency Situations of the Republic of Belarus «On the content of the report on the assessment of the current state of safety of a nuclear installation, storage facility or ongoing work and (or) services» dated September 6, 2021 No.59.

Resolutions of other republican government bodies (including joint)

112. Resolution of the Ministry of Architecture and Construction of the Republic of Belarus dated November 27, 2020 No. 95 «On approval and implementation of building codes SN 3.02.13-2020 «Radiation facilities».

113. Resolution of the Council of Ministers of the Republic of Belarus dated December 31, 2009 No. 1748 «On approval of the technical regulations of the Republic of Belarus» Buildings and structures, construction materials and products. Security» (TR 2009/013 / BY).

114. TCP 254-2010 «Fire safety of nuclear power plants. General requirements», approved by the resolution of the Ministry of Energy of the Republic of Belarus, the Ministry of Architecture and Construction of the Republic of Belarus and the Ministry for Emergency Situations of the Republic of Belarus dated August 10, 2010 No. 39.

115. TCP 389-2012 «Rules for Physical Protection of Ionizing Radiation Sources», approved by the resolution of the Ministry of Energy of the Republic of Belarus, the Ministry of Architecture and Construction of the Republic of Belarus and the Ministry of Emergency Situations of the Republic of Belarus dated May 18, 2012 No. 31/142/20.

116. TCP 505-2013 «Procedure for interaction in the systems of physical protection of nuclear facilities», approved by the decree of the Ministry of Energy of the Republic of Belarus, the Ministry of Architecture and Construction of the Republic of Belarus and the Ministry of Emergency Situations of the Republic of Belarus dated December 19, 2013 No. 70/553/55.

117. TCP 531-2014 «Procedure for analyzing the vulnerability of nuclear facilities and assessing the effectiveness of the physical protection system», approved by the Resolution of the Ministry of Energy of the Republic of Belarus, the Ministry of Architecture and Construction of the Republic of Belarus and the Ministry of Emergency Situations of the Republic of Belarus No. 8/110 dated April 7, 2014.

118. TCP 545-2014 «Ensuring the safety of dry storage facilities for spent nuclear fuel», approved by the resolution of the Ministry of Energy of the Republic of Belarus, the Ministry of Architecture and Construction of the Republic of Belarus and the Ministry of Emergency Situations of the Republic of Belarus dated September 9, 2014 No. 26.

119. TCP 101-2007 «Placement of Nuclear Power Plants. The procedure for the development of a general quality assurance program for a nuclear power plant», approved by the resolution of the Ministry of Energy of the Republic of Belarus, the Ministry of Architecture and Construction of the Republic of Belarus and the Ministry of Emergency Situations of the Republic of Belarus dated October 10, 2007 No. 35/17/86.

120. TCP 102-2007 «Placement of Nuclear Power Plants. The procedure for developing a quality assurance program for the selection of a site for a nuclear power plant», approved by the resolution of the Ministry of Energy of the Republic of Belarus, the Ministry of Architecture and Construction of the Republic of Belarus and the Ministry of Emergency Situations of the Republic of Belarus dated October 10, 2007 No. 35/17/86.

121. Regulations of the Committee for Supervision of Safe Conduct of Work in Industry and Nuclear Energy under the Ministry of Emergency Situations of the Republic of Belarus No. P-2 «Implementation of IAEA Safeguards» dated February 28, 1995.

Resolutions of the Ministry of Health

122. Instruction 2.6.1.10-13-43-2006 «The work of bodies and institutions exercising state sanitary supervision, in the section of radiation hygiene», approved by the decree of the Chief State Sanitary Doctor of the Republic of Belarus of November 22, 2006 No. 163.

123. Resolution of the Ministry of Health of the Republic of Belarus dated September 19, 2019 No. 97 «On the procedure for implementing measures of a technical (technological, verification) nature».

124. Resolution of the Ministry of Health of the Republic of Belarus of November 18, 2020 No. 105 «On the procedure for discharging patients who underwent therapeutic radiological procedures» (Instructions on the procedure for discharging patients who underwent therapeutic radiological procedures using open sources of ionizing radiation, patients with implanted sealed sources of ionizing radiation).

125. Resolution of the Ministry of Health of the Republic of Belarus dated November 27, 2020 No. 110 «On the procedure for recording radiation doses received by the population and personnel».

126. Order of the Ministry of Health of the Republic of Belarus dated October 31, 2016 No. 1059 «On approval of the Instruction on emergency preparedness planning for response to a radiation accident with medical ionizing radiation sources in healthcare organizations».

127. Order of the Ministry of Health of the Republic of Belarus of August 31, 2020

No. 881 «On the procedure for establishing and applying the limiting radiation doses and reference levels».

128. Order of the Ministry of Health of the Republic of Belarus dated December 8, 2020 No. 1304 «On divisions of radiation safety and dosimetry».

Orders of the Department of Nuclear and Radiation Safety of the Ministry for Emergency Situations (Gosatomnadzor)

131. Guidance on nuclear and radiation safety «The structure and content of the procedure for organizing and implementing industrial control over ensuring radiation safety», approved by the order of the Head of Gosatomnadzor dated August 5, 2020 No. 44.

132. Protocol on interaction between Ministry for Emergency Situations of the Republic of Belarus and Ministry of Health of the Republic of Belarus in the field of nuclear and radiation safety dated June 30, 2017.

133. Manual on Gosatomnadzor Integrated Management System, approved by order of the Head of Gosatomnadzor dated May 13, 2021 No. 35.

134. Strategy of Gosatomnadzor in the field of nuclear and radiation safety for 2021 - 2025, approved by the Decision of the Gosatomnadzor Board dated February 5, 2021.

135. Order of the Head of Gosatomnadzor dated September 25, 2018 No. 49 «On approval of the Instructions for the implementation of state supervision in the field of nuclear and radiation safety and control over compliance with legislation in the field of nuclear and radiation safety during the construction and commissioning of the Belarusian nuclear power plant, as well as at other facilities using atomic energy».

136. Instruction on the implementation of state supervision in the field of ensuring radiation safety of sources of ionizing radiation, approved by order order of the Head of Gosatomnadzor dated September 15, 2020 No. 51.

APPENDIX VII - IAEA REFERENCE MATERIAL USED FOR THE REVIEW

1. **IAEA SAFETY STANDARDS SERIES No. SF-1** - Fundamental Safety Principles
2. **IAEA SAFETY STANDARDS SERIES No. GSR PART 1** - Governmental, Legal and Regulatory Framework for Safety
3. **IAEA SAFETY STANDARDS SERIES No. GSR PART 3** - Radiation Protection and Safety of Radiation Sources: International Basic Safety Standards
4. **IAEA SAFETY STANDARDS SERIES No. GS-R-2** - Preparedness and Response for a Nuclear or Radiological Emergency
5. **IAEA SAFETY STANDARDS SERIES No. GS-R-3** - The Management System for Facilities and Activities
6. **IAEA SAFETY STANDARDS SERIES No. NS-R-1** – Safety of Nuclear Power Plants: Design
7. **IAEA SAFETY STANDARDS SERIES No. NS-R-2** – Safety of Nuclear Power Plants: Operation
8. **IAEA SAFETY STANDARDS SERIES No. NS-R-4** - Safety of Research Reactors
9. **IAEA SAFETY STANDARDS SERIES No. GS-G-1.1**- Organization and Staffing of the Regulatory Body for Nuclear Facilities
10. **IAEA SAFETY STANDARDS SERIES No. GS-G-1.2** - Review and Assessment of Nuclear Facilities by the Regulatory Body
11. **IAEA SAFETY STANDARDS SERIES No. GS-G-1.3**- Regulatory Inspection of Nuclear Facilities and Enforcement by the Regulatory Body
12. **IAEA SAFETY STANDARDS SERIES No. GS-G-1.4** - Documentation for Use in Regulatory Nuclear Facilities
13. **IAEA SAFETY STANDARDS SERIES No. GS-G-2.1** - Arrangements for Preparedness for a Nuclear or Radiological Emergency
14. **IAEA SAFETY STANDARDS SERIES No. GS-G-3.1** - Application of the Management System for Facilities and Activities
15. **IAEA SAFETY STANDARDS SERIES No. GS-G-3.2** - The Management System for Technical Services in Radiation Safety
16. **IAEA SAFETY STANDARDS SERIES No. RS-G-1.3** - Assessment of Occupational Exposure Due to External Sources of Radiation
17. **IAEA SAFETY STANDARDS SERIES No. RS-G-1.4** - Building Competence in Radiation Protection and the Safe Use of Radiation Sources
18. **IAEA SAFETY STANDARDS SERIES No. NS-G-2.10** - Periodic Safety Review of Nuclear Power Plants Safety Guide
19. **IAEA SAFETY STANDARDS SERIES No. NS-G-211** - A System for the Feedback of Experience from Events in Nuclear Installations Safety Guide
20. **INTERNATIONAL ATOMIC ENERGY AGENCY** - Convention on Early Notification of a Nuclear Accident (1986) and Convention on Assistance in the Case of a Nuclear Accident or Radiological Emergency (1987), Legal Series No. 14, Vienna (1987).

APPENDIX VIII - GOSATOMNADZOR ORGANIZATIONAL CHART

